

Has Digital Agricultural Finance Come of Age?

David Cracknell



The digital finance revolution in Kenya enshrined by M-Pesa has been well documented, through studies, and blogs, amongst others GMSA, by Professor Njuguna Ndungu and by this authorⁱ. An extensive digital finance ecosystem has developed around the M-Pesa platformⁱⁱ, promoting the development of specific use cases, an extensive innovation infrastructure, locally known as Silicon Savana, and the launch of a range of embedded financial servicesⁱⁱⁱ. Policies to both regulate and promote digital finance have been introduced but remain work in progress.^{iv}

Kenya's fintech revolution has broadened through the development of e-commerce, m-health, m-education, and m-solar. The banking sector has responded and continues to respond to digitise its channels, and products, its back offices, and to enhance loan decisioning. In agriculture a similar, quieter revolution is happening^v, through a combination of agricultural technology, and digital agricultural finance. But has digital agricultural finance matured, has it come of age?

To understand the breadth and nature of digital agricultural finance – see Cracknell (2022), "Digitising Agricultural finance"^{vi}

1. Formal finance for agriculture remains in short supply.

Finance through regulated commercial lenders, banks and microfinance institutions remains in short supply. A 2018 study by the Kenya Bankers' Association identified limited access to agricultural finance as one of five key constraints, alongside underperforming value chains, insufficient infrastructure, adverse agribusiness environment and limited inclusivity^{vii}. A 2020 blog by FSD Kenya (ibid) noted that agriculture was the least funded sector of the Kenyan economy by formal institutions, accounting for only 3.2% of sector funding.

2. Perceptions of high costs, high risk, and a low-risk appetite of commercial banks continues to limit the expansion of agricultural finance.

Perceptions of high costs and high risk, combined with a low-risk appetite by commercial banks, are all factors in strategic decision making on portfolio allocation. Fortunately cost and risk dynamics are changing with the advent on agent channels, and digitisation of loan portfolios, but even where this is the case, competition for credit acts as a break on the expansion of agricultural finance. Understanding where there is scope for providing lower risk, lower cost agricultural credit will be key for the sectors' growth.

3. The environment, climate change and social focus is driving a renewed focus on agricultural finance.

Financial services continue to evolve, however, today, there is increased focus on how financial institutions do business, how they are sustainable in the longer term. This is encapsulated by the emergence and application of Environment, Social and Governance standards (ESG)^{viii}. These standards relate to the long-term sustainability of an institution in part through its impact on the environment, on its stakeholders, its customers, wider society through how the institution achieves its objectives. The emphasis on ESG is increasingly reflected through how investment vehicles invest, through how central banks regulate, and through the policies and practices of the financial institutions themselves.

4. Ongoing risks related to climate change are promoting policy innovation.

Successive droughts, and a locust invasion have led to an acute realisation of the ongoing impact of climate change on Kenyan agriculture. Recognising this, and cognisant of international trends in ESG for financial services the Central Bank of Kenya introduced Climate Risk Management Guidelines in 2021^{ix}. A key aspect of these guidelines is establishing measuring and monitoring systems for assessing climate risk for material loans.

5. Whilst under-represented in bank portfolios formal finance for agriculture is likely greater than is at first apparent.

It is generally accepted that approximately 2% of commercial bank finance in Kenya goes towards agriculture. However, this is likely undercounting loans which are not classified as agricultural because they fall under a different lending category, for example, asset finance. Detailed analysis of portfolios not at a product level, but at a purpose level would be required to ascertain the true quantum of agricultural finance provided through commercial banks. In the case of one portfolio investigated by purpose, agricultural lending was close to 8%.

6. Strategy: Few banks have a rural finance strategy.

Rural finance needs to be reimagined. This cannot be done without a strategy^x. A rural finance strategy enables a financial institution to carefully think through its plans to support agricultural finance, but places agricultural finance in a wider, more profitable, context. This could include agent channels for cost effective service delivery, partnerships for product delivery, data for risk assessment, partnerships for risk sharing. It includes, rural deposit mobilisation, bulk payments, remittances, agribusiness products. A strategy seeks synergies between verticals, for example corporate finance for agribusinesses, retail finance for their value chains, agency banking to support cash management in that value chain.

7. Guarantee mechanisms must support innovation rather than be used to completely underwrite risk.

Guarantees are a traditional and important mechanism encouraging financial institutions to lend for agriculture. However, it's important that these mechanisms are designed to stimulate innovation, and not to completely underwrite risk. If risks cannot be undertaken commercially without complete coverage, then

the quantum of agricultural lending will be limited by the extent of the agricultural guarantee. Transformational impact will not be achieved.

8. Despite high failure rates of ag-tech and ag-fin, the ag-tech and ag-fin industries are maturing, but lessons and best practices must be shared for rapid progress to be made.

Agricultural technology and digital agricultural finance are maturing rapidly. This is across all categories, including advisory and information services, individual and collective (big) data, geo-mapping, digital platforms, technology such as solar irrigation, farmer to market marketing, e-commerce, and alternative finance. However, lessons learned from failed ag-tech and ag-fin are still to be or are being documented and disseminated. This implies that the same challenges, problems, and issues are being re-learned, time after time. It is important for future ag-tech and ag-fin to be able to learn from earlier cases.

9. Regulation of innovation and the role of regulators continues to evolve.

Regulation of innovation is evolving, this can be seen in the rollout of sandboxes, and their role in setting standards, in data protection regulation, and in movements towards data sharing^{xi}. However, challenges remain in many markets related to financial conduct.

Regulators should play a significant role as promoters and supporters of innovation in rural finance and digital agricultural finance. This implies high levels of engagement and responsiveness in encouraging and reviewing innovations and supporting partnership approaches. They should be engaging with other government departments involved in agricultural value chains, including departments of agriculture and other stakeholders, such as credit reference bureau. They need to be considering policies around the use of data and data protection, data sharing which includes the agricultural sector.

10. Platform approaches still to leverage full potential.

Platform approaches are those which integrate financial technology and digital finance for agriculture, examples include Safaricom's Digifarm and Apollo Agriculture's agriculture platforms. These platforms are designed to provide market-place services, farmer profiling, finance, input supply, production, and marketing. There is huge potential in platform approaches, but it is still work in progress. This is not surprising. Each agricultural value chain has distinct characteristics requiring customised interventions, the involvement of different actors, loans customised to different agricultural cycles, different realities for post-harvest storage and marketing. Even where systems are well developed adoption challenges persist, including smartphone adoption, financial education, onboarding, and training farmers in the use of the platform. Digital platforms likely need people in sales and support roles still being defined to realise their potential.

11. Digital agricultural finance is not a Corporate Social Responsibility project.

Digital agricultural finance must not be seen or pursued as a Corporate Social Responsibility (CSR) project if it is to scale. To scale products must follow a careful product development process, which includes research through the value chain, concept development, concept refinement, technology development and integration, pilot testing, pilot test evaluation, product refinement, launch, and post launch support. One of the under recognised reasons for the success of M-Pesa was that it was pilot tested extensively prior to launch.

12. Challenges to digital finance adoption are generally known and can be substantially addressed through product design and delivery.

In their study "Access and Utilization of Digital Financial Services And Digital Information Services Among Smallholder Farmers, Pastoralists and Agro-Pastoralists In Kenya"^{xii} MercyCorps Agrifin notes factors which constrain the adoption of digital financial services at the consumer level in rural Kenya. These include, a lack

of digital literacy and technical skills, limited access to digital infrastructure, a lack of trust and understanding of digital financial services, perceptions, social cultural and gender barriers, a lack of relevant and tailored products and services, high costs of digital financial services, insufficient awareness and outreach, and language barriers. These factors need to be considered in every digital agricultural finance product.

13. Successful digital agriculture usually includes people!

Successful implementation of ag-tech and ag-fin involves people, few products can be entirely digital. People are engaged in sales, training, or support roles. It is important to remember, that in making decisions on whether to use digital agricultural finance products and services users need to learn to trust the solution, to feel that there is someone to hold accountable for any issues, someone who can help them to navigate the solution.

In many cases, therefore, whilst there is digital or nano credit which disburses and is recovered automatically without human intervention, many loan products, and certainly larger loans will involve sales and service staff. Back-office processes will be automated, and decision making will be assisted.

14. There is an expanding range of data whose potential is yet to be fully realised.

Data is the heart of the digital finance revolution, data sets are becoming richer, especially around payment flows, reflecting the digitisation of payments through mobile money, and card-based transactions. Open banking policies, regulations and infrastructure is spreading alongside policies related to data privacy. These developments will over time lead to more accurate credit scores, as distinct from a negative or positive decision, available from credit reference bureau.

In agricultural finance, poor quality of data and incomplete datasets create challenges in assessing potential loans. However, increasingly, alternative data sources are available which can contribute to loan decisions, for example, satellite-based data providing information on crop yields and water sources for irrigation. Moreover, remote data collection methodologies are building big datasets based on self-reported data through the mobile phone with data entered being screened for reasonableness against related or historic entries. As an example, for Kenya KALRO has collected data on 2.7 million Kenyan farmers, and CGIAR has combined this data with previous farmer surveys into a big dataset. The challenge now, is for this data to be made available and for it to be used in decisioning.

15. Data aggregators are likely to play an important role.

Professionals who aggregate data and analyse data are important intermediaries, especially for mid-tier financial institutions who do not have advanced data analytic capabilities. The challenge will be in the commercialisation of these services, and for some, the willingness to outsource elements related to decisioning.

16. Digital finance complements traditional approaches to value-chain finance.

Traditional approaches to agricultural finance start by analysing value chains. Many of these value chains are in the process of digitising in different ways for example:

- i. Supply chain digitisation: Iberu Uganda.
- ii. Wholesale marketing digitisation: Twiga Foods
- iii. Certification: Coffee farming identifying growers.

Twiga Foods has huge volumes of data on the regular transactions of its SME customers through its e-commerce platform. Iberu Uganda, has digitised its coffee value chain to provide loans and purchase coffee from thousands of Ugandan coffee farmers. This greater transparency provides potential for significant investments through the value chain.

17. The ACFTA offers expanded access to markets which could be a boon for banks.

There will be many challenges in making the Africa Continental Free Trade Area a success, especially in providing the data, standards, and policies to facilitate pan African trade. However, with greater provable and reliable data, potentially backed by smart blockchain based contracts, it is realistic to forecast growth in key value chains, and consequently, for these value chains to require formal sector funding.

18. Ongoing challenges in digital agricultural finance will continue to constrain progress.

Its worth mentioning, where I feel there remain key constraints:

Impact / Information asymmetry: Simply knowing what works. Even in a relatively simple product such as mobile money, it has taken years to distinguish between principles that apply everywhere and practices which are local. In digital agricultural finance, much of this experience and exposure is locked within development partners, who are slowly releasing their lessons learned.

Strategy: Few financial institutions take a strategic approach to rural, and within rural – agricultural finance. This means that synergies which help to reduce costs, or risk are underdeveloped^{xiii}.

Process: The process of product and use case development and of learning how to support new products and services is often performed poorly. These are skills which are even more important in designing agricultural finance products and services.

Partnerships: Partnership approaches, which will be key in the digital finance future are still to be explored and developed. Further guidance from regulators and policy makers is required. Financial institutions must be willing to risk partnership.

Ownership of the customer: With partnerships, questions can arise over who 'owns' the customer, the ag-tech, or the fintech, who has the principal relationship, who takes decisions. This determination is important not only in terms of future product development, but also in terms of data protection.

Ability to use data: Financial institutions are learning how to use data, it starts with asking the right questions to the right data, and then being able to interpret the answers provided. Abilities take time to develop.

Commercialisation of data: Even where data is available, can it be commercialised, that is offered to consumers of data at a price and in a format which is useful to them.

19. Can donors or donor projects be transformative actors?

Donors have already played a significant role in digital agricultural finance, in supporting early-stage innovation. This blog suggests a wide range of roles for donors which includes, policy advocacy, innovation support, training and capacity building, coordination, business case development, promoting partnerships and reducing information asymmetry.

Donors should continue to support innovation in digital agricultural finance, but in doing so, they should build on emerging best practices. However, this itself is a challenge given information asymmetry. It is extremely difficult to keep in touch with developments in agricultural technology and agricultural finance, especially in the wider context of rural finance advocated by this blog. Its even harder to understand the factors that contributed to success or failure. So, collectively, knowledge management and dissemination is a key component of future success for the future of digital agricultural finance.

This blog is one of a series of blogs, please comment, should you wish to sign up to receive additional blogs, please write to David Cracknell at david@firstprinciples.consulting or register on www.firstprinciplesinfinance.com

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