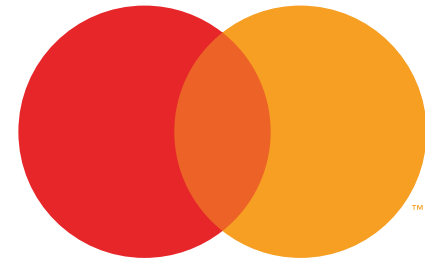




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**AGRIFIN  
ACCELERATE**  
**2ND ANNUAL LEARNING EVENT**  
Synthesis Report  
31 ST JANUARY 2018

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# AGRIFIN ACCELERATE 2ND ANNUAL LEARNING EVENT

Mercy Corps, in partnership with the MasterCard Foundation, hosted its 2nd Annual Learning Event for the AgriFin Accelerate Program (AFA) on January 31, 2018 in Nairobi, Kenya. Titled "Powering an Innovative Fintech Ecosystem for Africa's Smallholder Farmers: Emerging Frontiers and Opportunities", the event drew participants from around the world, highlighting new data and learning, to accelerate the uptake and scale up of innovative digital solutions for smallholder farmers. It featured dedicated experts on financial inclusion from banks, mobile network operators, agribusinesses, tech innovators, governments, and development partners in Kenya and across Africa. Through plenaries, workshops, and an innovations marketplace, the event brought together thought leaders and industry players to brainstorm collaborative solutions to increase financial inclusion and improve smallholder farmers' productivity and livelihoods.

"The challenges facing innovators in agriculture are remarkably similar. We need to tap into each other's experiences to help bridge the gaps in service delivery for farmers."

"Digital innovations are the right path to creating impactful value propositions for smallholder farmers"

– Post-Event Evaluation

## The Learning Event



*"We're encouraged by the progress Africa is making in technological innovations that will enable smallholder farmers to access digital financial services and markets more easily. We're proud of our partnership with Mercy Corps, which is contributing to the strengthening of smallholder farmers' capacity and skills to utilize digital information. Today's Learning Event demonstrates that we are one step closer to scaling up these digital finance innovations."*

– Olga Morawczynski, Program Manager, Financial Inclusion, Mastercard Foundation

## Mercy corps' agrifin accelerate program (afa)



Mercy Corps AFA is a US\$25 million, 6-year initiative supported by the Mastercard Foundation, expected to benefit 1 million smallholder farmers across Kenya, Tanzania, and Zambia. It aims to close the financial inclusion gap for smallholders with greater access to affordable, accessible, and demand driven financial products and services through digital solutions.

### AFA IN 2017

*“Smallholder farmers are the last great challenge for poverty alleviation and finance. And they also represent a wonderful market opportunity as they make up 70% of the population in Sub-Saharan Africa. Digital technology provides the pathway to reaching remote areas, gathering data, and delivering services like access to finance, markets, and tools that can drive up farmer productivity and income - creating win-wins for providers and customers.”*

– Leesa Shrader, Program Director, AFA

# 3<sup>RD</sup>

Year of the program

# 3.

Countries (Kenya, Tanzania, Zambia)

# 40.

Partners (banks, mobile network operators, agricultural companies, tech companies, and more)

# 60.

Innovation projects through 48 partner engagements

# 150.

Tech innovators targeting smallholder farmers

# 403,623.

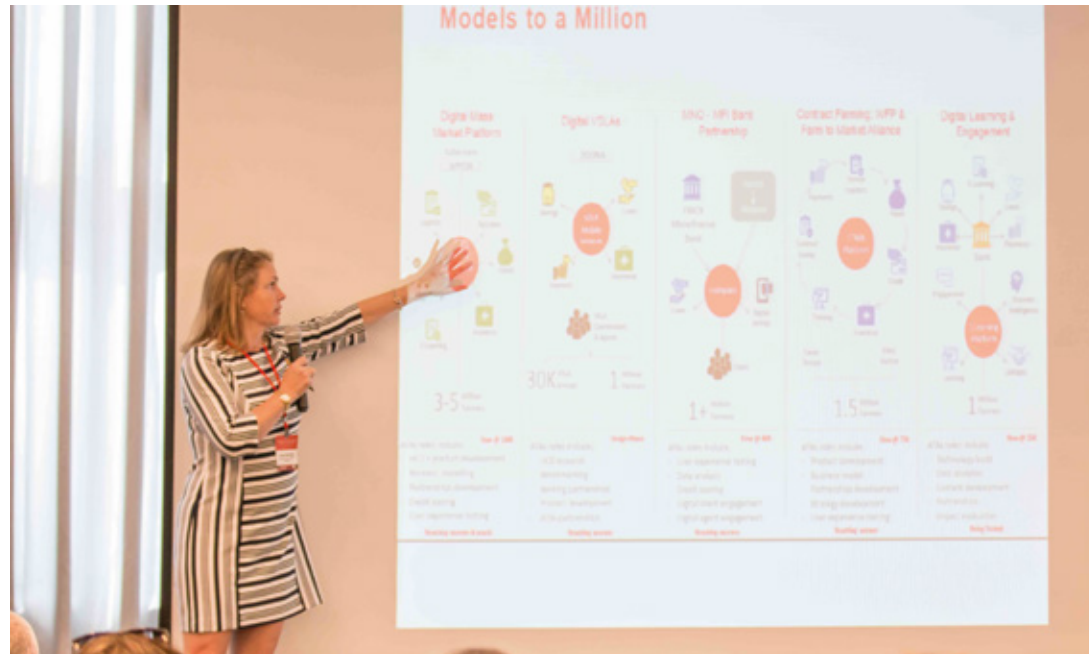
Farmers reached (exceeding the 170,000 mid-point target)

# 95%

Of those reached are using diverse Digital Financial Services

# OPENING PLENARY

## Creating an Enabling Environment to Scale Rural Digital Solutions



**SPEAKER 1: LEESA SHRADER**  
PROGRAM DIRECTOR, MERCY CORPS AFA

The Agrifin Accelerate (AFA) Program is based on the premise that technology is the pathway to delivering financial services to smallholder farmers in remote areas. The initiative seeks to serve as a product innovation partner to leverage technology solutions that will reach smallholders at scale. The focus on smallholder farmers is driven by the fact that they are the largest population in the world living in poverty (less than \$2/day), and they produce 80% of the food consumed in Africa. The AFA Program works in Kenya, Zambia, and Tanzania with five focal points for innovation (Figure 1).

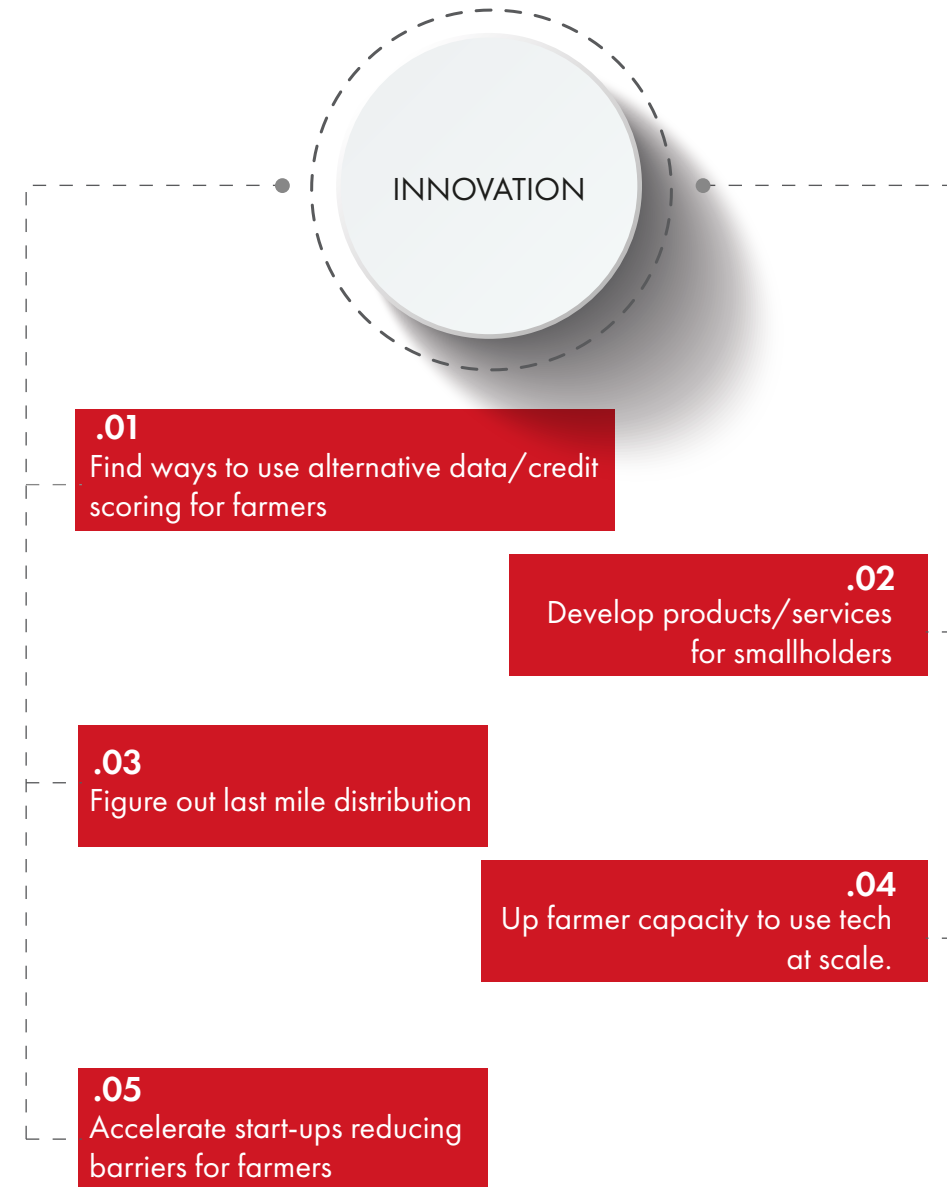


Figure 1: AFA's 5 Focal Points for Innovation

In 2017, AFA reached the half-way point of its 6-year programming. Schrader explained that the program engaged 403,623 smallholder farmers with digital services, including 381,000 using digital financial services. The figures far surpassed the program's mid-term target of reaching 170,000 farmers by the end of the year three. Other highlights from 2017 included:

- Launching the DigiFarm platform with Safaricom as a one-stop service for smallholder farmers. By year's end, DigiFarm had topped 170,000 users (see below for further discussion on DigiFarm). Going forwards, the program will focus on increasing activity rates and ensuring impact for farmers.
- Lifting off a partnership with the World Food Programme's Farm to Market Alliance in Kenya, Zambia, and Tanzania. The alliance's digital platform brings together farmers and buyers for direct transactions that improve the supply chain and increase prices for farmers.
- Establishing new partnerships in Tanzania, with FINCA (a micro-finance bank) and Halotel (a telecommunications company).
- Launching the AFA program in Zambia, including partnerships with Zoona (digital financial services) to offer over-the-counter money transfers and bill payments and with Financial Sector Deepening (FSD) Zambia to focus on access to finance for women smallholder farmers.
- Developing financial content for Don't Lose the Plot, a TV edutainment show targeting young farmers that reached 3.4 million viewers in Kenya, Tanzania, and Uganda. AFA's digital budgeting tool Budget Mkononi was the top Twitter hashtag in Kenya when it was launched and is the most popular page on the show's website (interactive information service).
- Expanding AFA's partnership with Arifu (to go to scale).
- Digitizing Village Savings & Loans approaches for women in Zambia and Tanzania
- Using data analytics to drive agile insights with Coop Bank, Equity Bank, and Halotel.
- Applying human-centered design and data analytics to reveal new learning on smallholder needs and preferences for digital & financial solutions.
- Active use of WhatsApp by partners in all three of the target countries to coordinate trainings and other activities, underscoring that rural Internet connectivity is happening.

Priorities for 2018 include:

- Closing the gender inclusion gap, knowing that currently 30% of clients for existing mass-market products are women
- Building android apps to aggregate farmers
- Seeing more farmers using smartphones and using smart interface as the conduit to aggregate access to smallholder farmers.

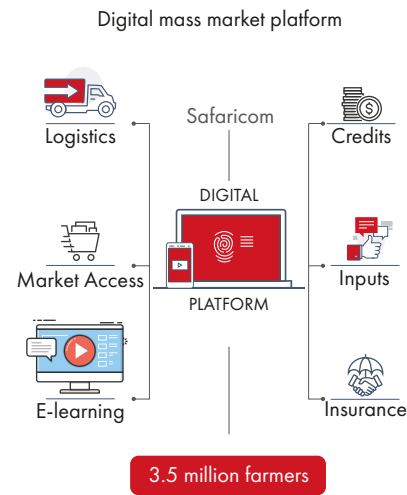
## Models to a Million

AFA's approach for reaching 1 million farmers in six years, called Models to a Million, includes five strategic areas of emphasis (Figure 2). The first involves partnerships and support around digital mass market platforms, such as M-PESA in Kenya, to create a digital marketplace for farmers to buy inputs, sell products, arrange transportation, get their soil tested, access advice, establish a credit identity and more. DigiFarm is an example, and the product with the biggest vision for digital smallholder farmer services. The program also is using digital technology to reach village savings and loans groups, building on their existing social cohesion to help reach the last mile. Solutions look to provide groups with services that are relevant to their members, such as mobile wallets, lending, credit scoring, access to insurance, and more. AFA also helps to ensure that products and services incorporate user perspectives and preferences. The program gathers and analyzes both qualitative and quantitative data to establish benchmarks of smallholder farmers' use of digital services and to better understand factors affecting their service adoption.

Working with mobile network operators and microfinance institutions, AFA is spurring the development of bundled digital products – built around core services and joined with value-added ones – to promote wider engagement from farmers and service agents. In addition, the collaboration with the World Food Programme's Farm to Market Alliance focuses on contract farming solutions that link farmers to top buyers, banks, insurance providers, and others. The project's platform keeps track of all the elements of the market cycle to ensure efficiencies and transparency. Finally, with partners such as Juntos and Arifu, AFA is working to keep farmers active in their own capacity strengthening and in ensuring that service provider remain attentive to them.

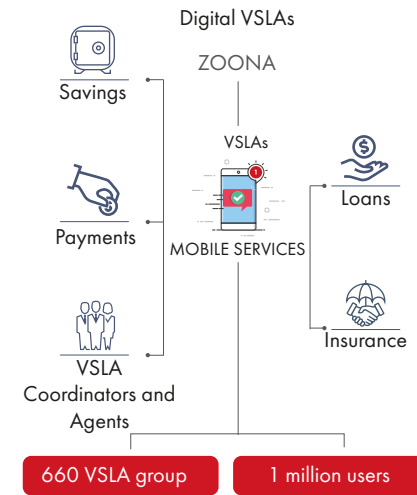
# Models to a million farmers

01



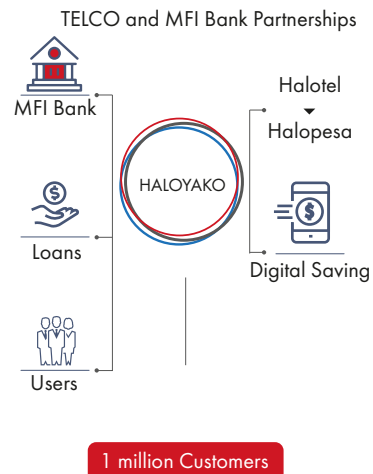
- AFAs roles include;
- Product development
  - Business model
  - Partnerships development
  - Credit scoring
  - User experience testing

02



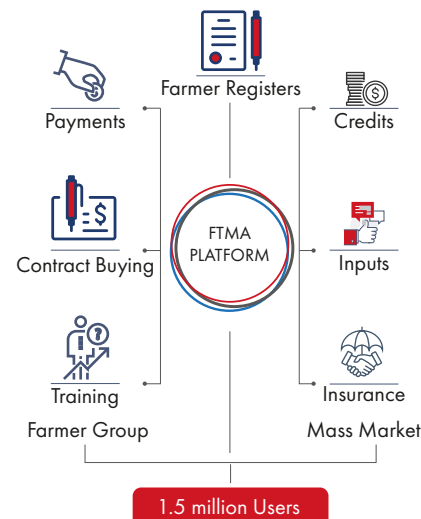
- AFAs roles include;
- HCD research
  - Benchmarking
  - Bank Partnerships
  - Product development

03



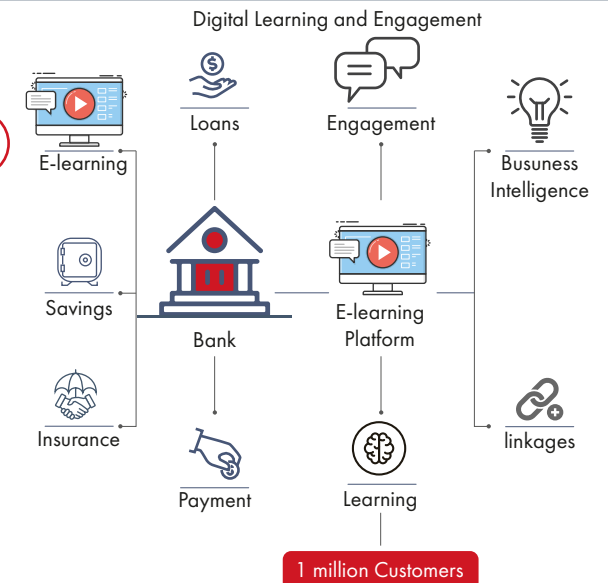
- AFAs roles include;
- User experience testing
  - Data Analysis
  - Human core design prod. dev
  - Digital client engagement

04



- AFAs roles include;
- Product development
  - Business model
  - Partnerships development
  - Credit scoring
  - User experience testing

05



- AFAs roles include;
- Technology build
  - Data Analytics
  - Content development
  - Partnerships

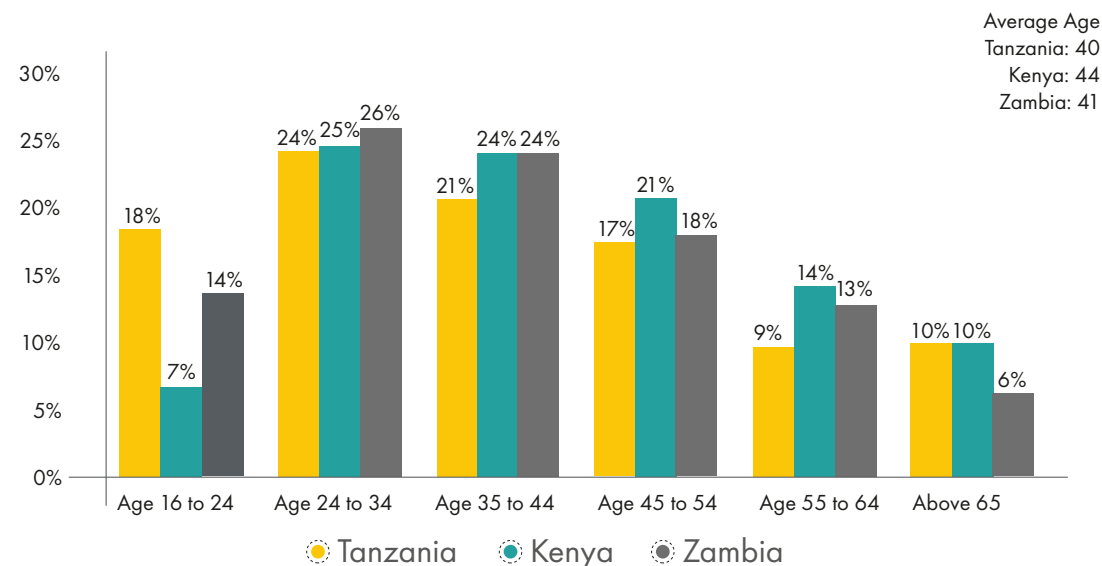
## Busting Myths

To understand the profiles of smallholder farmers, in 2017 AFA analyzed data from benchmark studies in Kenya, Tanzania and Zambia. The analyses considered farmers' access to information, training, or advisory services; their uptake and use of financial services; how they save and borrow, and their perceptions and coping strategies regarding the most serious threats to their livelihoods. Schrader described how some of the results countered widespread misconceptions about smallholder farmers.

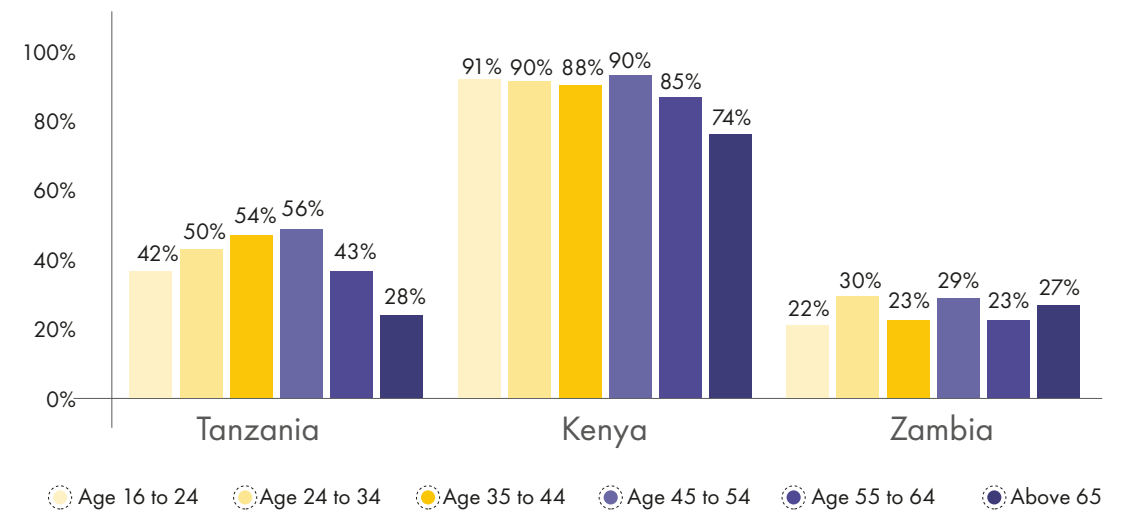
**Myth bust 1: Farmers are younger than widely believed.**

The average farmer's age worldwide is 60 years old, feeding the perception that African farmers are mostly elderly, but this is far from true. In the three countries studied, there are more 25-34 year-old farmers than any other age bracket. The median farmer's age is 42 years in Kenya, and just 38 years in Zambia and Tanzania. "There is a considerable youth bloom across the continent, and young people are engaging in agriculture," said Schrader. "This is a serious market segment. They are technologically very engaged and need help turning farming into a business beyond the subsistence-style of farming of their parents."

% of Smallholder Farmers by Age Group and Country



% of Population Using Mobile Money by Age Group



**Myth bust 2: The use of digital money among smallholders is not just the reserve of the young.**

It is a widespread belief that only young people embrace digital technology. Conversely, in Kenya, mobile money uptake is high among all age groups and usage rises with age until age 55, dropping to 74% among those over the age of 65. In Tanzania, mobile money uptake is bell-shaped, with lower values among the youngest and oldest smallholders and a peak among 45-54 year olds. In Zambia, mobile money uptake is similarly low among all age groups. Schrader emphasized the importance of using data and user-centered approaches to overcome mistaken assumptions that can cloud the development of effective digital solutions for smallholder farmers.



**SPEAKER 2: SEAN GRANVILLE-ROSS**  
MERCY CORPS REGIONAL DIRECTOR FOR EAST AND SOUTHERN AFRICA.

Mercy Corps is present in 40 countries, and in East Africa is particularly focused on market facilitation and ways to drive economic opportunities in large economic sectors. “One of the key challenges,” said Granville-Ross, “is to support community and farmer-led market growth, without distorting the market.” He suggested that of the answers lie in developing and scaling up digital solutions for smallholder farmers. This includes reaching the last mile and acting as honest brokers to ensure that farmers are seen as real customers, with solutions that capture their needs and preferences.

“In order to reach the smallholder market, we must understand our partners’ business models and value propositions, along with how to address farmers’ real or perceived risks,” said Granville-Ross. The scale of potential innovators is great, and Mercy Corps is working with them to develop relationships with large established companies, such as

mobile network operators and banks. Granville-Ross noted that this requires building trust with private partners, using data to make informed decisions, and conducting proper due diligence to understand partners’ business models and potential for meaningful engagement.

*› If you’re not targeting young people, you’re no longer relevant.*  
-Sean Granville-Ross

Moving forward with the AgriFin Accelerate program, Mercy Corps will continue to work to identify the roadmap for new partnerships and tech platforms, looking at effective ways to bundle digital services for smallholder farmers. Granville-Ross sees the potential in working with private partners to reach beyond the program’s target of 1 million smallholder farmers by continuing to identify commercial opportunities that will drive growth. In addition, AgriFin will continue to explore what it takes to offer products and services that are truly useful to smallholders including women and young farmers in remote areas. He emphasized the importance of youth as drivers of agricultural and economic development, and of assessing whether a service or product is accessible, affordable, and offers a value proposition to targeted users.





**SPEAKER 3: DR. BITANGE NDEMO**  
FORMER KENYAN PERMANENT SECRETARY FOR  
INFORMATION (2005-13).

Dr. Ndemo described speaking with Michael Joseph several years ago, when Mr. Joseph was seeking Central Bank approval for a new service that eventually became M-PESA. Designed initially as a customer loyalty product, M-PESA is the biggest inclusive digital product to date. “Not only is it a huge business success,” said Dr. Ndemo, “M-PESA also has changed how we look at smallholder farmers, who have widely taken up its phone-based banking and micro-financing services.”

Dr. Ndemo explained that recent research on the digital transformation in Africa suggests that while many government and donor agencies are focused on digital service adoption, they are not looking further to explore how digital services can transform rural areas. In contrast, AFA is focused on bundling digital financial and other services to improve livelihoods for smallholder farmers, working with innovators and partners, including many

taking part in this learning event. Dr. Ndemo highlighted examples of digital solutions from Twiga Foods, which offers a digital platform to access and develop the agricultural supply chain, and iCow, which provides farmers with information on topics such as breeding, animal nutrition, and milk production to increase productivity for dairy and cattle farmers.

Dr. Ndemo proposed that greater data collection and use could help leverage information technology to improve farm production. “Farmers don’t know the type of soil they have, nor the types of ingredients they need to improve their productivity. This information can be given via mobile apps to help them find appropriate solutions to increase productivity,” he said. “For example, the Rockefeller Foundation had a project where farmers could send photos to agricultural experts to diagnose problems. With Whatsapp, this type of service has become more instant and affordable.”

*“What happens after adoption of mobile technologies? How do we use technology to transform situations in rural areas? This is what AFA is doing.”*  
– Dr Bitange Ndemo

Dr. Ndemo noted that two years ago, maize necrosis attacked a large area of the most productive part of Kenya, devastating yields. He suggested that technology could help to predict threats and protect farmers with better information and advice. Similarly, he pointed out that Kenya does not have an effective commodities exchange, resulting in produce from South Africa being cheaper than products that come from places close to Nairobi. “With technology, we could create a commodities exchange, so that transportation costs would not add to the price of locally produced products,” he added.

Developed using human-centered design to ensure it meets client needs and preferences, DigiFarm offers one-stop access to services from partners such as Arifu, a digital agricultural education and skills training platform; iProcure, a platform addressing the full agricultural supply chain; and FarmDrive, a resource for financial institutions offering a data-driven, agriculturally relevant model to assess risk and develop loans that fit the needs of smallholder farmers.



#### **SPEAKER 4: MICHAEL JOSEPH FORMER CEO, SAFARICOM PLC.**

Speaking publicly for the first time about DigiFarm, Joseph described what it takes to implement ambitious digital solutions that can truly transform lives for smallholder subsistence farmers and break the cycle of poverty. He told the story of developing M-PESA at Safaricom, and of the persistence needed to overcome both internal and external resistance to bold, new, forward-looking products. Joseph spoke of the importance of making the business case for innovative ideas and of fine-tuning the product or service over time through constant learning and iteration. He highlighted the unexpected success of M-PESA, which achieved 1.2 million active users its first year (well above its 350,000 target). It was this success that drove a desire to go the next step with DigiFarm.

Joseph explained that DigiFarm was designed to bring digital services to smallholder farmers to boost their productivity and earnings. It applies the basic fundamentals of M-PESA and M-Shwari (mobile savings/loan product) as a simple-to-use mobile-phone

based system, and builds on research findings from the Massachusetts Institute of Technology, MIT suggesting that such platforms are effective in helping to move people out of poverty. DigiFarm was created as a one-stop platform, and thus its development required working with a variety of partners to supply different types of products and services. Joseph explained that bringing together partners with different profit motivations was a serious challenge. Convincing them (including his own team) of the business proposition so that they could sell it to their shareholders took time, as did learning how to work together.

*“Digital technologies have the potential to reach smallholder farmers across the world. Think how we could change society for the long term. I am proud that we have taken [the success of M-PESA and M-SHWARI] to the next level. Our end goal with DigiFarm is changing lives forever, making farmers more prosperous, countries able to feed themselves, and giving hope.”*

– Michael Joseph, former CEO, Safaricom

More than 600,000 users in the first six months following its launch in March 2017, Joseph warned that the product still requires a long-term investment, and the expectation of a five to six-year gestation period. He predicted that it would likely take three to four cycles for the platform to really work, because farmers have to trust and believe in it. Citing his experience with M-PESA and other products, Joseph noted that new solutions inevitably require patience and persistence, and they are bound to experience failures and setbacks due to their complexities. “Giving up is easy,” he said, “because progress is difficult. But the key to success is passion and determination, not technology or inputs.”

Joseph stressed the importance of a business model with clear value for the implementing institutions, partnerships with shared vision, an extensive distribution network with coverage in remote areas, and the willingness to continuously iterate until the desired outcomes are achieved.

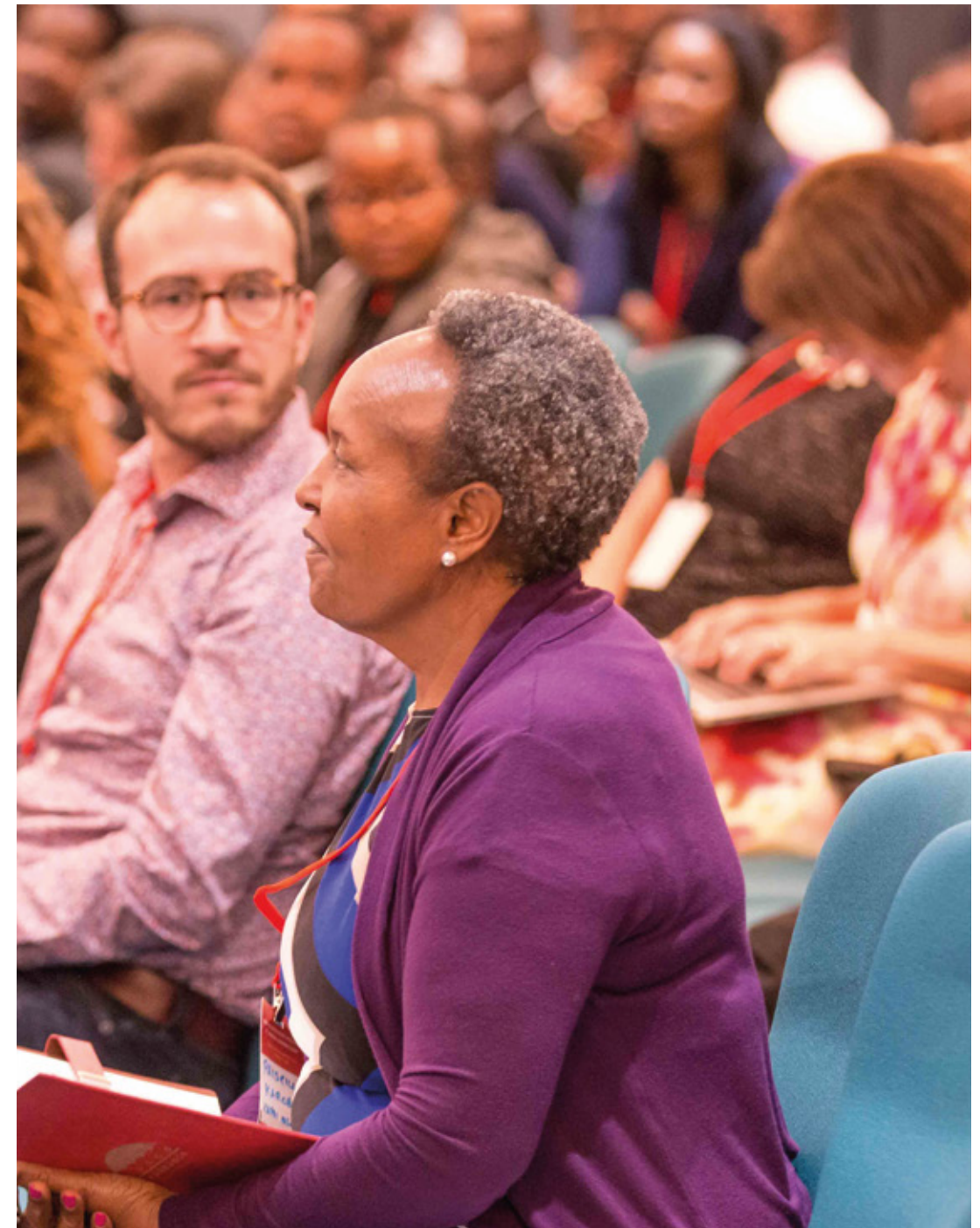
“For DigiFarm, success will depend on the distribution network,” said Joseph. He explained that his definition of success would be to see 10 million farmers signed up and actively borrowing money, using the digital finance tools, and selling their products via the

platform. "If DigiFarm can succeed in Kenya, it can be replicated in countries with far more need," concluded Joseph. "The potential is there to change society globally much more than we did with M-PESA."

With the digital transformation sweeping Africa, Dr. Ndemo argued that governments and donors should follow suit with AFA to consider issues beyond mobile service adoption such as market access and aggregation services, which are equally vital for improving farmers' livelihoods. He further noted that Kenya's open data initiative offers a new potential to provide farmers with information (e.g., climate conditions, soil health, adapted varieties) that could greatly boost their productivity.



*DigiFarm is a mobile-based service credit, extension services, and market access for smallholder farmers. DigiFarm was launched in 2017 by Safaricom, with AFA and multiple Agri-business partners. The project, which started with a target of 60,000 users in its first 6 months, had reached over 600,000 users in 12 months. DigiFarm is now aiming for 5,000,000 users within 5 years. Watch the DigiFarm Story video: <https://vimeo.com/244642737>*





"Any good success story that is to come nowadays will be as a result of collaborative effort amongst a whole host of parties – that is why we are excited to be here today."

– Sunesh Bhoola, Co founder & CEO, Ulima

**WORKSHOPS**

## WORKSHOP 1

### Deployment of Digital Financial Services to Smallholder Farmers; What Does it Take?



MODERATORS: CHRISTABEL MAKOKHA, AFA COUNTRY MANAGER-ZAMBIA | PAUL KWEHERIA, AFA COUNTRY MANAGER-TANZANIA

PRESENTERS: LILLIAN MAKOI, JAMII INSURANCE-TANZANIA | LEBI GABRIEL, RUNGWE SMALLHOLDERS TEA GROWER ASSOCIATION-TANZANIA | ROSE GOSLINGA, PULA INSURANCE-ZAMBIA.

Second generation digital solutions, such as insurance or bulk payments, are expanding the range of products that can be tailored to smallholder farmers. But as they are still on the cutting edge, questions remain regarding whether there is a business case for these products, how to assess readiness on both the demand and supply sides, and which factors are critical to ensuring their uptake and continued use.

This workshop considered three case studies:

1. Jamii – a mobile micro-health insurance product for the low income and informal sector in Tanzania, set to expand to Kenya, Uganda, Ghana, Nigeria, and South Africa.
2. Rungwe Smallholders Tea Grower Association – proposing digital bulk payments and medical insurance for its 16,000 smallholder farmer members scattered across more than 100 villages in Tanzania.
3. Pula Insurance – offering digital crop and livestock insurance to 400,000 smallholders in Kenya, Rwanda, Uganda, Nigeria, Ethiopia, and Malawi.

### Key takeaways

**From the panel discussions: For farmers, seeing is believing.**

For digital insurance providers, the business becomes sustainable when the numbers of subscribers reach a certain scale. But selling farmers on insurance, and the prospect of renewing it, is a challenge. Farmers only appreciate the benefit of insurance if they need to tap into it during a given year or season. Otherwise, they view it as a waste of money.

1. Providers deploy a variety of strategies to try to gain or sustain smallholder farmer customers. Examples from presenters included:
  - a. Embedding insurance within a more trusted service (e.g., sale of seeds or fertilizer)
  - b. Bundling digital insurance with something farmers want (e.g., agronomic information, advisory services)
  - c. Highlighting the importance of medical insurance in areas of high HIV prevalence
  - d. Using SMEs as a channel to buy insurance products for their employees as part of a loyalty program
  - e. Conducting door to door campaigns and leveraging trusted community-based touch points (e.g., farmer associations, church leaders)
  - f. Introducing farmers initially to cheaper products, and graduating them to other ones once they see the benefits

- g. Using donor funding to pay for education and outreach (e.g., radio spots)
- h. Capitalizing on “relatable” stories of people from the same villages, who have benefitted from taking up insurance.

**Testing products directly with farmers is essential, as is understanding the social dynamics affecting uptake.**

It is not enough to anticipate or even ask what farmers may need or prefer. They require hands-on experience in using and responding to tools and services. Likewise, if new solutions threaten established practices, such as the job of the village banking representative, there may be unanticipated social resistance that needs to be addressed.

*“It all narrows down to the company doing what it says it will do. Sometimes, what you are saying is not innovative, but the innovation is in the execution.”*  
– Rose Goslinga, Pula Insurance

**The success of bulk payments with farmers is hinged on onboarding all key stakeholders to work on the digital platform, increasing awareness to counter fears of technology, and engaging youth more actively.**

According to the presenters, it is important to know and understand how the companies should layer other products with the bulk payments. The trick is to find the “sweet spot” where the product is greater than the sum of its parts, without confusing customers with too many layers. Working with an existing customer base is useful, as are Random Control Tests (RCTs) to monitor customer input, with fast iterations while enhancing the technology aspects.

In addition, AFA’s work with cotton ginners in Zambia suggests that the alignment of incentives is critical for engaging key stakeholders. Moreover, conducting analyses of the political economy in the early stages of a project helps to identify the interest groups, incentives, and barriers to adoption.

**Smaller partners can serve as the dynamic force.**

Jamii Africa micro-insurance in Tanzania, a small start-up, sought out two large established corporations – Vodacom and Jubilee Insurance – as partners, and has been the driving organization behind the development of their digital insurance product. Jamii’s Lillian Makoi explained that having clearly defined deliverables and drafted a MOU specifying Key Performance Indicators for each partner has been critical to managing the partnership. Jamii also has benefited from a hands-off policy by regulators, who recognize that digital health insurance is a nascent business that needs room for testing and development.

**Sometimes, innovation is not in the idea, but in the execution.**

Lessons learned by the presenters suggest that the true movers of the needle may be those who get the job done. The innovation may not be in the solution itself, but how it is done in a new way or a new environment in delivering solutions or services as promised.





"Getting an outside perspective from farmers, traders, and stakeholders is very valuable. It's really useful feedback for what we are doing and needs improving. With so many people in the room, I am learning about what else is happening, and finding complementarities to help rural farmers – where to bring it next."

– Evin Joyce, Maano

## WORKSHOP 2

### Exploring Digital Adoption at Last Mile Channels.



MODERATORS: SIEKA GATABAKI, AFA DIGITAL FINANCIAL SERVICES MANAGER  
| HAPPY MATHEW, AFA SENIOR PROGRAM OFFICER, TANZANIA

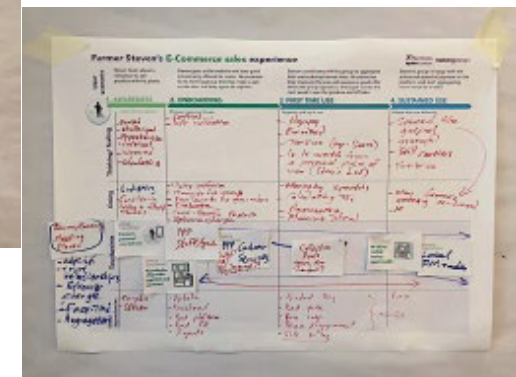
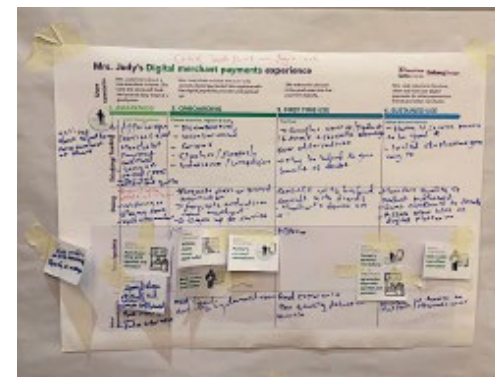
In May 2017, AFA conducted a “Reverse Hackathon” turning the hackathon concept on its head to have users (in this case, smallholder farmers) meet with digital solution designers to review their user experiences and preferences regarding tools and services targeted at them. A key learning from the Reverse Hackathon was that farmers need a physical point of contact or interaction with the business provider, known as a touchpoint, to accelerate adoption of digital services.

This workshop explored potential last mile Wi-Fi and broadband solutions, along with issues of digital literacy and trust among smallholders. Following a brief presentation of the landscape of last mile solutions and enabling channels, participants broke into small groups to develop and build on two farmer archetypes, “Ms. Judy” and “Mr. Stephen,”

applying Human Centered Design techniques to explore the user experience and map the journey towards product or service adoption. Participants, who included digital solution developers and providers, also considered current digitization efforts to reach last mile channels, looked at approaches to digitizing services for greater uptake, and they shared stories and learning from similar initiatives targeting smallholder farmers.

### Physical touchpoints are essential for encouraging use and adoption.

Reporting out from the mapping exercises and discussions, participants suggested that the most influential physical touch points for encouraging smallholders’ adoption and active usage of digital solutions were likely to be financial agents (e.g., financial service providers, banks, MNOs), and farmer group leaders, particularly during the initial phases of the digital journey.



Farmer Archetype Concepts drafted by the “Ms Judy” and Farmer Steven, that charted Digital Merchant Payments and E-Commerce sales Experience, respectively.

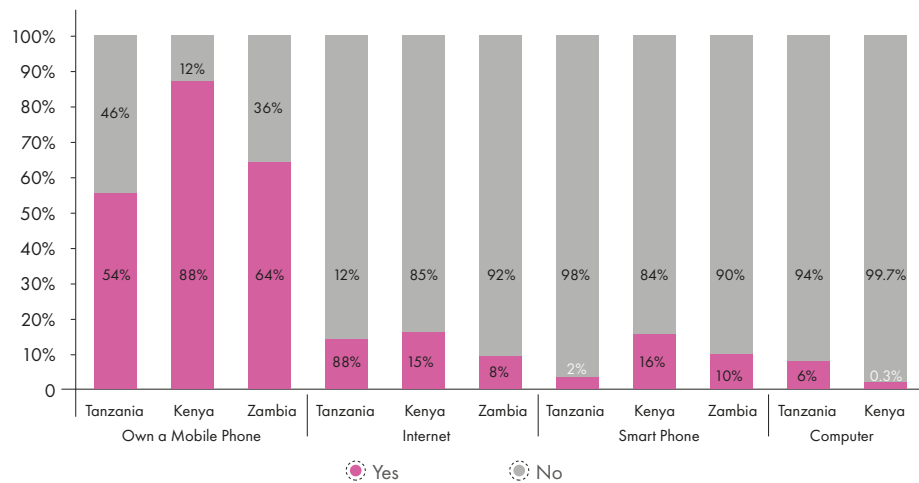
The “Ms. Judy” breakout group emphasized Agro-dealers (e.g., AgroVet shops) as most pivotal to allaying concerns and anxieties about trying out a new service or customer

experience. The importance of family members often younger ones, who are more digitally literate and exposed was also highlighted as central to promoting digital adoption.

**Smartphones also represent a viable touchpoint for directly driving adoption.**

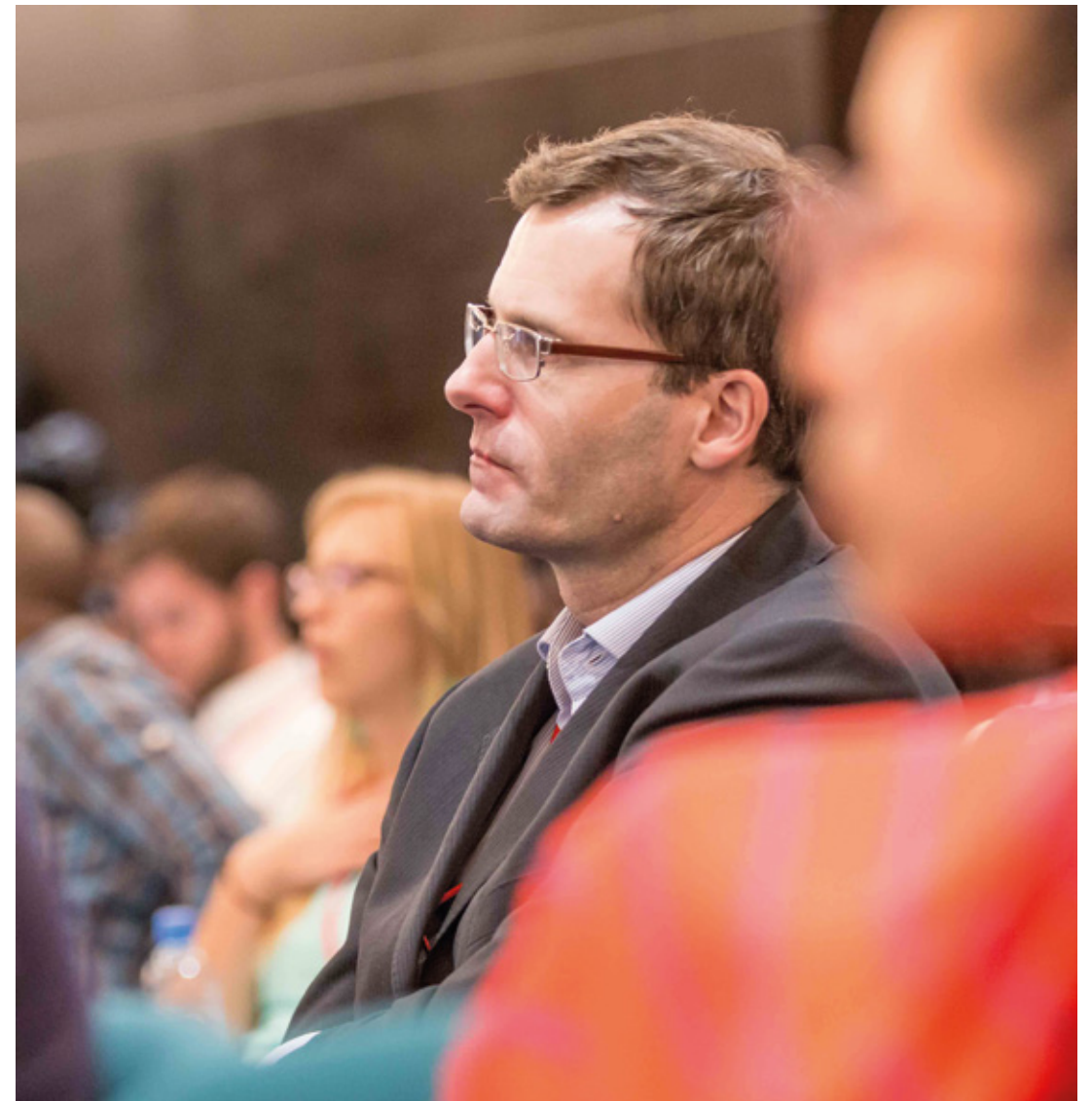
The “Mr. Stephen” group felt that smartphones also represent a viable touchpoint for directly driving adoption, if they are designed and customized to fit the smallholder farmer context. The group’s report noted that smartphones can serve as an initial touchpoint for getting information about a new service, how to register for it, how to use it, and how to see and follow up on transactions. In addition, it is easy for users to test initial transactions to see if they are timely and successful. Ultimately, even if the technology is easy, the success of the product hinges on the reliability and ease of use of various processes.

AFA conducted a comparative analysis of smallholder farmer profiles, based on benchmark study data in Kenya and Zambia, and 2017 FinScope data from Tanzania. Results show that smartphone ownership among smallholders is low, but mobile phone ownership is strong, even in Zambia.



*Technology Access Among Smallholder Farmers. From: Comparative Analysis of Smallholder Farmers in Kenya, Tanzania, and Zambia. A Karlyn, AFA 2018*

AFA will apply these insights further through its current engagements to study how best to leverage the influential physical touch points and assess their strength in accelerating adoption and usage of digital finance and other services. In addition, AFA will continue to explore the user experiences of the various value added service (VAS) solutions available on smartphones, particularly regarding access and ease of use for services such as payments, digitally purchased inputs, and information that is clear and credible.





"We expected flying cars, and we got 100 characters. We expected rapid transformation. We got incremental steps. Now we are seeing more rapid growth in digital solutions and integration – and feeling bullish about the next decade."

– Grant Brooke, CEO and founder,  
Twiga Foods

## WORKSHOP 3

### Farmer Capability Proof Points



MODERATORS: LUCY KIOKO, AFA AGRICULTURAL EXPERT LEAD | SAMANTHA MALAMBO, AFA SENIOR PROJECT OFFICER-ZAMBIA

PRESENTERS: CRAIG HEINTZMAN | ARIFU DAVID CAMPBELL | MEDIAE JAMILA ABASS, WEFARM

Some of AFA's key learning questions address issues of how best to build distribution channels, tools, and services to expand the uptake and use of digital financial services among smallholder farmers, especially youth and women. This workshop featured organizations that are using traditional media, e-channels, and data analytics to affect behavior change and subsequent uptake of digital solutions among smallholder farmers. These included:

- Arifu, a web and SMS-based adaptive learning system that helps users develop behaviorally-informed training, advertising, and data collection.

- Mediae, a social enterprise that produces highly successful "edutainment" shows and an SMS service to support learning and
- behavior change among smallholders in Kenya, Tanzania, and Uganda, and

capability and affecting behavior changes that can help make their work more productive and lucrative. Key learning points included:

**Farmers seem to favor more traditional media and communications approaches – or methods that can mimic them.**

Digital technology is evolving rapidly, but farmers are not moving as quickly to adopt new solutions and tend to favor technologies that they understand, such as radio, television, and (basic) feature phones. WeFarm is leveraging the natural generosity that farmers display in sharing information with their peers by offering a farmer-to-farmer knowledge exchange service, using simple SMS. A farmer can submit a question, free of charge, and receive a crowd-sourced response within minutes – all via basic phone text messaging. The quality of the information is curated through technology and data science. Mediae also has an SMS-based information service called iShamba with over 300,000 subscribers. It serves as a complement to Mediae's highly successful television edutainment program, Shamba Shape-Up, which has more than 5 million viewers – most of them rural – with story lines that dispense advice on good agricultural practices and other issues associated with improving livelihoods.

**One of the ways to engage youth and increase their skills is by presenting farming as a business opportunity.**

As potential farmers, young people face hurdles related to barriers in accessing land and credit, and the image of farming as a poor person's subsistence occupation. In 2017, Mediae collaborated with AFA to create a reality TV show called Don't Lose the Plot designed to encourage youth to take up farming as a business, leveraging digital tools and services. The story lines and web-based budgeting tool, created by AFA to accompany the program, showed young people how to do a business plan for their farm, decide on a range of crops or livestock, build a budget, buy inputs, and access financial

services – along with offering further agronomic and technical advice. The show reached more than 3.4 million viewers in Kenya, Tanzania, and Uganda in its first season – 60% of them below age 30. A blog and focus note on the series presents more detail and data from Don't Lose the Plot regarding the effectiveness of television and social media platforms in reaching youth and supporting their access to digital financial services.

*“No doubt the key success of Don't Lose the Plot, was the budgeting tool developed with AFA and available on the show's website. Over 8,000 people signed on to use it. The other big success was the way the audience grew as the program went on. Over 4 million people viewed the program, and more than 60% were under age 30, which is very good.”*

- David Campbell, Media

### **User segmentation and the use of low-cost channels such as mobile networks have enhanced uptake of information services among smallholder farmers.**

Arifu offers an adaptive learning system that works on any mobile device or network, measuring individual user needs and capabilities to offer behaviorally-informed custom trainings. Thus, its digital interactive learning platform is much newer approach than the more traditional television or farmer-to-farmer ones used by Mediae and WeFarm. To attract users, Arifu applies low-barrier incentives and multiple channels, such as SMS blasts, direct invitations from other users, and the leveraging of Equity Bank's pre-existing network to add credibility. Arifu segments users through behavioral analytics and multi-channel approaches to ensure that farmers receive content that is relevant and packaged in a way that meets their needs. this partnership has reached over 200,000 learners,, twice their original target.

### **Farmers are most interested in business planning and access to financial services, such as credit.**

Arifu has found this to be true across all income segments. Moreover, data from the Don't Lose the Plot episodes and from the show's social media platforms also supports this finding. Demand for financial literacy content from show's young participants exceeded all expectations, encouraging the production team to increase the focus on financial

capabilities throughout the series. Social media response to the financial inclusion content was strong. The interactive web-based farm budgeting tool, *Budget Mkononi*, was the most popular feature on the show's social media and became a top trending topic on Twitter in Kenya at the time of broadcast.

### **The future looks bright for emerging farmer capability initiatives.**

The success of *Don't Lose the Plot* in reaching and motivating a youth audience suggests that television and social media platforms are effective for reaching the next generation of potential farmers with information and tools for strengthening their capacity and access to financial services.

Findings from Arifu suggest that digital learning can be very cost-effective. There are increasing arrays of channels for accessing content such as videos viewable via mobile phones with subtitles in key languages. Online and offline content are being merged as part of the wider ecosystem, and services like WeFarm are preparing to see users transition from SMS and offline channels (currently comprising 96% of their users) to greater uptake of smartphone and Internet technology. The expectation is that users will be graduating to a place and content that they already trust. The demand for financial skills building will likely continue to grow, and farmers are already organizing themselves into groups across value chains to better access financial services.

*“Financial service providers can help millions of farmers build their skills. In-person training can be expensive, but online training brings costs down to ~\$1 per person.”*

- Craig Heintzman, Arifu

### **Next steps: Connecting knowledge and behavior change to improved outcomes**

Arifu learning content teaches farmers about behaviors that can improve their ability to get credit. Learning impact data suggest that increased financial knowledge leads to more responsible borrowing – with learners adjusting the timing and amount of their loans to be more manageable. WeFarm also has found through their farmer-to-farmer network that the ability to easily access information at their fingertips has a big influence on farmers'

choices and behavior changes.

Going forwards, AFA will continue to address questions regarding which channels work best for increasing farmer capabilities and whether there is evidence to say that they are having an impact on productivity. It also will work with partners to measure impacts of farmer capability proof points and to link learning channels with bigger players, such as banks, to offer farmers a menu of tools to improve impacts and livelihoods, including Return on Investment (ROI) Analysis.





“What is the most influential thing I learned today? That technology is the next frontier for farmers, and as a farmer I need to collaborate with other farmers to get access to these tools.”

– John, Farmer and audience member

## **WORKSHOP 4: Advances in Credit Scoring and Data Analytics for Smallholders**



**MODERATORS:** EMMANUEL MAKAU, AFA TECHNOLOGY PRODUCT MANAGER  
| COLLINS MARITA, AFA MONITORING, EVALUATION AND LEARNING  
MANAGER

**PRESENTERS:** DEAN CAIRE, RESIDENT CREDIT SCORING CONSULTANT AT AFA |  
PERIS BOSIRE, FARM DRIVE | NJEMA MWAOSHE, TRANSUNION CREDIT  
REFERENCE BUREAU | HOWARD MILLER, HARVESTING CO. | JULIA  
REICHELSTEIN, LENDDO EFL

One of AFA's focus areas is how to leverage data to unlock financial services. Traditionally, financial institutions have used historical data based on their clients to conduct credit scoring, but lack the footprint and capabilities to collect relevant historical and transactional data from smallholder farmers. Most financial institutions therefore have no understanding of smallholders' potential credit-worthiness. Meanwhile, as increasing numbers of these financially excluded populations are using digital channels, their "digital

data trails" are increasing. Workshop presenters discussed the value and limitations of digital data for credit scoring. They showcased innovative initiatives harnessing these alternative data sources to offer financial services for smallholder farmers, sharing important lessons learned in the process.

### **What are sources of alternative data?**

Dean Caire, a credit scoring expert, described how each social media and mobile platform interaction is creating new data, some of which is useful for assessing credit risk among smallholder farmers. Examples include records from mobile money transfers, services provided, airtime purchases, mobile service usage, GPS location of devices, and more. In one case, Lendo-EFL, a leading credit decision-making platform geared for emerging markets, is increasingly using alternative data, from sources such as e-learning activity (as indicators of skills, motivation, training completed, etc.), self-reported farmer data (e.g., length of time in production, amount of land or livestock, level of production, estimated income), and geo-spatial data (e.g., information or rainfall), for credit scoring.

In addition, Lendo-EFL use psychometric and behavioral assessments on credit behavior, mobile phone activity, and social media to build credit scores for excluded segments. Beyond individual credit, other emerging use cases for digital credit scoring include insurance scoring, group assessments for inputs and loans, agribusiness lending, and value chain players who provide bundled services to smallholder farmers.

### **What data can financial institutions bank on?**

Although data is readily available, there is no foolproof process for determining its usefulness for credit scoring. The cost of obtaining data, availability of the data for the whole target group, accuracy of the data, and the extent to which the data predicts the farmers' ability to repay a loan are all key determinants of usability. Among the most reliable are verifications of cash flows (e.g. sales, purchases, airtime, mobile money usage, payment of past credit), particularly if they can demonstrate a track record and stability of use. Learning data, biodata, and data on farm size and value chain participation can also be valuable predictors of credit risk.

## Going mobile.

TransUnion Credit Reference Bureau, which is one of the largest providers of credit risk information in the world, works on the basis that mobile money leads to mobile loans – and with the advances in mobile money, new forms of credit have emerged. In the Kenyan market, with 38 million mobile subscribers (88% penetration) and 26.6 million Internet subscriptions (63% penetration, with 90% via mobile), money can now be lent remotely, without the need for brick and mortar branches, or ever having to meet the borrower. The result has been a proliferation of different players (banks and MNOs, MFIs, and fin techs) and over 5.8 million unique mobile borrowers, totaling 174 billion Kenya shillings in loans.

*“To give a loan to a farmer you really need to understand what a farmer does. Traditional data is good at telling you about the past. Alternative data is good at telling you about the present. But if you’re interested in impacting farmer lives, you want to predict the size and timing of their future cash flows.”*

- Howard Miller, Harvesting Co.

## Using scorecards to create a more robust mobile lending ecosystem.

TransUnion has found that what holds mobile lenders back from extending more loans are identification challenges and fraud, how to differentiate loans to be more relevant to smallholder farmers, and how to obtain and use data for risk profiling. The company has addressed these challenges by creating a generic digital loan scorecard, the first of its kind from a credit bureau. The TransUnion scorecards allow for a nearly instant credit score. The mobile platform is agnostic, functioning as effectively on feature phones as on smartphones. The process involves three steps: loan application, scoring (taps into bureau database through web service API), and the lending decision.

## Tailoring mobile loans to smallholders – without breaking the bank.

FarmDrive, launched in 2015 to unlock financial access for smallholders, uses innovative credit assessment, data analytics, and operational efficiencies to satisfy the needs of lenders and farmers. Farmers increasingly want a product that meets their needs and a

good customer experience through an accessible platform that takes into account costs, convenience, and privacy.

FarmDrive initially over-engineered the data types they were using for credit scoring (socio-demographic, social networks, behavioral, agronomic, environmental, economic data, satellite data, mobile data) resulting in a loss of 6 million Kenya Shillings (USD 60,000). Since then Farmdrive has learned that credit scoring:

1. Credit scoring is not a universal algorithm but a process of predicting risk in order to move money from the lender to the farmer
2. It takes time
3. It is not about the quantity of data but how relevant it is for the particular market, for example satellite data may not be applicable for a US 5 loan
4. The model should be transparent and its outcome easy to explain to the client
5. Operational efficiency is important and requires that the technical systems are working as they should (i.e. that the farmer does not default because he/she does not know how to repay through the phone or because the phone is not working).

## Building on lessons in digital credit scoring experience to create DigiFarm.

DigiFarm – a flagship product, developed with AFA, Safaricom, and other partners – is a mobile based platform that is giving smallholder farmers access to an array of services, including credit. Farmers are scored for credit risk using a simple statistical model that draws data from mobile usage and reference bureaus, and then looks at user behavior with other DigiFarm services (e.g., purchase of inputs, information services use). A key success factor for DigiFarm has been the multi-stakeholder partnership that includes Safaricom, Mercy Corps AFA, iProcure Kenya for inputs, and Arifu for learning content that enables the bundling of digital services for smallholders and has helped to drive the rapid uptake of the product. More than 600,000 smallholders have signed up for DigiFarm, since its launch in March 2017.

## Predicting the future.

Measuring risk is about reading into the future, and Harvesting Co. – a new company

based in Silicon Valley – is taking a very forward-thinking approach to credit risk scoring based on predictions of future farmer productivity. Working with NASA and on other projects in different parts of the world, they are using remote sensing data (soil, satellite imagery and weather) to help predict farmers’ yields and resulting cash flows, in advance. Harvest Co. is developing models for loan products tailored to the seasonality of farmers’ incomes, and the predicted timing and sizing of their cash flows, based on climate and other forecasts. They also conduct post-loan farmland monitoring to continuously track field and crop conditions for anticipating loan losses, as an input for subsequent credit risk scoring.

### **Lessons from the future.**

Harvesting Co. has learned that having the infrastructure in place to build to scale quickly, finding talent, and overcoming the risk aversion of smallholder farmers are key challenges, as are ensuring data quality, converting analog data to digital, and managing data privacy and consumer protection. Like FarmDrive, they have learned not to get carried away by data quantity, which carries the risk of over-fitting the models. They also have found that the greatest opportunity for scale is through business-to-business (B2B) models. Rather than going into the field, Harvesting Co. is developing products for banks and micro-finance institutions that work with the customer. There is huge growth space in this industry, including with new partners, and that the social impact of a credit scoring model that actually works for smallholders is huge.





“We are a social enterprise linking farmers to markets and fair prices – generating 20% on average additional income for them. We have come to this event because we want to connect with others in this space. We are part of a bigger ecosystem trying to digitize agricultural value chains, and it is important for us to know what else going on, join up, and link in.”

– Jenny Rafanomezana, CEO, TruTrade

## Mid-Day Plenary 2017 Farmer Benchmark Survey Results for Kenya, Tanzania, and Zambia



SPEAKER: DR ANDREW KARLYN STRATEGIC LEARNING LEAD, AFA

To generate deeper insights on smallholder farmers, AFA conducted a comparative analysis of data drawn from the 2017 FSDT Finscope in Zambia (conducted by Nathan Associates) and AFA-commissioned studies in Kenya and Zambia (conducted in 2017 by Research Solutions Africa). The study was structured around **seven research questions (RQ)** aimed at gaining a greater understanding of the average farmer's profile, uptake and use of digital technology and financial services, access to information, and their ability to face and recover from threats.

### Research Learning Framework and Questions

The opportunity to consider such findings side by side offers insights on how to create better tools and solutions in different markets, how they can be adapted and aggregated

to be scalable beyond an initial market, and how to promote customization based on evidence and experience rather than as a one-size-fits-all approach.

Misconceptions surrounding data about smallholder farmers were driven home by an exercise conducted by DR. Karlyn that invited the plenary audience to submit best guesses regarding smallholder statistics.

#### Profiles of SHFs

RQ1 | What is the profile of an average (or median) farmer in Tanzania, Kenya and Zambia?

#### Access and Usage of Financial Services

RQ2 | What is the uptake and usage of financial services by SHFs in Tanzania, Kenya and Zambia?

RQ3 | How do SHFs save and borrow in Tanzania, Kenya and Zambia?

#### Digital Financial Services

RQ4 | How prepared are SHFs to use digital services in Tanzania, Kenya and Zambia?

RQ5 | What is the uptake and usage of digital financial services in Tanzania, Kenya and Zambia?

#### Information, Advisory Services, Training

RQ6 | How do farmers currently access information, advisory services or training?

#### Profiles of SHFs

RQ7 | What do farmers perceive as the largest threat to their livelihoods? What are the coping strategies?

### Data highlights

- **SHF Demographics:** The median age is 38, while median monthly agricultural income is \$9-\$20 across 2.1 value chains per farmer.
- **Financial Exclusion:** is highest in Zambia, and lowest in Kenya. Kenya financial inclusion is driven by access to bank accounts (33%) and M-PESA (56%).

- **Digital Finance Gender Gap:** has nearly closed in Kenya but remains high in Tanzania and Zambia. Women continue to lag behind men in terms of access to formal financial services. Male farmers, however, make more income than female farmers across all three countries.
- **Savings are growing:** in Kenya due to mobile money. Most smallholders borrow and save from village savings and loans, and use digital channels (e.g., M-Shwari and KCB M-PESA). The amounts in savings have been increasing for the past 2 years. In Tanzania, SHFs save at home despite relatively high mobile money uptake. In Zambia, despite low mobile money usage, 12% of savers do so with mobile money.
- **Borrowing:** Zambians & Tanzanians borrow from family or friends rather than via M-PESA despite high uptake. Kenyans borrow via SACCOs, chama savings groups, and M-Shwari digital loans.
- **Agricultural Advice:** Fully 40% of smallholders in Kenya and Zambia have never used advisory services. The most commonly asked questions regard fertilizer usage, pest control, and input and market prices. When advice is sought, government extension officers are the most trusted source.
- **Insurance:** uptake is nascent across all markets, with the exception of national health insurance schemes.
- **Farmer preparedness:** to use digital services: Kenya has the highest mobile phone ownership (88%). Internet access is nascent, but smart phone ownership is increasing.
- **Resilience:** The use of insurance products is very low, mostly through existing health insurance schemes (e.g., Kenya's National Health Insurance Fund or Tanzania's community and national health insurance plans)

how to create better tools and solutions in different markets, how they can be adapted and aggregated to be scalable beyond an initial market, and how to promote customization based on evidence and experience rather than as a one-size-fits-all approach.

Misconceptions surrounding data about smallholder farmers were driven home by an exercise conducted by DR. Karlyn that invited the plenary audience to submit best guesses regarding smallholder statistics.

## KEY TAKEAWAYS

The profiles of smallholder farmers drive home two key issues:

1. Smallholders are extremely poor and price sensitive.
2. Their uptake of technology is relatively high, in spite of their low socioeconomic status, particularly in Kenya.

The pace of technology uptake is accelerating everywhere, however, with ever improving channels for reaching smallholder farmers.

### **We need to be smart about segmenting the market to identify early adopters.**

Early adopters are the pathway to greater scaling, as they exert a demonstration effect and momentum that drive uptake and scale among other market segments. Strategies for going to scale should thus focus on those who are easier to reach, and segmentation helps identify individuals who show a high level of readiness but low levels of adoption. Understanding the profiles of the high readiness/high users provides insights regarding the products, processes, and values that can spur wider uptake and scaling.

### **Gender gaps in mobile ownership are widest in Tanzania, but have reduced significantly across the 3 countries.**

The gap is closing fastest in Kenya. One potential explanation is that female rural farmers and traders are more cautious than men and will only adopt tools when the value and proof points are higher. However, experience suggests that once they have adopted a new solution (e.g., digital savings), they have a stronger engagement with it.

## Next steps.

The first two years of the AFA program focused on ecosystem analyses, getting to know the stakeholders, testing basic models, and looking at opportunities to bundle services and solutions with partners. In Year 3, AFA has been gaining scale and traction, and producing data and evidence to help shape future engagements. In year 4, AFA will continue to investigate the data and value being generated as program activities drive further to scale with fewer but deeper solutions.

## SMALLHOLDER FARMER PROFILES IN KENYA, TANZANIA, AND ZAMBIA

	Kenya	Tanzania	Zambia
Median Age of smallholder farmers (yrs)	42 yrs	38 yrs	38 yrs
Monthly median income from agriculture (\$US)	\$20	\$15	\$9
# Cash and subsistence value chains engaged in	1.7	2.6	1.9
Mobile phone ownership	88%	50%	64%
Uptake and usage of DFS services	87%	48%	26%
Financially excluded	9%	36%	62%





“What was the most insightful part of this event for me? Being told to think big! That the sky is the limit. Hearing from others who have gone through the impossible and reached it. That if you really want to achieve, the universe is there to help you, we really can reach the farmers that we want to reach.”

– Almut van Casteren, e-Prod

## Workshop 5: Expanding Digital Savings and Loans



MODERATORS: PAUL KWEHERIA, AFA TANZANIA COUNTRY DIRECTOR | SIEKA GATABAKI, AFA DIGITAL FINANCIAL SERVICES LEAD

PRESENTERS: OLAF BECKER, COO, FINCA INTERNATIONAL | DENNIS NJAU, HEAD OF CHANNELS, KCB BANK GROUP | STEPHEN WAISWA, MOBILE MONEY FOR THE POOR PROJECT, UN CAPITAL DEVELOPMENT FUND MOBILE MONEY FOR THE POOR-UGANDA (UN MM4P) | ELI POLLACK, CEO, APOLLO AGRICULTURE

This workshop included a discussion with market leaders on strategies for scaling digital savings and loans targeted at smallholder farmers. Presenters represented FINCA Tanzania, a non-profit, microfinance organization with an MNO-led partnership that recently launched a savings product; KCB Group, which now has a FinTech subsidiary that focuses on digital financial services; Apollo Agriculture that uses learning, remote sensing, and mobile phones to deliver finance and customized advice to smallholder maize producers; and UNCDF Mobile Money for the Poor-Uganda, which works with

coffee, maize, dairy, tea, and refugee farmers and supports financial institutions to use human-centered design in creating products that meet the needs and preferences of smallholder farmers.

The presenters shared their different strategies for offering digital savings and loans to smallholders.

### KEY TAKEAWAYS

**Focus on savings and customization.**

FINCA has found that credit-only models do not work well for smallholders in Tanzania, and thus is capitalizing on a cultural shift in the country towards more savings. They are investing in targeted savings products for smallholder farmers that are fully available on a digital platform and can serve as the basis for credit services down the line.

An advertisement for MUKash mobile money service. The top part features the text "Unique Savings and Lending Product" in a serif font. Below this is a photograph of a smiling woman holding a smartphone, with a young boy looking at the screen. The text "Introducing MUKash" is overlaid on the photo. In the top right corner, there is a logo for UNCDF MM4P. Below the photo, a yellow banner contains the text: "Join MTN Mobile Money to start saving and borrowing money on your phone. Dial \*165\*5# to save and borrow for school fees. It's possible. Kisoboka." At the bottom right, there are small logos for MTN and MUKash.

UNCDF's Mobile Money supports a mobile phone-based savings and loan product called MOKASH that also focuses first on establishing a savings history, before users can access credit. Credit risk is based on a 1-year mobile money transaction history, including digital payments, voice logs, and other data. The MOKASH experience underscored the importance of local customization. The product was developed using Human Centered Design with end users to ensure it would meet farmers' needs and inform their decision-making. Launched in 2016, it attracted 2.5 million customers within 6 months, with 50% of them actively using the service.

*"The stark reality is that a vast majority of rural smallholder farmers live on less than \$2/ day, and average incomes leave little room for extra expenses, though we know that value chain returns yield about twice the rate on investments."*

— Andrew Karlyn, Strategic Learning Lead, AFA

### **Start from the bare bones to increase efficiencies.**

Apollo Agriculture is a startup company. Because it can be expensive to deploy savings and credit services with agents, they apply a method focused on "radical efficiency and scalability." Apollo starts with a "least touch" model that begins with minimal direct interactions with customers then increases them over time. The Apollo Agriculture team combines deep science, software engineering, and operations experience from The Climate Corporation, One Acre Fund, and Google.

They collect data from independent sources (e.g., satellite data) to analyze what is happening at the local level, how to go to scale, and how best to select and support farmers. Apollo recognizes that products have to show customers value if they want them to take up a product, and that methods offering income-smoothing benefits are more valuable to farmers due to the seasonality of their income flows. They find that it makes sense to offer credit and savings products adapted to the farmers' earning cycles and value chains, and in some cases they offer farmers much needed supplies in place of cash loans.

*"A key learning is – do not offer credit for credit's sake. It may sound like a cliché, but it is a lesson that gets forgotten. To help farmers improve their returns, sell them what they need, not what you need as an institution."*

— Paul Kweheria, AFA Tanzania Country Director

### **Use an Omni-channel approach.**

KCB Bank Group uses multiple channels and approaches to attract and work with customers, including mobile banking, bank agents, and bank branches. About 80% of KCB's transactions take place outside of the bank branches, mostly (78%) by bank agents, and they are making a push to add more bank agents for even broader coverage. Agents make a fee from each transaction, which serves as a strong incentive for them to continue to recruit new customers and to view recruitment as a business opportunity. In addition, KCB talks to farm product collectors and distributors about their farmer suppliers and the frequency of those supplies. Based on the data, they send out text messages to selected farmers offering financial services. KCB Group also has added a Fin-Tech subsidiary focused on digital financial services, with a new product targeting smallholder farmers and farmers' associations called MobiGro. With MobiGro, farmers can access information on produce markets, crop and livestock management, pricing, market trends, linkages to value chain actors, and agricultural and entrepreneurship training sessions. They also can access savings, loan, or insurance services; place standing orders; make deposits; or make loan repayments via the mobile platform. Loan amounts are based on factors such as the customer's savings and M-PESA usage. Altogether, KCB's strategy is to make payment channels easy and convenient for their customers through the omni-channel approach.

### **Apply a wide range of customer acquisition strategies, without losing the human touch.**

All the presenters described a multitude of ways in which they try to reach and engage customers, looking for ones that work in a given context or with a given segment. Examples included radio, roadshows, bonus programs, system to send agents to the farmers to get information, mobile usage data, door-to-door marketing and sales, SMS blasts, and using data from partners. From the presentations and discussions, it clearly emerged that for all the advantages and growing acceptance of digital technology,

customers still want engagements that include or mimic human interactions.

### **Leverage partnerships.**

Small companies cannot afford to provide omni-channels or bundled services on their own, because it is too expensive. The message from the workshop was to create partnerships to capitalize on each organizations' niche, manage costs, leverage strengths, and offer a customized package of services, such as the one that Apollo offers that bundles seed, fertilizer, farming advice, and credit. A wider lesson from the learning event was that small organizations can be the drivers of such partnerships, including with much larger entities such as major banks or leading mobile service operators.

### **Women are more committed to saving than men.**

Women are more likely than their male counterparts to take up targeted savings products. They save less money at a time than do men, but are also less likely to withdraw it, ending up with greater savings at the end of the day. As a general rule, men save when they can, whereas women will try to put money in savings each month. However, when looking at credit risk, age is a stronger predictor than gender of individuals' ability to repay, according to FINCA data.

### **With loan repayments, quicker is better:**

Although AFA is educating farmers to encourage early or partial repayment to maintain good credit, there is no crosscutting formula for success. However, most digital credit products have short-term repayment periods (3 months or less), because financial institutions have found that the likelihood of repayment decreases with longer loan durations. The omni-channel approach offers the advantage of providing choice for customers wanting to repay their loans. AFA's experience from HCD research with women smallholders in Zambia suggests that earnings and expenses are unevenly distributed across the year. For them, short-term loans may be helpful for bridging periods when money is tight but bills are due for school fees, farm inputs, medical care, or other costs.





"Each partner is delivering a particular service, no one can meet all the needs of smallholder farmers alone. AFA has been a powerful enabling partner. We were doing a lot of work in the field but had no digital footprint before we began partnering with AFA. Now we have a dedicated app reaching 40,000 farmers in Tanzania, Rwanda, Zambia, and Kenya – and we hope to reach 100,000 by the end of this year. We are on the right path. We know that we will have to show even bigger successes next year, and we couldn't ask for a better platform than this."

– Ananth Raj, Digital Lead, WFP-Farmer to Market Alliance.

## Workshop 6: Scaling Technological Innovations for Smallholder Farmers



MODERATORS: EMMANUEL MAKAU, AFA TECHNOLOGY PRODUCT MANAGER |  
HAPPY MATHEW, AFA SENIOR PROGRAM OFFICER, TANZANIA

PRESENTERS: JAMILLA ABASS, WEFARM | ALMUT VAN CASTEREN, EPROD |  
VICTOR OTIENO, COWSOKO | EVIN JOYCE, WORLD FOOD PROGRAMME –  
MAANO

This workshop explored best practices in scaling technology through sustainable products and services for smallholder farmers. The panelists presented CowSoko, which provides an online marketplace for buyers and sellers of beef and dairy cattle; eProd, a supply chain agribusiness management system using a mobile app and web platform available in Kenya, Uganda, and Tanzania; WFP-Maano Virtual Farmers' Market, an app-based e-commerce platform in Zambia that provides a transparent space for trade and fair prices between farmer surpluses and buyer demand; and WeFarm, which operates an SMS platform that disseminates agricultural information and responds to inquiries for some 600,000 farmers in Kenya and Uganda.

## KEY TAKEAWAYS

**Technology is essential for increasing scale, but it still requires some element of human intervention.**

The human component plays a key role in convincing users to take up technology, and it goes hand in hand with adjusting digital solutions to meet user needs. For example, although CowSoko is an on-line platform for buying and selling cattle, it still relies on people on the ground to manage the trading. In addition, feedback from the ground is informing them on ways to scale, such as by adding other types of livestock for trading.

*“We need to give people time to understand what they are doing for each other first, then the technology comes in. People first, technology second.”*  
— Emmanuel Makau, AFA Technology Product Manager

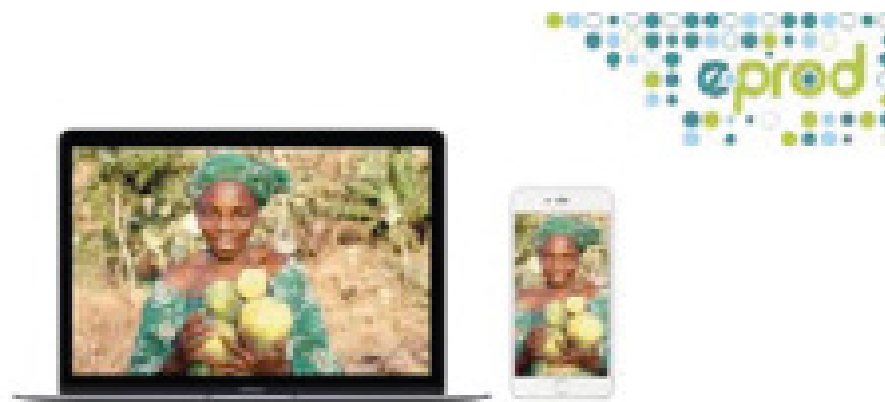
Likewise, Maano's virtual farmers' market operates through a USSD platform that relies on farmer-to-farmer interactions. The project trains lead farmers on how to transact using the service and offers them incentives to find and train additional farmers to join the service.

## Partnerships also play a key role in going to scale.

Maano's partnerships with the World Food Programme and AFA has made it far easier to scale up because of their wide farmer and partner networks. Both Maano and WeFarm emphasized that empowering the right people to be lead farmers played an important role in scaling up their products. With WeFarm, a large part of the scaling-up strategy has been to link with farmers to gain wider popularity and attract more users. WeFarm was co-created with farmers, including in the design of the logo, to foster ownership and facilitate uptake of their product. In addition, WeFarm looks at county level information, assessing economic activities to find county-level partners with whom to collaborate. Partnerships also are crucial for bundling additional services to create value for farmers and increase scale. For example, WeFarm is looking at partnerships to add financial services and insurance to their information platform, as a package for farmers.

## The solution has to be viable and tested.

To be scalable, solutions need to pass the reality check. They should be developed and tested with users, then adapted to reflect real world feedback rather than system designers' interpretations of user needs. CowSoko collaborated with AFA, participating in its "Reverse Hackathon," which gave CowSoko the chance to interact with farmers directly and get immediate feedback on their platform. The event provided CowSoko with a quick and inexpensive method for testing the user interface, ease of use of the product, and type of information users wanted.



eProd is an ERP that provides a flexible and automated way of controlling your agribusiness through easy collection of farmer information you can rely on.

Keep records you can trust    Make better business decisions    Reduce your stress level

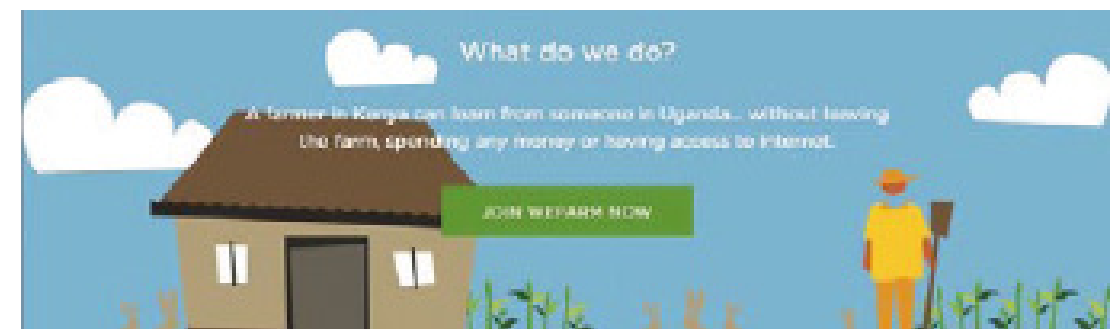
*"It's important to know how you want your company to grow, including financial viability and commercial projections."*

— Almut van Casteren, e-Prod

## Data-driven success can lead to scalability.

As part of its supply chain management system from farm to production, eProd collects detailed data via a mobile application for a 360 degree overview of each farmer or farmers' group with which it works. This has been part of its secret to success. The data includes farmer biographies and trainings they have attended, along with information on crops planted, yield forecasts, and farmers' advances and repayment histories.

The data are useful for paying out farmers and screening them for loans. Data security is crucial, however, and organizations need to review the security features of their data collection systems to make sure it is well protected. The success of the eProd system in Kenya and its flexibility (it can be applied in all value chains) has led to their expansion into Uganda and Tanzania.



*"I did not know there were so many people involved specifically in providing access to smallholder farmers. I thought we were just a handful. But being here I have discovered that there are over 100 apps trying to support and help farmers out of poverty."*

— Jamila Abass, Country Manager, WeFarm Kenya

## Knowing the market matters, including disparities across regions or counties

WeFarm has been able to scale-up by finding like-minded investors and creating a product people can trust. The farmer-led responses shared on the platform are curated for

quality using data science and technology. WeFarm also tracks trends in questions, which can provide valuable (sellable) data on factors such as disease and pest outbreaks or adoption of new technologies



Through CowSoko's online platform, farmers can access and sell high quality livestock including dairy and beef cattle, goats, sheep, donkeys and camels. The platform also offers detailed information on what livestock are available across Kenya, health status, breeding history and records of the cattle. Buyers can deal directly with the sellers, negotiate and pay, with no intermediaries.

### Consider the question: Who pays?

Start-up companies struggle with this question when it comes to scalability. The presenters shared their thoughts, agreeing that well-meaning organizations need to take stock of whether they are doing what they do as a charity or to make a profit. Are they dependent on donor money or sustainable as an independent organization? What is the business case, revenue model, and customer base? And if they want to go to scale, including by attracting partners, do they have a business plan, with commercial projections regarding the level of scale needed to keep their product viable?





“Last year, ideas were nascent and exploratory. This year... Participants are having conversations about what has worked or not. Everyone is part of the conversation. There are exciting conversations about the ways different initiatives have been partnering to organize data to fill the bigger picture of the customer, combining Mpesa transactions, learning data, credit history, purchasing history... There is something there to build on – not just for smallholder farmers – all businesses are seeking to understand little-known customers.”

– Paul Breloff, Impact Investor & Advisory Council Member, AFA

## Workshop 7: Women and Youth, Segmentation & Impact



MODERATORS: LUCY KIOKO, AFA AGRICULTURAL EXPERT LEAD | COLLINS MARITA, AFA MONITORING, EVALUATION, AND LEARNING MANAGER

PRESENTERS: JOSEPH BOIT, FOUNDER AND MANAGING DIRECTOR, GRADUATE FARMER | IVANA DAMJANOV, PROGRAMME SPECIALIST, UN CAPITAL DEVELOPMENT FUND-TANZANIA (UNCDF) | VEYRL ADELL, HEAD OF WOMEN'S FINANCIAL CAPABILITIES AND INCLUSION, FINANCIAL SECTOR DEEPENING ZAMBIA (FSDZ)

Women and youth are priority target audiences for AFA. Women lag behind men in terms of financial inclusion and the use of digital solutions, while youth remain a neglected demographic in terms of access to financial and other resources due to societal constructs around ownership of assets and youth capability.

Panelists at this workshop represented Graduate Farmer, an online platform targeting youth with information, tools, and solutions to engage in agribusiness; UNCDF in

Tanzania, which focuses on last-mile finance models and has created a strategy to spur inclusive economics leveraging digital technologies; and FSDZ, a development organization committed to expanding financial inclusion in Zambia for youth and women through education, products bundling, and regulatory recommendations to streamline service requirements.

The panelists focused on unpacking new learning in reaching women and youth smallholder farmers to increase their access and capacity through user-centric approaches, technology, and data analytics. Key questions and incites included:

### **Are youth and women being left behind intentionally?**

The panelists suggested that while exclusion may not be intentional, it is real. The 2017 FinScope data in Tanzania revealed that 54% of medium and small enterprises are headed by women, representing easy entry points. However, only 14% have five or more employees, suggesting that women are involved in businesses that offer low wages, which do not enable them to accumulate assets or collateral for expansion. For youth, the motivation to go into farming or agribusiness is stymied by practical and social constraints. They have difficulties accessing land, finances, skills, and other resources to launch into farming as a business. In addition, social norms and expectations go against the idea of going "back" into farming for those who are able to access advanced levels of education. Finally, both women and youth suffer from the fact that digital solutions are attuned to the bottom line or external markets rather than to understandings of market segmentation and potential.

### **What does the ecosystem have to do, to ignite the potential of women and youth?**

With banks reluctant to invest in youth, there is a need for models (e.g., for credit scoring and training) directed at youth to strengthen their financial planning and management capacity. Otherwise, they are left in a cycle of informal borrowing and business failure. Young men, in particular, constitute the riskiest group for lending, making the case difficult to convince lenders to invest in them. However, there are solutions, such as engaging youth in groups and productive activities that can lead to asset growth, collateral, and access to credit.

Likewise, Veyrl Adell suggested that FSDZ (Zambia), UNCF, and AFA need to use evidence to facilitate conversations with service providers about the untapped potential of smallholder women customers. AFA research indicates that women save an average of \$600 by their third saving cycle. Unfortunately they often lack the strategies to utilize their savings effectively. With 177,000 savings groups in Zambia, there is a need to highlight to service providers that they constitute an important market for financial services, as well as insurance (e.g., medical, funeral). To create a more enabling environment, FSDZ is reaching out to banks and working with regulators to try to minimize key requirements for women to access formal financial services.

### **Why does it take women longer than men to adopt digital financial services?**

The presenters and moderators commented that research and data have shown that women are more risk averse than men, and they have less leisure time to experiment with new products. Men are more likely to try new products, while women are more likely to wait and see if it offers value addition. When they do pick up a product, it is with a steeper adoption curve. For example, with M-PESA and mobile savings, evidence shows that although men conduct more transactions on the platform, 60% of those using it for savings are women, constituting a market that should not be ignored.

### **Every project and partnership needs to have a women and youth strategy.**

Participants emphasized the importance of segmentation and of gathering data on women and youth up front in order to inform product or service development, and analyze trends in uptake or usage. The strategy also needs to consider how to do messaging, where to go you reach women and youths, how to understand particular youth or female segments, and how to adjust solutions based on their input and responses. FSDZ-WIN is developing an education curriculum and working with women and youths to see how than can bundle services in digital financial services to meet their needs and preferences. With UNCDF-Tanzania, women play a major part in the strategy addressing last-mile finance models and how to leverage digital technologies to reach people historically excluded from financial services.

### **It's not enough to just go to women or youth.**

Discussants noted that most decision-makers, including bank managers, are men, who are not likely to understand the female or youth segments or buy into their issues. Managing these dynamics requires creativity – and disruption. However, bringing economic empowerment, voice, or agency to women does break down structural barriers, and it is important to design programs with both women and men in mind, mapping out the power dimensions, engaging with the head of household, and following up with women throughout the project implementation to ensure that changing dynamics do no harm.

As a further point it was noted that women are not always entirely reliant on their husbands for financial decisions or control, and may have room to leverage their own sources for collecting or saving money (e.g., community or savings groups, buying assets) earned from home gardens or other independent income sources.

### **Can we incubate new ways of doing things in farming for youth?**

Joseph Boit, who founded Graduate Farmer as a young entrepreneur and farmer himself, commented that while there are incubators for ICT, start ups, and innovation, they do not exist for agricultural enterprises. The challenge is to create employment for youth – who face widespread un- and underemployment. Graduate Farmer was founded to offer information and practical solutions for young people to get their agricultural businesses off the ground, including a training center formed in 2016.

### **What does it take to design meaningful products for women and youth?**

Research is essential, and programs need to take fuller advantage of existing research resources to be cost efficient. Participatory approaches (e.g., 17 Triggers, Busara, Dalberg) are essential, and the presenters urged all the people in the building to go out and meet their clients. FSDZ found that when Stanbic Bank designed a product for women, they only looked at salaried women. They are working with Women's World Banking and Global Alliance for Women in Zambia, using a common platform for sharing knowledge and building institutional capacity to develop women and youth-centric

products. FSDZ also is partnering with regulators to understand their role in holding financial institutions accountable.

*When you empower women, you affect long-standing dynamics. If you foresee change in power relations, first design for both women and men, then track and map out the power balance.”*

— Veryl Adell, FSD Zambia

### How do you reach out to women and youth?

Social media is key to reaching young people. Facebook groups that draw large membership and generate interactive discussions with farmers and experts; for example Onion & Watermelon Farming Gurus has close to 96,000 members and Digital Farmers Kenya has nearly 200,000. Experience from Women’s World Banking and a large bank in Malawi, suggests that who and how you do the marketing is critical, as well as who is in the field, who is dealing with women (not officers accustomed to a bank environment), and making sure there is a feedback loop.

Staff also need to be incentivized, watched, and evaluated based on the targets they are reaching. UNCDF found that perseverance was essential, and while men embraced a new product quickly, women’s participation stayed flat at 30%, no matter how hard they tried, until over time, women came to understand the product and feel more confident about it.

### What are strategies for integrating women and youth into solutions and product development?

Institutions must go through a transformational process, requiring internal commitment at all levels. A smart way to develop products for women, recognizing how they manage and allocate their money, is to bundle products and create linkages between women’s household and agricultural priorities. In Zambia, with the recent release of the National Financial Inclusion Strategy, the government has committed to digitizing Person to Government (p2g) payments in two key areas, school fees and tax payments, to ease the burden on women and enhance the security of their funds.

### Next steps

In Zambia, AFA is building on its WIN project research. They have met with banks, mobile network operators, off-takers (buyers, who have agreed with the seller to purchase a set amount of product), and others to present opportunities gleaned from the work and information on how to understand different segments of women clients.

They are developing a project with an over-the-counter financial service provider called, Zoono, to tap the opportunities of working with village savings and loans associations to promote financial services, and potential develop savings and other products for women in rural areas of Zambia.





Serving small holder farmers is really hard, in order to tackle all these challenges, you just need a little extra push on how to innovate and think outside the box. It's time to create a concerted vision of where we are going, a joint vision of all of these actors in our market ecosystem players is going to drive success.

Leesa Shrader, Program Director, Mercy Corps  
AFA

## Workshop 8: Women and Youth, Segmentation & Impact



MODERATORS: LEESA SHRADER, PROGRAM DIRECTOR, AFA | SAMANTHA MALAMBO, AFA SENIOR PROJECT OFFICER-ZAMBIA

PRESENTERS: FRED KIIO, HEAD OF COMMERCIAL OPERATIONS & SEGMENTS, SAFARICOM | MWOMBEKI BAREGU, HEAD OF AGRICULTURE & RURAL FINANCE, FINANCIAL SECTOR DEEPENING TRUST (FSDT) TANZANIA | PATRICK KIMANI, CEO, KENYA LIVESTOCK PRODUCERS ASSOCIATION (KLPA) | ANANTH RAJ, DIGITAL LEAD, WORLD FOOD PROGRAMME-FARM TO MARKET ALLIANCE | LESLEY DENYES, PROGRAM MANAGER AND DIGITAL FINANCIAL SERVICES SPECIALIST, INTERNATIONAL FINANCE CORPORATION (IFC)

AFA partners are beginning to scale up services to farmers, but the costs and channels of onboarding are expensive and sometimes result in low active rates. This workshop looked at how new projects are exploring varied approaches to mass acquisition, the trade offs in cost and client activity, and how channel increases engagement and cross-selling.

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Featured presenters represented DigiFarm – a mobile based product to drive uptake and active use of farmer credit solutions in Tanzania; FSDT, which is working with farmer cooperatives in Tanzania to pilot bulk payments with Tigo Cash; WFP’s Farm to Market Alliance, which connects farmers to market, inputs, and financial services through a digital platform; IFC, which is using data and prediction analysis to convert inactive to active clients. Key learning and highlights from their presentations discussed:

### **The role of data and segmentation in driving financial inclusion.**

The IFC’s Financial Information Group’s advisory services are addressing client acquisition innovations and the challenge of client inactivity. Their 2017 Data Analytics Handbook addresses segmentation, describing different user types and tailored solutions (e.g., designing a loyalty program for power users, or more product information for low users). Their program with Tigo Ghana has been working with data to identify a clear set of characteristics around active users. Collaborating with Stanford University they have created an algorithm to inform a prediction model for active users. Using the model, Tigo targeted 240,000 low activity clients and converted 70,000 of them to more active users – an impressive 30% conversion rate for the context, achieved at a low cost of only \$2 per acquisition.

### **The role of cooperatives.**

FSDT conducted a pilot study in Tanzania, where they have been trying to digitize payments for cashew farmers through their cooperatives, which have the highest number

of touch points with smallholder farmers. Of the 7,000 households involved in cashew farming, only 20% are financially included. Payments for cashews come from one source, and last year 30 million Tanzanian shillings were distributed in cash. The pilot study is working with Tigo to investigate how to leverage cooperative touch points to promote acquisition. Initial demand turned out to be overwhelming – within three weeks, over 1 million Tanzanian shillings had been paid to more than 70,000 smallholders. As demand continued to grow, it became clear the program would have to increase operational system capacity to absorb it.

### **Leveraging digital platforms to drive uptake and active use of farmer credit solutions.**

Safaricom developed DigiFarm, a mobile-based solution targeted at smallholders that offers users access to agricultural information, inputs, savings, and credit. As a telecommunications company, Safaricom is strong at monetizing clients, but it needed to join with partners to bring in expertise in agriculture and linkages to smallholder farming. For example, the Kenyan Livestock Producers Association has helped recruit farmers to DigiFarm through trade shows and its high visibility. The introduction of DigiFarm in Kenya has benefited from the fact that farmers in Kenya are accustomed to using mobile phones and M-PESA money transfers, and they are very motivated by the affordable inputs and market access it provides. With well-planned mass onboarding strategies, uptake of DigiFarm has reached 600,000 in its first year. Smallholder farmers are using the service to apply for and repay loans, and they are responding very positively to the distribution of dedicated input vouchers.

### **Going large scale.**

The Farm to Market Alliance is a World Food Programme initiative in Tanzania and multiple other countries in sub-Saharan Africa, and specializes in end-to-end contract farming. Its platform connects farmer organizations to financial services, inputs, and markets – recognizing that farmers benefit more from a full range of services rather than isolated products. Buyers and sellers engage in contractual arrangements prior to the planting season. The platform has 220,000 farmers, (targeting 1.5 million farmers by 2022), of whom 72,000 have been trained and 24,000 have access to financial services

from the 13 financial service providers on the platform. There are 18 off takers, 183 farmer organizations, and 196 aggregation centers. Some 10,000 inputs have been ordered and \$3 million worth of crops sold. Digital technology allows for most of the governance to be done remotely. The Farm to Market Alliance is layering on additional services to strengthen farmer organizations for the benefit of small holders. But contract farming is complex. It involves multiple partners with diverse interests – for example, getting banks on board has been challenging – but the potential is powerful, and by iterating constantly the overall progress to date has been very positive.

### **Comparing insights and approaches.**

As the presentations highlighted very different approaches for scaling up farmer acquisition and engagement, participants were then invited to move freely among smaller discussion tables, featuring each presenter, fostering more informal interaction and very fruitful dialog across peers.



*“At last year’s learning event, we were discussing startups and pilot programs. This year we are talking about going to scale to increase efficiencies and lower costs. Now we see people talking more about growth and success – setting up targets for next year and looking for partners to go to scale further.”*

– Ananth Raj, Digital Lead, World Food Program – Farm to Market Alliance



We learn what farmers need in order to use that to push the boundaries on innovation and deliver better services. Digital allows for a low cost delivery channel and provides new opportunities to scale out these services. With this program we've realized that financial services are not enough, we need to bundle them and give farmers a reason to use these services.

Olga Morawczynski

## CLOSING PLENARY DRIVING DIGITAL TRANSFORMATION ACROSS SECTORS



MODERATORS: CHRISTABELL MAKOKHA, AFA COUNTRY MANAGER FOR ZAMBIA

PRESENTERS: ANANTH RAJ, DIGITAL LEAD, WORLD FOOD PROGRAMME-FARM TO MARKET ALLIANCE | SAMIR IBRAHIM, CEO SUNCULTURE; | GRANT BROOKE, TWIGA FOODS | SAM KITONYI, JUMO | AMROTE ABDELA, MICROSOFT 4AFRIKA INITIATIVE

The presenters are market leaders in the use of agile technological development and digital solutions to address agricultural value chain gaps:

- WFP's Farm to Market Alliance has established a technical platform to connect farmers to buyers and better track and aggregate commodities
- SunCulture is bundling financing with its affordable, solar-powered irrigation systems to increase farmer productivity

- Jumo is making digital liquidity loans for agents to run their businesses more efficiently
- Twiga is creating a logistics framework and digital commodities market to increase returns for farmers while reducing prices for consumers
- Microsoft 4Africa is investing in partnerships to accelerate opportunities and deliver affordable access, skills, and innovations that can transform lives.

### Addressing the challenges of unstructured markets.

Unstructured markets pave the way for middlemen and enormous inefficiencies that result in inflated prices for food. In Kenya, households spend 42% of their incomes on food, including domestic products. Commodities, such as bananas, go through 5-7 trades between the farmer and final retailer, with 30% of earnings lost along the way. Twiga Foods is addressing the challenge with an approach that combines a digital commodities market accessible by discrete, small vendors with a logistics infrastructure that includes community collection points, aggregation centers, warehouses, cold storage facilities, and distribution centers.

WFP's Farm to Market Alliance created a technology platform to ease logistical burdens associated with coordinating the aggregation of crops from multiple service providers and connecting crops to buyers. The technology gives them information on crop supplies and demand in real time, and has enabled them to target smallholder farmers with digital services for inputs, credit, and advice. The previous target of reaching 70,000 farmers has been expanded to 1.5 million with a full suite of products. The platform offers better visibility of farmer profiles during aggregation as well as activities at collection centers.

### Driving fair market prices.

By going to scale with thousands of vendors using the platform, farmers gain considerable competitive advantage and can command a fair market price. The technology makes it easy to deal with large numbers and identify supplier information and histories. Twiga has helped farmers to increase their selling price by 10% throughout the year. Meanwhile, vendors obtain higher quality produce at a lower price.

*“The modern world of markets is no longer on trading floors but on trading platforms like Alibaba and Ebay.”*

— Grant Brooke, CEO and co-founder, Twiga Foods

### **Picking up parts of the value chain with technology.**

SunCulture uses technology to offer solar-powered irrigation systems for smallholder farmers. Fewer than 4% of smallholders irrigate, leaving them dependent on unpredictable rains and unable to grow high value crops. Irrigation requires minimal behavior change and can multiple the number of growing seasons, increasing yields two- to five-fold. However, the experience at SunCulture quickly showed that providing irrigation alone was not sufficient because of raptures in the value chain, with farmers needing access to things such as improved seed, financing, and information on pests or soil management. SunCulture offers farmers agronomy support and is working with Microsoft 4Africa to create a platform for combining agronomic information with access to credit, advisory services, and inputs.

Grant Brooke from Twiga Foods added that with technology development fragmented markets now have a market. Technology makes parity possible – vendors on a platform have to find a fair price by looking at the competition. Aggregating this and records of sales can then be used to get farmers access to credit, lower cost quality inputs, and more.

*“No matter what problem you try to solve in agriculture, the value chain behind it is extremely disconnected. Full stack problems need full stack solutions. Unsuccessful interventions are not working, because they are focusing only on one piece of the chain; for example, they deal with distribution, financing, training, modeling, production, etc. Solutions need to go all the way back along the value chain.”*

- Samir Ibrahim, CEO and Co-founder, SunCulture

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### **Combining technology and the human touch.**

Jumo has 6 million customers, but recognizes that there are 120 million people living rural areas and depending on agriculture that could be served with digital financial services. Mobile money and digital transactions are lower in rural areas. One of the stumbling blocks is limited agent networks, with agents either hard to come by or illiquid. Recognizing that agents provide a critical human touch point for reaching smallholder farmers, Jumo has developed a digital product that gives agents access to float money to keep them liquid so they can serve customers and run their business more efficiently. This helps to bring digital financial services to rural farmers and attract new customers to Jumo.

### **Experimenting with the application of blockchains.**

WFP piloted a blockchain for humanitarian cash transfers and realized cash savings, but it was also clear that more needed to be figured out before it could be used for the benefit of smallholder farmers. There are few practical examples of blockchain use in agriculture. Microsoft 4Africa has been experimenting with them in Rwanda, identifying challenges around phone adoption, education, policy issues (e.g., land registry rights), and regulations. Twiga is engaging in a partnership with IBM Research to create digital profiles of informal small-scale traders - to be stored in a blockchain - to help increase access to credit. The idea is to create a database of vendor and supplier transactions they can use as alternative data to negotiate loans. Twiga and IBM are also partnering to provide small vendors with 24 hours of working capital, so that they can purchase enough produce to meet a full day's worth of demand. Only 8% of loans have been reimbursed late, and just 2% have not been repaid.

## Not going it alone.

One of the fundamental lessons from the network nature of technology is that solutions cannot occur in isolation. Farmers do not have access to the verticals, and organizations need to fill gaps and create connections across the value chain supporting the development of companies that are adding value to each other and the customer. Microsoft 4Africa is highly invested in building the ecosystem for smallholder farming with partnerships and investments that can accelerate innovations within the sector and create win/win scenarios for both business and smallholders.

## Letting patience pay off.

Earlier in the day Michael Joseph had spoken about how long it took a big organization like Safaricom to come up with an application for smallholder farmers, noting that organizations underestimate the time and execution required to make them work. He added that it takes as long for big companies as for small startups to create solutions for smallholders. The panelists in this closing session agreed, and spoke to the point that adjusting technology to help improve the livelihoods of smallholder is an iterative process that takes time and investment.

WFP's Ananth Raj described how they are starting to see the benefits of digital infrastructure development and efforts to understand farmers' needs and preferences. After five years, WFP is seeing value passed on to farmers from their technology solutions with an improved ability to provide advice, logistics, and financing to farmers. Twiga's Grant Brooke added that although the pace of progress has been incremental, it is now accelerating, and technology may prove to make previously intractable problems solvable. Twiga's experience also suggests that success will depend on the ability to address gaps, such as those in infrastructure or value chains. For example, Twiga is filling a gap by setting up an asset leasing company to lease vehicles to itself. SunCulture is hoping to see more innovations on the investment side, too, such as selling water tokens as a way to raise capital.



# CONCLUSION



SPEAKER: LEESA SHRADER, PROGRAM DIRECTOR, MERCY CORPS AFA

Shrader reiterated a key point raised by Sunculture CEO Sameer Ibrahim – full stack problems must be addressed with full stack solutions. She described for example working with Alibaba in China, where the issue also was to address gaps in the stack – creating universities for coders, storage facilities, a financing system (AliPay), and more. She noted that in the East African region, the stack is coming together.

*“AFA is starting to see the payoffs of partnerships, and continuing to look for collaborations that can cascade innovation to previously unreachable segments,”*  
Shrader.

She described the exponential power of the synergies created when technology innovators meet banks, agricultural companies, new platforms, investors, donors, and others.

“A concerted vision among actors across the ecosystem drives success, where 1+1 = 4 or 5,” she added. With continued partnerships and synergies, Schrader is confident that AFA will not only meet but surpass its goal of bringing digital solutions to 1 million smallholder farmers.

## INNOVATIONS MARKETPLACE



## Fostering connection, cross-fertilization, and potential new partnerships

For the first time, the Annual Learning Event featured an Innovations Marketplace, held concurrently with the meeting sessions and breaks. It featured 11 exhibitors focused on digital services, linkages, bundled products, or technologies that serve smallholder farmers in East Africa and beyond.

### **Annona**

A mobile and web-based platform that global suppliers use to manage their farmer supplies, payments, and aggregate crop production. It offers features such as digital record-keeping, mobile payments, and transparent supply chain information at your fingertips.

### **Arifu**

<https://www.arifu.com/>

An Adaptive Learning System that measures individual user needs and capabilities over Web and SMS. Arifu offers digital learning experts to work with your team to design and develop behaviorally-informed training, advertising, and data collection programs. You can access Arifu's growing library of rated content offered under open and royalty-based licenses from other providers to create a product on your own.

### **Busara Center for Behavioral Economics**

<https://www.busaracenter.org/>

Busara works with organizations to build behaviorally-informed solutions to help scale their products, programs, or policies. Driving the uptake of digital savings, insurance, and financial services among women and smallholders in Kenya, Tanzania, and Nigeria are some of the areas under its financial inclusion portfolio.

### **E-prod**

<http://www.eprod-solutions.com/>

Providing management solutions for agribusinesses, eProd provides an affordable, flexible and automated way of controlling your agribusiness through easy collection of

farmer information you can rely on. eProd is a proven and affordable solution that is designed to handle large numbers of suppliers. It enables you to respond to the requirements of your demanding markets and to address the management challenges that aggregators and food processors experience while sourcing from large numbers of small scale suppliers.

### **iShamba**

<https://ishamba.com/>

The farmer information service of Mediae's Shamba Shape Up reality television show, and the new Don't Lose the Plot show targeting young farmers, iShamba was developed in collaboration with AFA. It responds to farmers questions via phone call or SMS with a call center of agricultural experts, who offer instant help. Services include agricultural tips on crops and livestock, updates on market prices, and information on weather conditions or farming shows, fairs, and farmer trainings in your area.

### **mChanga**

<http://changa.co.ke/>

Kenya's online fundraising platform. Individuals, organizations, & businesses can create awareness and collect local & international donations for their cause (e.g., organization, business, school fees, illness). Setting up a fundraiser is free and can be done in 5 minutes. Supporters can send secure payments using all major mobile and international payment platforms.

### **SunCulture**

<http://sunculture.com/>

Affordable solar-powered irrigation solutions for smallholder farmers in Africa. SunCulture-trained technicians and agronomists provide on-farm training, soil analysis, and agronomy support by mobile phone. Next-day delivery and installation anywhere in Kenya is included in the price of the system. SunCulture farmers average annual revenues of \$14,000/acre, compared to just \$600/acre growing maize using rain-fed agriculture.

### **TruTrade**

<http://www.trustradeafrica.net/>

A social enterprise targeting farmers, aggregators, and buyers. Smallholder farmers benefit from ways to get a better price and a more secure market through market linkages. Aggregators (including youth and women) can become TruTrade franchisees with access to market brokerage services in a commercially sustainable manner. Buyers get support so that they get products of the right quality and volumes, and that delivery is timely and reliable. Tulaa A mobile commerce solution build for rural Africa. We combine mobile technology and last mile agent networks to connect agri-input suppliers, financial service providers, and commodity buyers to smallholder farmers. Tulaa aims to lower the cost and risk for you to do business with farmers.

### **uLima**

<http://ulima.co/>

A mobile platform that provides farmers across Africa with a toolset, database, and access to the latest market information. uLima provides farmers with access to information on crops, seed, soil, livestock, agri-chemicals, weather updates, and market prices, all at their fingertips. One of its key features is a tailor-made solution for each farmer in terms of crop calendars, which offers step-by-step assistance from pre-planting to post-harvest.

### **Uliza**

<https://www.uliza.org/>

A crowd sourced human language processing system for African and Asian languages, Uliza provide quick-turnaround transcription, translation, and customer services that integrate with simple phones or any online workflow. They use the work of their crowds and machine learning tools to build automated voice recognition in languages not currently catered for by mainstream offerings.

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