

Digitising Agricultural Finance

Lessons from AFRACA's Digital Finance for Agriculture Conference

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African commercial banks provide only an estimated 4% of smallholder agricultural finance, and most of this is through very established value chains, such as tea, coffee, and dairy. High costs of credit delivery and actual and perceived risks, combine with competition for capital from African enterprises to limit commercial bank appetite in providing greater finance to smallholders.

Digital finance offers significant potential to reduce delivery costs and partially de-risk agricultural finance¹. Not only in terms of delivery channels, such as mobile money and agent banking, and productivity enhancement tools, such as field-based applications, and data analytics, but in the widening use of agricultural technology at farm level. AFRACA brought together financial institutions, regulators, ag-tech and fin-tech providers, and development partners, to share learnings, in their first Digital Agricultural Finance Conference in May 2022.

¹ Cracknell (2020), "[Reimagining Rural Finance](#)"

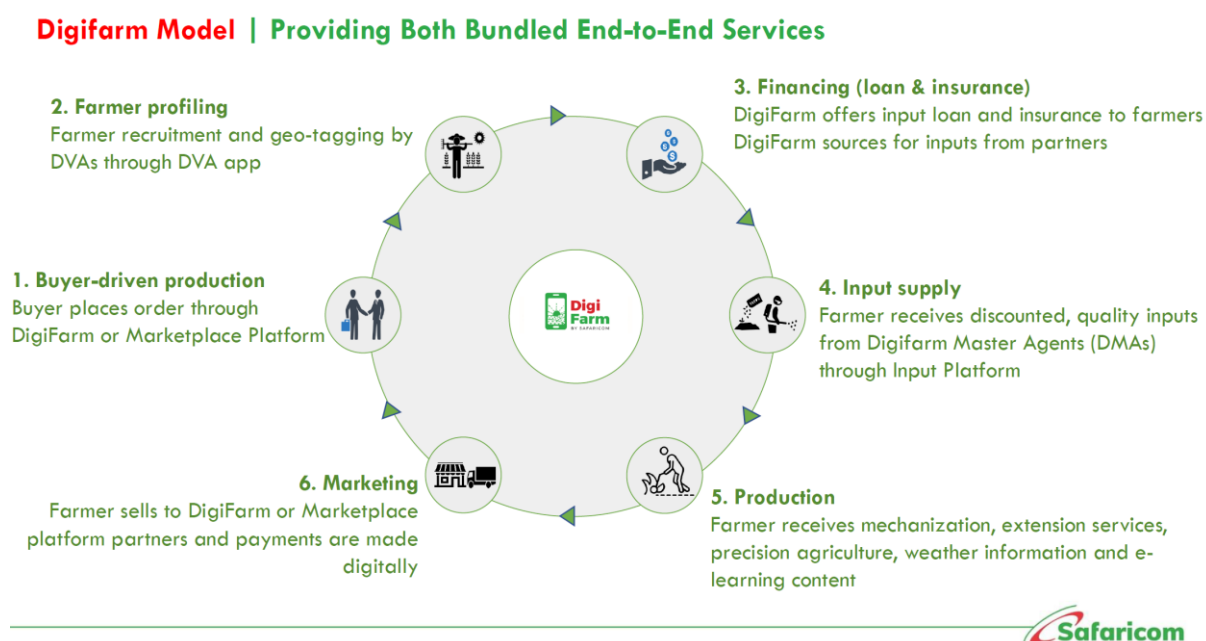
AGRA have been exploring rural digital finance through providing risk capital to financial institutions and technology partners more than five years. Whilst there have been successes, many lessons have been learned from projects which haven't worked. AGRA clearly states that digital is an enabler² - it helps in documentation, in transmission and analysis of data and in facilitating the movement of funds. It has enabled rural financial institutions to become more efficient. However, digital finance and financial technology cannot compensate for the lack of physical infrastructure, such as roads, shops, warehouses. Solutions must be targeted to solve the pain points of value chain participants, and support on the ground is usually required to drive sales and customer support. Driving scale is a challenge - significant funds are spent simply on promotion and signing up customers.

The conference clearly identified successes, and approaches with significant potential. But it demonstrated a significant information asymmetry for financial institutions; in knowing what technologies work - the solutions that reduce risks and costs, for the institution and the smallholder, and as important the solutions which can go to scale.

AGRA noted that in many cases early promise and success could not be scaled, and the ag-tech or fintech solution ultimately failed, examples were provided in value chain invoice discounting and in e-commerce for agriculture. Greater focus is needed on documenting and disseminate the emerging lessons on digital for agricultural finance and to develop best practices in the sector. Continued risk sharing investments are required from development partners; but its important that the same mistakes are not repeated, and the same lessons learned on multiple occasions.

Safaricom demonstrated its digital ecosystem for farmers – the Digifarm platform³. Safaricom's vision is to increase farmer productivity, reduce farm losses and ensure that farmers are fairly paid for their produce. Digifarm facilitates digital innovation in 1. Buyer driven production, 2. Farmer profiling, 3. Financing, 4. Input supply, 5. Production and marketing, as shown in figure 1 below.

Figure 1: Digifarm Model



Source: Safaricom presentation to AFRACA

² Hedwig Siewertsen (2022), Speech to AFRACA Digital Agricultural Finance Conference

³ Safaricom (2022) Digifarm Presentation to AFRACA Digital Agricultural Finance Conference

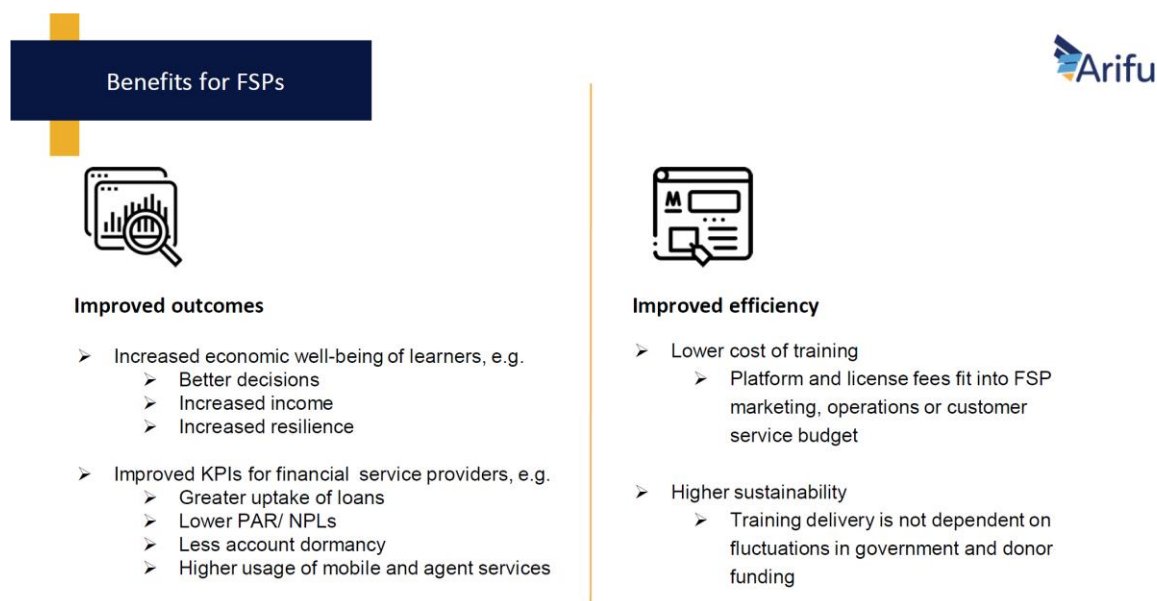
Safaricom has recorded impact in increasing yields through providing quality seeds and improving farmgate prices. More than 160,000 smallholder farmers were active on the platform by early 2022 over 9 value chains. Moreover, Digifarm is demonstrating its ability to facilitate agricultural technology at scale so further ecosystem enhancements are likely. However, in its achievements Safaricom noted significant challenges which included, the low use of digital technologies by farmers, multiple unstructured value chains making efficiencies difficult to drive and limited data for accurate credit scoring. Despite these challenges, Safaricom identified opportunities in digital procurement, e-commerce, information services, weather and climate services, digital finance, and access to assets. In providing support services to farmers digitally and through an ecosystem of third-party apps, Safaricom offers support to farmers by facilitating services that increase efficiency, productivity, and profitability. For ecosystem partners, Safaricom is building agricultural data sets, information for credit scoring, and traceability.

Nevertheless, lessons emerged from the conference that showed the challenges ahead:

Financial Education and Training

Arifu⁴, demonstrated the importance of financial education, and information services to farmers, through context driven SMS messaging. Responses from users would be used to target appropriate messaging aimed at improving farming practices. Costs for the platform and content for messaging were provided by value chain or development partners. Arifu presents the following benefits for financial service provider partners:

Figure 2: Arifu Importance of Financial Education for Farmers



Source: Arifu presentation to AFRACA

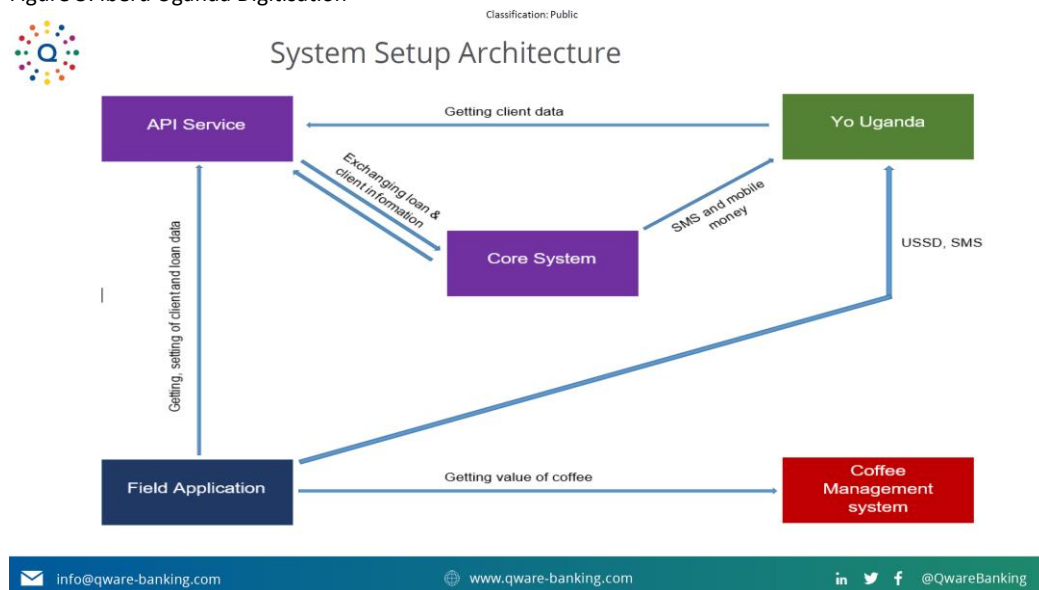
Value Chain Innovations

Agricultural and financial innovation is happening, but it is often driven either by key value chain stakeholders, or by agri-tech providers, rather than traditional financial service providers. Ibero Uganda is the local coffee purchasing arm of Neumann Kaffee Gruppe based in Hamburg Germany. Ibero Uganda has warehouses and coffee processing facilities in Kampala and in all major coffee

⁴ Arifu (2022), Arifu Presentation to AFRACA Digital Agricultural Finance Conference

producing regions in the country. Based in Uganda since 1996 Ibero had developed its network of small holder out-growers. It facilitated its coffee farmers by providing advances to farmers.

Figure 3: Ibero Uganda Digitisation



Source: Quipu Presentation to AFRACA⁵

From the presentation provided by Quipu, Ibero Uganda is digitising its operations end to end supported by Quipu a banking as a service vendor. Ibero’s officers had a field application linked into its core system, and its coffee management systems, which meant that farmers could be provided with advances on crop sales, which would be netted against sales based on coffee delivered and graded through the coffee management system.

Another example, which shows the growth of Pay-As-You-Go (Grow) services in agriculture is SunCulture which provides a solar powered micro-irrigation solution which can pull water from 70 meters below ground level, and supply directly to crops.

Figure 4: SunCulture micro-irrigation

⁵ Quipu (2022), Quipu Presentation on Digitising Ibero Uganda at the AFRACA Digital Agricultural Finance Conference.

SunCulture is tackling the irrigation gap head-on

IoT-enabled solar energy systems and irrigation equipment, designed specifically for the needs of smallholder farmers

Our flagship product

The RainMaker 2 solar water pump, powered by the ClimateSmart intelligent energy management system



Highest specifications on the market

RainMaker 2 pump can pull water from 70m below ground, while the ultra-powerful ClimateSmart energy system is capable of 500W output

Access to financing and value-add services

Pay-As-You-Grow credit enables customers to pay over 1230 months, while supported by installation, repair and maintenance, aftersales support, and tailored agronomy advice

The full package for smallholder farmers

Base system comes with sprinklers and 100m of piping for irrigation, as well as a phone charging port and a set of 4 lights for the house

Ability to continue up the productivity ladder

"Plug and play" upgrades like drip irrigation, TVs with agricultural content, and pressure cookers (egg incubators, agri machinery to come)



5

Source: SunCulture presentation to AFRACA

Sun culture has information from its customers indicating increases in yields, and in income, as a direct result of its micro-irrigation systems, with 76% of its customers reporting increases in income, and 83% reporting an improved quality of life.

The potential of geo-mapping

One of the areas with the greatest excitement is in geo mapping. A recent study by Palladium⁶, referenced at the AFRACA workshop showed the following trends. Super Apps have been developed which offer a suite of services which include geo-mapping, weather advisory, market information, and access to inputs, or buyers. Mapping services are provided which map the boundaries of productive areas, including humans walking around fields.

The importance of geo-mapping today is that a variety of B2B models are developing, geo mapping data is now being commercialised, and offered through to value chain participants and financial institutions in different packages to meet specific needs, either on specific farmers, estimating yields in a particular location, or in providing historic data. Nevertheless challenges remain in commercialising geo-mapping for smallholder farmers.

⁶ <https://bit.ly/3ycYZuA>

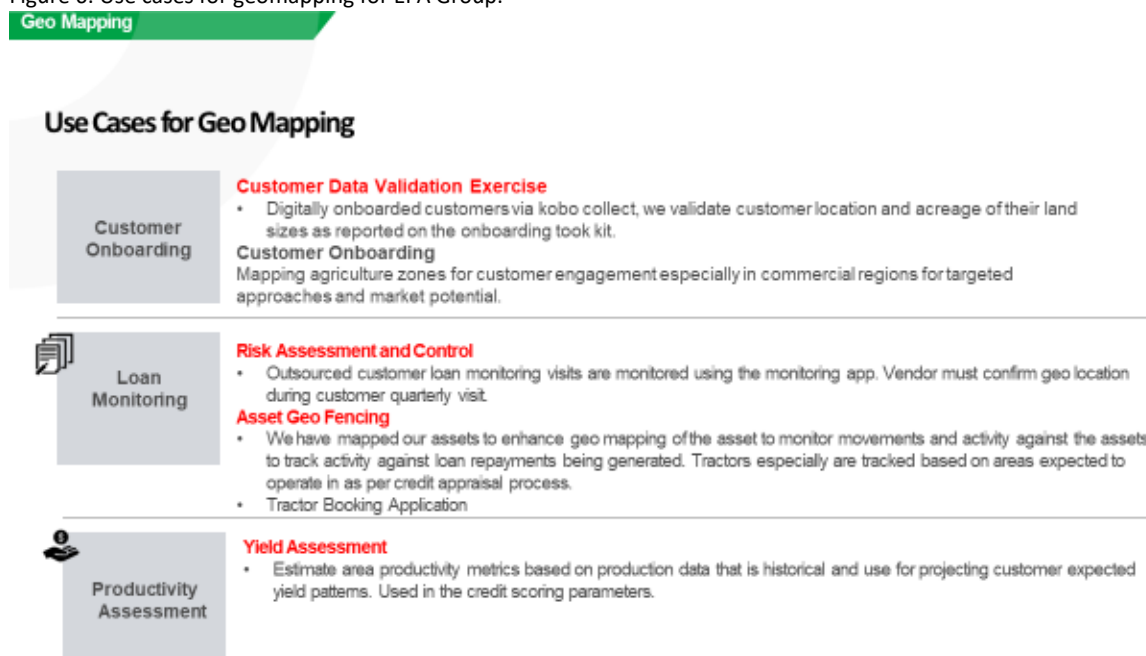
Figure 5: Major trends in Gomapping for Smallholder Farmers



Source: Palladium presentation to AFRACA based on Geomapping study

The potential of geo location can be seen through a case study which shows its integration into the business practices of a leasing company – Equipment Finance for Africa, or EFA Group⁷. EFA Group provides both finance and operating leases for small holder farmers. It has integrated geo-mapping into its customer onboarding and validation, its loan monitoring and into productivity assessment. It reduces risk and enables EFA to better monitor and manage its portfolio.

Figure 6: Use cases for geomapping for EFA Group.



Source: Presentation to AFRACA Conference

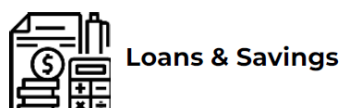
⁷ EFA Presentation to AFRACA Conference

Banking as a Service

One of the major challenges identified during the conference was the need for financial institutions to connect into this evolving ecosystem, to digitise their own operations, and to enhance their ability to use data. These challenges are reduced by Banking as a Service Platforms, which provide space on a core banking platform, with data accessed through cloud storage services.

Figure 7: Key features of Musoni Systems BaaS solution

Key features



Digitalisation Tools



Source: Musoni Systems Presentation to AFRACA⁸

Presentations were provided from Quipu and from Musoni Systems. Both Quipu and Musoni offer a range of existing integrations to their platform, through an API connected to their platform for example, for example, Musoni clients can benefit from a range of existing integrations on the platform, these include lending platforms and analytics (LendXS and rubyx); digital loan origination (money phone); mobile money integrations (M-Pesa, Yo Uganda), credit reference bureau (TransUnion and Metropol), accounting integrations (sage), bank business intelligence (Bank BI); Software and payment service providers (software group, and Tangaza), customer information can be managed using Salesforce, and bank process automation (Juakali).

Data for Lending - LendXS

Taking the software as a service model there is scope for agricultural lending platforms to be developed which incorporate data, scoring and reporting, as long as the B2B model works for both financial institutions and for the service provider.

An example of this, is LendXS⁹ which provides solutions targeted at palm oil, coco, rubber, coffee, sorghum, dairy, maize, nuts, poultry, tea, agroforestry, onions and casava. LendXS collects and analyses data, creating risk profiles, and aggregated farmer investment portfolios. Using information, they support scorecards, workflows, loan monitoring and reporting.

⁸ Musoni Systems Presentation to AFRACA Conference

⁹ LendXS Presentation to AFRACA Conference

Figure 8: LendXS – Data for agricultural finance



Source: Presentation to AFRACA

Key Learnings from the Conference

In summary, there are key lessons from the conference.

1. **Significant benefits from sharing knowledge** on what works and what does not. Best practices are still at the early stages of being developed. AFRACA can play a role in understanding and reporting on evolving impact relevant to our financial institutions, regulators and policy makers.
2. **Information asymmetries limit uptake:** It is very difficult to keep up to date with what works in a rapidly changing environment. AFRACA can play a significant role for its members in scanning trends in fintech and agricultural technology.
3. **Risk and cost reduction is possible for financial institutions,** this can change the business case for lending to agriculture. Until financial institutions develop more sophisticated approaches to data, data partnerships will be key to provide to assess and reduce risk.
4. **Technology is an enabler not a magic bullet.** Technology is not the totality of an ag-tech or fintech solution, products and solutions need to be tested directly with smallholder farmers, and solutions benefit from 'feet on the ground' for sales, marketing, and customer support. Many solutions must accommodate limited financial literacy, and low levels of technology usage in the target group.
5. **Platform solutions are searching for scalable business cases:** There is no doubt that Safaricom's digifarm provides significant value-added services for farmers, despite this, rollout at farmer level faces significant challenges, and loan performance challenges limit scale up.
6. **Useable data exists but datasets are incomplete, ability to use data sets is increasing.** However, the challenge is to commercialise data into B2C, and B2B forms suited to different use cases. The path to

commercialising data is difficult and challenging but it is critical for building scale. There are very many new fintech's and ag-techs - most will fail.

7. **Banking as a Service platforms offers significant potential** for fast tracking integrations into financial technology.
8. **Potential for wholesale financing identified in digitising value chains and expanding PAYGO Agtech:** Financial institutions have alternative approaches for financing agriculture, in financing commercial organisations that already provide supply chain finance, as they digitise, or in expanding PAYGO models.
9. **Consolidating data from smallholder farmers with smallholder farmers:** Typically, farmers don't own the data collected about them. However, digital lockers, with blockchain based certificates could offer farmers the ability to use data collected about them in accessing financial services.

This blog is one of a series of blogs, should you wish to sign up to receive additional blogs, please write to David Cracknell at david@firstprinciples.consulting

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