



DIGITAL FINANCE IN USAID'S AGRICULTURE AND FOOD SECURITY PROGRAMMING

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for Feed the Future

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BACKGROUND

Agriculture remains the primary source of formal and informal employment in many low-and middle-income countries (LMICs), especially for those residing in rural areas. However, the sector often faces a chronic and pervasive lack of access to suitable financial services, which can impede farmers' ability to increase productivity, earn higher incomes, diversify their livelihoods, and achieve greater resilience. This gap in access is particularly severe among smallholder farmers—those that cultivate parcels of land that consist of less than two hectares—representing approximately 2 billion people worldwide.

The long distance from urban bank locations has historically served as a primary deterrence for poorer rural farmers in terms of accessing formal banking services, while incumbent financial institutions that rely on traditional delivery models have faced their own set of challenges working in the agricultural market. These providers can face high operational costs accessing

farmers, lack the tools and expertise necessary to quantify the risk of lending to this market segment, and often do not have products and services tailored to the needs of farmers in terms of design, accessibility, and affordability. According to one estimate, only one percent of commercial bank lending in Africa flows to the agricultural sector.¹ Emerging digital financial service (DFS) models hold the potential to mitigate some of these constraints and unlock access to finance in the agriculture sector, providing an opportunity for developing countries to reduce poverty and food insecurity and build resilience and sustainability.

This briefing note provides an overview of emerging DFS operating models and delivery channels and their relevance to programming supported by USAID's Bureau for Resilience and Food Security (RFS).

1. IFC, "[Access to Finance for Smallholder Farmers: Learning from the Experiences of Microfinance Institutions in Latin America](#)," 2021.

OPERATING MODELS

While not necessarily homogeneous across all LMICs, we can categorize the wide range of emerging DFS operating models into two broad categories:

Bank-led: Incumbent, traditional banks take the lead on all aspects of the DFS offerings—managing the customer acquisition, product branding, and end-to-end customer experience. Under this operating model, banks may build DFS products and channels directly or partner with nonbank providers such as financial technology (fintech) firms and mobile network operators (MNOs) to offer third-party services.

Nonbank-led: Incumbent and disruptor nonbank financial institutions (NBFIs)—for example, MNOs, fintech firms, and insurance companies—take the lead on similar aspects of the DFS offerings — managing the customer acquisition, product branding, and end-to-end customer experience. Under this operating model, nonbank financial institutions may partner with the incumbent, traditional banks to access specific enabling services as required by regulation or business model preferences (e.g., accounts to store customer deposits).

It is worth noting that some countries also contain a hybrid DFS operating model, which allows either banks or NBFIs to be the majority stakeholder.

DISTRIBUTION CHANNELS

The low population density in rural areas undermines the economics or business case for traditional, branch-based banking services as it can be costly for banks to operate individual branches with such few customers over a widespread area, often with poor infrastructure and difficult terrain. DFS can overcome this constraint by leveraging lower-cost distribution channels to reach customers in rural areas affordably and at scale.

Mobile phones: With the rapid uptake of mobile phones in LMICs and improvements in cellular connectivity, especially

in rural areas, innovators have unlocked opportunities to deliver financial services through smartphone applications and unstructured supplementary service data (USSD)—a critical piece of infrastructure used to provide mobile financial services at low cost and without requiring access to the user's SIM card. Over the past decade, mobile phone-based financial services have emerged to cover the full spectrum of financial services, from facilitating payments and access to current accounts, to offering savings, loans, investments, and insurance.



Point-of-sale (PoS) devices, e-cards, and QR codes:

To move beyond traditional, branch-based banking, the primary point of contact for customers becomes agents or other third-party intermediaries who rely on technologies, such as card-reading point-of-sale (PoS) terminals, electronic cards (credit, debit, smart card, key fobs), and QR codes, to transmit transaction details. As PoS terminals can function with 2G connectivity, they work far beyond the reach of the internet in developing countries and only require a basic handset to work. SMS and USSD operate on basic and feature handsets with 2G connections and can work for mobile PoS devices. QR codes also offer a user experience at least as good as cash, if not better, as farmers can simply launch an application on their mobile device, scan a QR code, and enter a specified e-PIN.

Agent networks: In many LMICs, virtually all financial transactions are conducted in cash. Without a means to convert digital money to physical money and vice versa, the rapid uptake of digital financial services would not have

been possible. Since rural areas have almost nonexistent traditional banking infrastructure (e.g., branches), they require a different solution. Banks and nonbanks rely on established distribution networks (such as post offices) or individual, small-scale entrepreneurs (such as kiosks or agent banking branches) to provide, at a minimum, cash-in/cash-out services to customers. In rural areas, these agents are often the only physical presence of formal financial service providers and therefore fulfill a critical role in enabling the uptake of digital financial services.

Embedded finance: Recent fintech innovations have created opportunities for non-financial companies to integrate third-party financial products into their core services using application programming interfaces (APIs), which seamlessly link other services to the mobile account already on a customer's phone. This innovation can serve as an alternative distribution channel for financial companies seeking to enter new markets and can enable non-financial companies to strengthen their customer value proposition.

EXAMPLE USE CASES

Payments: Digital payments can address the inefficiencies of cash transactions in agricultural value chains by reducing cost, increasing speed, and lowering the risk of theft and fraud. Farmers can use digital payments to receive remittances quickly, efficiently, and transparently from relatives, collect payments from buyers for their outputs, make payments for inputs, and purchase other goods and services. Critically, digital payments intersect with all other forms of DFS. Driving uptake among farmers can provide an opportunity to build a financial history and access credit, savings, insurance, and other financial products. Moreover, DFS continues to serve as governments deploying digital tools for important tasks, such as distributing subsidies to farmers. As these digitized government subsidy programs become more common, they work to encourage and expand the use of digital savings and payment accounts among farmers who receive government support.

EXAMPLE

[USAID/Ghana Agricultural Development and Value Chain Enhancement II](#) digitized payments between farmers and buyers. The project supported buyers to integrate with MNO infrastructure so they could digitally pay farmers for their harvest via mobile money. In doing so, buyer agents no longer had to handle large sums of cash, and farmers didn't have to spend time and money traveling to receive payments.



EXAMPLE USE CASES (CONTINUED)

Credit: Significant, unmet demand for agricultural and non-agricultural credit exists in rural areas of LMICs. Financial institutions often overlook rural, poorer customers due to high service costs. Where this market segment does have access to credit, products are commonly ill-suited to the inconsistent cash flows inherent in agricultural production. Leveraging alternative data sources and advanced analytics, DFS innovators are developing and deploying credit products tailored to agriculture production cycles. Increased access to appropriate credit products can enable farmers to purchase higher quality productive inputs, withstand shocks, and finance technological improvements, among many other benefits.

EXAMPLE

[USAID's Agricultural Extension Support Activity \(AESA\)](#) in Bangladesh piloted a new initiative to provide smallholder farmers with agricultural lending by partnering with Bank Asia Limited and local microfinance institutions to test a micro-credit facility for farmers. Under this initiative, participating farmers could receive lower interest loans with more flexible repayment options and conveniently access near-field communication (NFC)-enabled debit cards to purchase inputs securely and easily from participating retailers. This pilot worked to transform the state of small agricultural loans in Bangladesh, while also increasing the uptake of digitally enabled agricultural purchases.



Savings: Farmers in sparsely populated rural areas have had constrained access to savings accounts because traditional financial services infrastructure (branches, etc.) are limited where they live. Digital, mobile-based wallets and the growing presence of agent networks have provided these farmers with a convenient and easy way to save and access their money. Increasing the ability of rural populations to save their income can mitigate risk at the household level and provide opportunities to invest in higher quality inputs and new technologies.

EXAMPLE

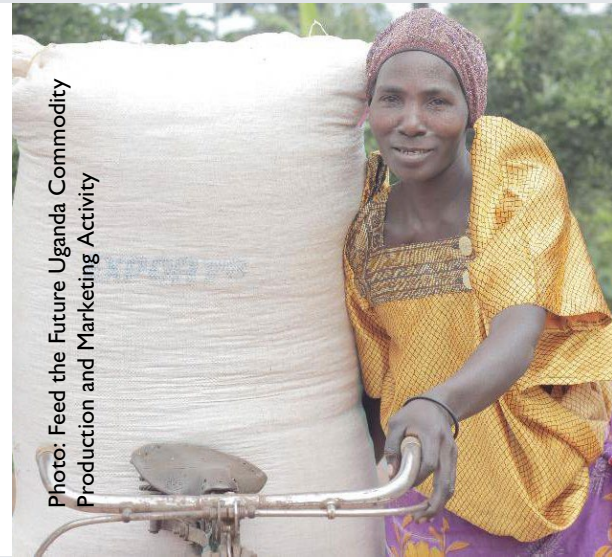
In West Africa, the work undertaken by MyAgro, a non-profit social enterprise and former USAID Development Innovation Ventures (DIV) grantee, has highlighted the potential that digital technology can have in facilitating input savings. The MyAgro system allows farmers to save small amounts of money throughout the year into a mobile layaway account, in micro increments, at their own convenience. Farmers then use the money stored in the account to purchase seeds and fertilizers from MyAgro before the start of the planting season. This system has numerous advantages for farmers, as it enables them to save for inputs in a flexible manner; guarantees their money is stored in a committed account, so they are not tempted to take it out for other uses; and provides them with a formalized, contractual linkage with an input provider, which reassures them that they will receive the correct amount and quality of the inputs needed, in a timely manner.



Insurance: Traditional insurance products have historically been out of reach for farmers in many LMICs. Without insurance, farmers are left highly vulnerable to distinctive and correlated shocks. Insurers have tended to overlook small-scale agriculture due to the high costs associated with data collection and claims processing, and many farmers have limited awareness and understanding of insurance products. Recent innovations in insurance technologies (or InsurTech) combined with the widespread usage of mobile phones and improvements in digital connectivity have provided an opportunity for farmers to address these challenges.

EXAMPLE

Example: The Feed the Future Commodity Production and Marketing Activity (CPM) is working to achieve sustainable increases in smallholder production and marketing in Uganda. Operating in an advanced DFS market, CPM has partnered with a variety of private sector actors and seen high levels of adoption of digital payments among farmers in their target demographic. CPM partnered with software provider Akorion to utilize mobile technology to collect biographical information on smallholder farmers, create their digital profiles, and connect them to a range of digital financial services, such as bundling crop insurance and production loans to increase client value.



GENDER EQUALITY AND SOCIAL INCLUSION



Photo: Riaz Jahannpour for USAID

Rural women tend to have much less access to formal financial services than their male counterparts, and DFS is no different. Gender gaps in mobile phone and mobile money usage, financial and digital literacy, and income levels make women more likely to miss out on the benefits of DFS. Other marginalized groups may also be less likely to have access to formal financial services and mobile phone access. To avoid exacerbating these prevailing issues, development practitioners must partner with DFS providers that have embedded gender and other social inclusion elements into the product and channel development lifecycle. The USAID Feed the Future Advancing Women's Empowerment (AWE) Program is working to enhance women's empowerment and gender equality in agriculture systems. One of AWE's key learning topics is understanding how DFS can increase women's economic empowerment in agriculture and food systems, particularly in activities beyond production.

KEY ENABLING FACTORS FOR DIGITAL FINANCIAL SERVICES

Agents

In predominantly cash-based economies, consumers need a cheap and easy way to convert electronic money into cash, and vice versa, for digital financial services to succeed. Agent networks have emerged to fill this need. The availability and capacity of these “mobile money agents” are key elements to the success of any DFS ecosystem for agriculture. Some USAID programs, such as ADVANCE II in Ghana, have worked to establish more robust agent networks by identifying new potential agents—who were usually large-scale farmers and well-known in their communities—where the smallholder farmers would be cashing out, and then training these new agents with support from MNOs.

Reliable liquidity: Rural areas have an acute need for agent networks to provide, at a minimum, cash-in/cash-out services, as a large portion of unbanked and underbanked farmers reside there. A persistent challenge to this critical enabling infrastructure for DFS in agriculture is liquidity management, the practice of maintaining enough cash liquidity on hand to perform cash-in/cash-out transactions on behalf of customers. Thus, a key enabler for DFS in agriculture are widespread agent networks with decent liquidity that reach many rural areas.

Network penetration

Digital connectivity is a critical component of any successful implementation of DFS in agriculture. Farmers without access to financial services tend to live in rural areas where mobile network and data connectivity are more likely unreliable or non-existent. In most countries, more than 90 percent of the rural population have never used a digital medium to access a financial account.² This is an indication of the challenges around rural connectivity that can hinder the growth of DFS in agriculture. For a DFS solution to be more useful than cash, rural customers need to have faith that they can access a service whenever they need it. The value of a digital account decreases if there is no network signal when they want to make a transaction.

Mobile phone penetration

To rollout DFS, it is paramount to understand how many people have access to mobile devices, as well as what types of phones are most prevalent in a particular geographical area—even if they use phones in their family or community, and do not own one themselves. There is optimism that growing smartphone penetration and increased rural connectivity in emerging markets will be the game changer for digital financial services in agriculture. Continued usage of smartphones



Photo: Debora Chacón, Rana Labs

in rural areas will lead to the development of data streams and digital profiles that, when combined with data on local agronomic conditions, could help financial service providers (FSPs) overcome some of the challenges around information asymmetries in financing farmers.

Digital and financial literacy

Two vital enabling factors for DFS are (1) digital literacy—the ability to access, manage, understand, integrate, communicate, evaluate, and create information safely and appropriately through digital devices and networked technologies for participation in economic and social activity—and (2) financial literacy—knowledge of basic financial concepts and the skills and attitudes to translate this knowledge into behaviors that improve financial outcomes. Having a willingness and readiness to receive digital payments often requires a mindset shift. Low digital and financial literacy—both of which are unfortunately more prevalent among women—can contribute to an unwillingness to utilize DFS. Readiness also incorporates cyber hygiene as an important component of digital literacy, as this enables individuals to stay safe and secure online through routine practices that protect against fraud and identity theft.

Payment accounts

In most LMICs, the majority of the population is either unbanked, and do not have a bank account, or underbanked, and have a bank account but rely heavily on informal services. In cases where accounts are in place, these are typically used only for salary disbursements or are completely dormant. These challenges are often more acute in agriculture and rural communities, since the cost to manage an account and the distance from bank locations in urban centers are two of the biggest reasons why poorer farmers do not use banks. Thus, a key enabling factor for DFS in agriculture is that payees have their own access to a digital payment account and should know how to use that account safely and securely. Digital payment accounts allow farmers to transact via digital devices and agents without requiring them to travel to a physical bank to conduct financial transactions.

Flexible know-your-customer (KYC) requirements and ID availability

KYC is a due diligence process that financial entities use to verify customer identity and assess and monitor customer risk. Compliance with KYC regulations helps prevent money laundering, terrorism financing, and other standard fraud



Photo: USAID Ghana

schemes. By verifying a customer's identity and intentions when the account is opened and then monitoring transaction patterns, financial institutions can more accurately pinpoint suspicious activities. However, KYC standards are sometimes too cumbersome for individuals, particularly those without access to requisite formal documents. The digital ID schemes underlying many DFS programs often require extensive collection of background data before issuing an organizational ID. However these organizational IDs are not necessarily recognized as forms of identification that meet the KYC standards necessary to access credit and other financial services. A key enabling factor for DFS in agriculture are programs and regulatory systems that allow for tiered KYC and flexibilities related to proof of identity. This would also include efforts to ensure that citizens have easy access to necessary IDs and allow customers without an ID to complete transactions at lower monetary limits.

Government commitment to financial inclusion and digital payment innovation

Often, partner country governments that are committed to financial inclusion recognize the value of digital payments, paving the way for innovative products and services. A key enabling factor for DFS in agriculture is a government that has a national financial inclusion strategy, as well as regulation supporting innovation and growth in the mobile financial services sector and strategies for digital transformation of the agriculture sector.

Diverse providers and products designed with customer input

The rapid growth of digital finance providers in many USAID Feed the Future priority countries has accelerated the integration of DFS and, in turn, helped to engage the private sector in the rural economy, spurring lasting market growth. A more robust DFS ecosystem in the agriculture sector will have more diverse options when it comes to choosing

interoperable digital payment providers and product offerings. This is a best practice for DFS interventions in agriculture: to support a variety of compatible DFS products with critical agricultural services at multiple points in the value chain to help farmers access the right inputs when they need them. Interoperability is important because it allows customers to make payments and transact more easily with others, no matter which service providers they use. It also brings value to the providers and financial system overall by encouraging competition and leading to improvements in the variety of payment services, reducing distribution costs and enabling economies of scale that may contribute to the financial viability of the payment service. Because of the nature of rural populations and agricultural activities, it is not enough for FSPs to transplant models and products that have gained traction in urban environments. Successful implementations tend to design services from the ground up, based on a thorough understanding of the needs, behaviors, and incentives of rural customers.



Photo: USAID Bangladesh

KEY RESOURCES FOR REFERENCE

For more guidance on digital financial services for agricultural development, please refer to the new **Curated Resources Website** developed by USAID's Digital Finance Team in the Innovation, Technology, and Research Hub. Other useful USAID resources are:



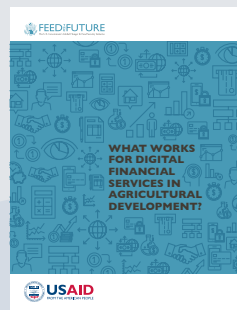
[Guide to the Use of Digital Financial Services in Agriculture](#)



[Digital Technology and Agriculture-led Growth](#)



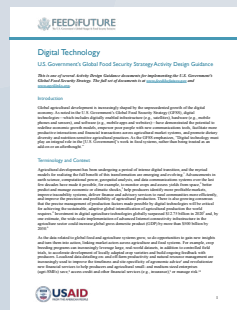
[Digital Technology and Resilience](#)



[What Works for Digital Financial Services in Agricultural Development?](#)



[Digital Finance and Women's Economic Empowerment in Beyond Production Roles in Agriculture and Food Systems](#)



[Feed the Future Guidance on Digital Technology](#)

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