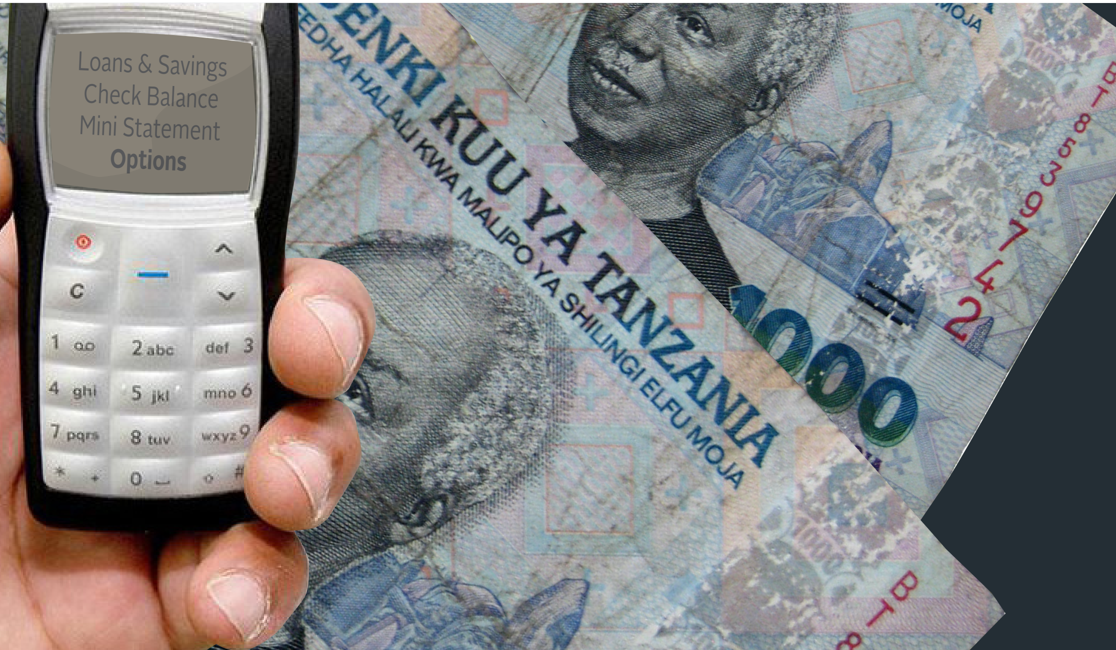

Lay-away for agricultural inputs

A digital solution from Tanzania

About the Mastercard Foundation

The Mastercard Foundation seeks a world where everyone has the opportunity to learn and prosper. The Foundation's work is guided by its mission to advance learning and promote financial inclusion for people living in poverty. One of the largest foundations in the world, it works almost exclusively in Africa. It was created in 2006 by Mastercard International and operates independently under the governance of its own Board of Directors. The Foundation is based in Toronto, Canada.

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About AGRA

Alliance for a Green Revolution in Africa (AGRA) is a partnership-driven institution that is African-led and farmer centered. Established in 2006, AGRA places smallholder farmers at the center of the continent's growing economy by transforming their farming beyond the solitary struggle for survival, into thriving businesses. Our partners include African governments, researchers, development partners, the private sector and civil society working primarily with smallholder farmers - men and women who typically cultivate staple crops on two hectares of land or less. Our five-year strategy (2017 – 2021), aims to catalyze and sustain an inclusive agricultural transformation through integrated, country-based investment plans in 11 countries with a high potential for success. The focus is on increasing incomes and improving food security for 30 million farm households with support that strengthens the capacities of governments and private sector through policies, programs, and partnerships that increase productivity and access to markets and finance.

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Foreword

The expansion of mobile payments in sub-Saharan Africa has been at the forefront of the global increase in mobile account ownership. However, account usage remains a challenge in the region as elsewhere. This learning paper documents the Grameen Foundation (US) and Positive International Ltd's value proposition for the use of digital savings tools for smallholders in Tanzania.

The project provided the opportunity to test how far agriculture households are willing to save for short term goals such as input purchases, and whether or not flexible layaway schemes can substitute conventional savings or credit products to meet financial needs in a timely and cost-effective manner.

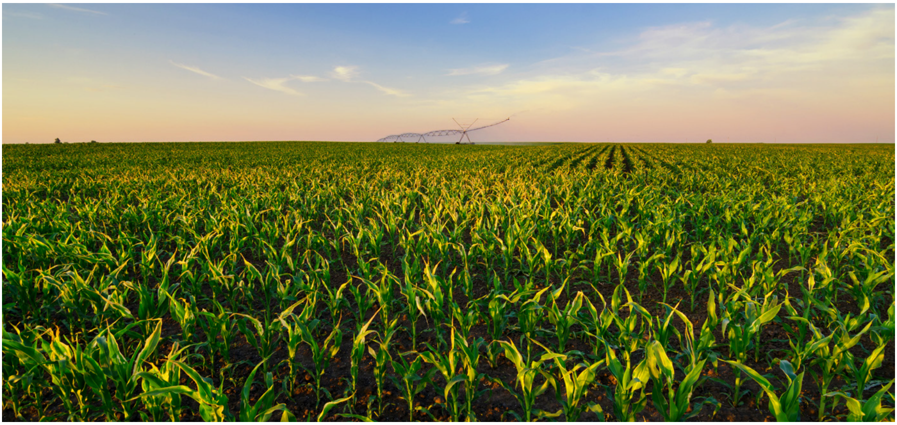
Credit constrained farmers often choose not to buy inputs such as seeds and fertilizers or purchase poor quality inputs. While suppliers such as agrodealers are willing to provide inputs on credit, they have limited cash flows at their level and formal financial access is sometimes as difficult for suppliers as it is for smallholders. Another issue is the value proposition of inputs themselves – these need to be of good quality and applied at the right time and quantity for producers to see the kinds of productivity gain that would justify an ongoing investment on their part.

In this context a range of agribusiness are currently testing digital tools that can help build awareness on the appropriate use of inputs as also test savings models for input purchases. These agribusiness like Positive see digital tools as an important driver for input sales. The digital tool for input financing (DIFT) tested by Positive International and Grameen has four key focus areas: a crop investment plan to guide farmers on the best quality inputs, time and quantity of application in relation to their crops and land sizes/condition; a flexible layaway program suited to farmer needs that allowed them to save up any amount, at any frequency for inputs; the timely purchase and delivery of the inputs to the smallholder farmers and agronomic training through the platform.

One key innovation in this project which was valued by farmers is the utilization of a savings-based approach with flexibility of payment size and frequency. However, following the launch of the pilot toolkit a significant amount of work and time was needed to build trust in the savings service, ensure market coordination between the distributor and agro-dealers and adapt the technology to the variety of crops and inputs needed by different farmers.

A general lesson learned is the need for building longer periods into the project timelines and ramp-up of agriculture and digital finance pilots because of the amount of time taken before customers recognize and trust a digital savings service. Additionally, because the layaway was intrinsically linked to the inputs delivery system – the timeliness and selection of inputs on offer made a significant different to customer use and retention.

Enjoy the read and please do share your comments!



Acknowledgement

AGRA's mission is to improve yields and incomes by 2021 for at least 30 million farming households through a series of integrated, country-based programs in partnership with a wide range of private and public sector actors. In order to achieve this mission, a key component is improved access to affordable financial and non-financial services for smallholder farmers seeking to intensify and improve their farm practice.

The emerging digital highways have enabled farmers across Africa to interact with input suppliers and commodity markets more efficiently and more intelligently than ever before. Growth in mobile money usage in Ghana, Kenya and Tanzania make financial services delivery to farmers much cheaper and less risky. Less physical infrastructure is needed to reach farmers and as more data on smallholder farmers becomes available for analysis, certification and rating purposes, the transactional risks are reduced.

AGRA, in partnership with Mastercard Foundation has provided matching grants and technical expertise to 22 partners to accelerate their innovative business models for (financial) services delivery to small scale staple crop farmers in Ghana, Kenya and Tanzania. The grant and technical assistance support our partners in probing, piloting and scaling the (digital) financial and non-financial solutions that present a business case for all partners and an end-to-end solution for smallholder farmers.

Since the start of the partnership in 2015, we have learned a lot of lessons from farmers, service providers, value chain actors and colleagues in the digital finance and ICT4Ag space. This case study from Tanzania documents some of the lessons in proposing a digital prepayment solution for the use at both the producer and supplier level.

We would like to thank our partners Positive International Ltd and Grameen Foundation as well as our learning consultant, Rewa Misra, for the documentation of the lessons in the series and the AGRA team—Hedwig Siewertsen, Lilian Mwamdanga, Paa Kwesi Awuku-Darko and Reuben Gicheha

Glossary

Account access	The number of adults reporting owning an account in any formal financial institution.
Account in use	An account (whether held in a financial institution or mobile money) that has been operated at least once in the last 12 months.
Financial inclusion	Access, use and sustained use of financial services and complementary non-financial services.
Mobile account access	The number of adults reporting owning a mobile payment account.
Range of outreach	The range of financial and non-financial products and services that a household can access at one point of sale.
Scale	Market penetration (the ratio of customers reached to market potential) and/or market expansion (the inclusion of new segments at the market level) as an indication of scale.
Smallholder farmers	Farmers in non-competitive value chains with landholdings less than 15 acres.
Sustainability	While detailed financial analysis will be beyond the scope of these briefs, we will estimate high level measures that allow us to assess whether market expansion is contributing to significant growth in revenues in relation to costs.
Client value:	Product range and timeliness (opportunity cost) and qualitative factors such as trust or social value.

Background

The Digital Inputs Financing Toolkit (DIFT) was tested in Tanzania through a partnership between the Grameen Foundation, USA (GF) and Positive International Ltd funded by Alliance for a Green Revolution in Africa (AGRA).

Grameen Foundation is an innovator in the area of financial inclusion, highly experienced in designing and delivering solutions in support of institutions that serve low-income people. Grameen Foundation is registered as an NGO in Tanzania and promotes breakthrough solutions by leveraging technology to drive services to unreachable clients;. The role of Grameen Foundation in this project included overall project management, supervision and technical support on the design of the layaway solution, providing oversight over the technology and supporting implementation of the project.

Positive International Ltd (PIL) is an agro-input company that trades under the Snow Brand in Tanzania, providing farmers with high quality, affordable pesticides through its network of agro-dealers. PIL has focused on improving its distribution model, pricing as well as its digital strategy to ensure long-term sustainability of its offerings in the market. The role of PIL in this project was research and product design, the coordination of field activities, the launch and management of the pilot and to provide the agro-inputs and training support.

Additionally, the Consultative Group to Assist the Poor (CGAP) supported technical assistance for human- centered design implemented through Dalberg Development Partners. This case draws on key project documents, interviews with main project partners and a report commissioned by CGAP, that elicited direct feedback on the product through focus group discussions with farmers.

DIFT's Role in the Rural and Digital Finance Ecosystem

Globally there has been a sharp increase in account ownership. In sub-Saharan Africa this has been due to the expansion of mobile payments. Nearly 70% of the world population now owns an account (World Bank, 2017). However, the picture on account usage is less clear. About half the global population reports saving in the previous 12 months of the Global Findex survey. In Tanzania, half the population reports owning an account, while only 21% reports owning an account with a formal institution. Of those that own accounts, 29% report that they do not use formal alternatives due to distance from formal access points – highlighting the relevance of digital tools. A common alternative is to save semi-formally, by using a savings group or with a friend or relative.

Not surprisingly rural access, particularly among agricultural households, is more constrained than in urban areas. Other than the thin dispersion of access points, possible explanations include the few financial tools that fit the cash flow needs and preferences of rural households. One key need among rural, predominantly agricultural households for financial services (savings or loans) is when they consider investing in inputs like seeds and fertilizers. Formal financing for this category is low overall, and typically supplier credit is used to meet seasonal cash flow troughs. But what does access to supplier finance look like for rural producers? A recent country diagnostic survey of agribusiness - AgFiMS - conducted by Financial Services Deepening Tanzania, has looked at both demand and supply side constraints to agribusiness financing. Agribusiness here includes commercially viable producers (those living above subsistence), suppliers and agricultural processors.

The dichotomy is that although mobile payment accounts have penetrated well in Tanzania, AgFiMs shows that even for a farmer producing above the subsistence level for food crop producers, over 99% of payments to suppliers (agribusinesses supplying inputs or agricultural services) were still in cash. For cash crop farmers this number is marginally lower at 91%. Access to supplier credit was at approximately 2% for food crop producers and relatively higher at 21% for cash crop producers. A large part of this is a reflection on constrained cash flows at the supplier level – larger suppliers were more likely to provide goods on credit. Demand for supplier credit is also driven by behavioral differences in input adoption and use and quality of inputs.

These issues underscore the need to establish a value proposition for the use of digital financial tools both at the producer and supplier level, but also in the case of input finance that input quality, mix and usage also be carefully matched with customer preferences.

In line with this the Grameen Foundation project tested a digital tool for input financing (DIFT) which had four key focus areas:

- A crop investment plan to guide farmers on the best quality inputs, time and quantity of application in relation to their crops and land sizes/condition.
- A flexible layaway program which allowed farmers to prepay inputs. Farmers could put away any amount at any frequency which suited their needs.

- Timely purchase and delivery of the inputs to the smallholder farmers.
- Agronomic training through the platform.

Positive International sees this as an important driver of input sales.

One key innovation in this project has been to utilize a savings-based approach with flexibility of payment size and frequency, rather than supplier credit to meet input financing needs. However, later in this case we will discuss the opportunities and challenges of coordinating the supply of appropriate inputs, facilitating trust, technology use and scaling beyond a pilot.

Evolution of DIFT and Current Status

Motivation for DIFT and Initial Design

Like many input suppliers, PIL initially offered inputs on credit to dealers with the understanding that dealers would in turn lend to farmers. However, the loans were unsecured and limited to only the most experienced dealers. Moreover, there was no well-structured input financing arrangement between dealers and farmers which, PIL reports, adversely affected their sales. At the same time, PIL was not in a position to offer loans at scale to farmers directly as they perceived this as a high-risk product. Therefore, they sought to develop a product where farmers could prepay for inputs (through a layaway plan) based on a clear investment goal operationalized through agro-dealers.

The resultant toolkit – DIFT – was conceptualized as an investment planning tool which could be used in conjunction with MPESA – a mobile payments service – to help farmers save for inputs. The initial idea to work with a digital wallet-based solution was to allow PIL to monitor prepayments and facilitate savings reminders. In line with this, the initial phase of the project was designed to support the development of 1) a mobile app, which could be downloaded by agro-dealers on tablets or smartphones, and 2) a web app, which was used to manage a series of back-end functions by PIL with its chain of agro-dealers and customers. In order to support adoption, farmers were offered a 10-30% discount (dependent on the product) if they bought inputs through the prepayment plan.

The mobile app allowed dealers to:

1) Register farmers
2) Capture orders from farmers
3) Confirm the pick-up of supplies

The web app allowed PIL to:

1) Register crops and categorize required inputs by crop
2) Register partner agro-dealers
3) Send SMS alerts with purchase bills and reminders for payment;
4) Send an alert to farmers to pick up supplies
5) Provide SMS instructions, delivered directly to a farmer's handset, for the correct amount and application of inputs contained in his/her package.

Emerging Lessons and Adaptation

After the launch of the pilot toolkit a significant amount of work and time was needed initially to build trust in the savings service, ensure market coordination between the distributor and agro-dealers and adapt the technology to the variety of crops and inputs needed by different farmers. Initially the project was supposed to reach approximately 15,000 smallholders by working with individual customers through agro-dealers as the main distribution channel. Of these just over 5,000 were targeted for registration in the layaway scheme. However, by 2017 the project had reached only a thousand farmers. By the middle of 2018 (the original end date of the project), the project had reached just under 11,000 farmers with 530 registered for the crop investment plan and 323 for the layaway scheme.

The major concern on the part of farmers was that they did not recognize PIL or trust them to manage their savings and were also not clear of the value proposition of saving for inputs. There was significant reliance on the agro-dealer to market the product and help register the farmers. The registration process took a minimum of 15 minutes and the expectation was that the dealer would help the farmer learn how to use the app, choose an appropriate savings plan and make a deposit within that time. After that, the farmer was responsible for completing pre-payments well in time for planting. However, dealers were not adequately incentivized to help farmers in this process and were paid after a delay at the end of the planting season. The payment structure was such that PIL delivers inputs in credit to the agro-dealer and the agro-dealer gets paid after the farmer completes his payment plan. This was a departure from the typical commission payment which is completed at the time of sale. Despite this, commissions under the layaway project were pegged at a similar level to what the agents earned outside the project. On the one hand, the delay in payment coupled with non-competitive commission amounts, on the other hand, meant there was no special motivation for dealers to prioritize this product over other business lines.

Additionally, PIL was not able to anticipate the types of inputs that farmers would require. One of the issues that emerged in the process was that the demand was very high for products like fertilizer and seed. Although PIL supplied pesticides and insecticides in the project areas, farmers were unclear about the frequency of spraying and initially did not see the value of this product. PIL learnt that more details were needed on the types of inputs demanded and extension services were an additional missing element in the project.

Focusing on customer adoption and use

In order to address outreach issues in the first phase, effort was made towards the end of the project to enhance market outreach through 1) working with groups of farmers, 2) better incentivizing agro-dealers and 3) expanding the range of products available.

“Trying to reach farmers one by one made it difficult to increase market outreach for the project and we therefore started to focus on farmer savings groups in the last year,” said Judith Aguga Acon, Grameen Foundation Director, East Africa. The project therefore partnered with CARE Tanzania which separately reaches 300,000 farmers and 36

Community Based Trainers (CBTs). The project team recognized that the opportunity to pilot and scale up this approach would be successful given CARE Tanzania's outreach to farmers. The project used CBTs, as a leverage point for recruiting farmers. A decision was taken to pilot the DIFT toolkit with 6 CBTs initially to ensure that the approach was tested and well aligned to the project mandate. Further, it was assumed that it would be easier to get the savings groups' members to save for inputs because they were already in the habit of saving within their groups. Another assumption was that reaching the savings groups through the CBTs would enable the project to reach more women, since over 95% of the savings groups are driven by women.

Ultimately just 5,000 farmers from 212 groups were trained. However, traction was still required for training to translate into farmer registrations as ultimately only 255 farmers registered by the end of the project. New issues emerged as PIL tried this very different channel to scale up.

Firstly, groups were either in peri urban areas or very remote areas. In the former PIL, faced stiff competition from other agriculture input suppliers and their standard discounts were often matched by other companies. In remote areas PIL had a limited network of agro-dealers, which meant that the ramp-up from training to registration was slower than expected.

Secondly the app was not well adjusted to use with groups and the MPESA mobile wallet needed to be redesigned in order for savings groups to use it for pre-payment. In the interim therefore, as the DIFT toolkit was adapted for savings groups, they were allowed to pay in cash.

Thirdly community-based trainers (CBTs) were well trained in managing groups but had little agriculture expertise. Agro-dealers are well versed with agriculture products and their use but were not used to dealing with groups. PIL has had to intensify its training of CBTs and enhance their mentorship skills in order to impact groups in agriculture related activities. They have also hired direct staff to further facilitate group training and extension.

While the original assumption that PIL would not have to work on building a savings culture with group members held true, the fact was that not all group members were farmers. While using groups has been a good strategy to improve outreach to female farmers, PIL is now investing more time to engage mixed groups where both male and female farmers can be reached.

Overall, the shift to working with groups is viewed as appropriate by both PIL and Grameen Foundation. However, the project did not adequately foresee and plan for the significant shift this would entail both in terms of adapting the DIFT toolkit and shifting operations.

Current status

Given these issues the project has seen a relatively slow ramp-up. As of November 2018, the project has reached approximately 11,000 clients with 530 registered under the crop investment plan and 406 on the layaway scheme.

Table 1: Project Progress

Project indicator	Target Outcome	Actual outcome 1st year (2017)	Actual outcome 2nd year (2018)	Total Actual Outcome
Number of smallholders reached	10,350	1,080	9,849	10,929
Number of farmers registered on the crop investment plan	787	9	521	530
Number of input packages sold	10,000	-	338	338
Number offarmers making savings and payments	10,000	9	397	406

While performance lags behind targets on sales and savings, it is clear that as the project entered its second year there was a sharp improvement in outreach. Partly this is attributable to introducing new channels of market outreach such as groups. A general lesson learned is the need for building longer periods into the project timelines and ramp-up of agriculture and digital finance pilots because of the amount of time taken before customers recognize and trust project stakeholders, particularly where digital savings are involved.

Customer Value

We can think about customer value at two levels – one for the inputs and the other for the flexible savings scheme. If a farmer does not see the value of either of these elements there would be no specific reason for them to opt for DIFT. Further, with inputs we assume that farmers would look for something that is competitively priced, fits their specific needs, is of proven quality and is supplied in a timely manner. For the layaway scheme any fee paid should be lower than the interest charged on supplier credit and farmers should be able to trust the company to which they are making the payment. Likewise, the tenure and frequency of the layaway payments should match their cash flows. From a farmer's perspective, we can see that the decision to register or not register is quite a complex one.

CGAP's focus group discussions (FGDs) reveal some of the factors that motivate farmers registering for the layaway scheme. It should be noted that this study conducted four FGDs covering 27 smallholders and the responses are meant to highlight insights and frame future research rather than being representative of all farmers. The most popular reasons given by the interviewed farmers to register for the toolkit were as follows: 75% who felt the prices for inputs were fair; 36% who were attracted by flexible savings and payments schemes; 29% who noted the timely provision of ordered supplies; and 21% who felt the supplies are of high quality and relevant for their needs. Other motivators included: reliable services; advice from the agro-dealer; goods delivered in a safe place; convenience and safety of paying with M-Pesa; and education on the benefits of using the toolkit.

The FGDs with farmers noted that the low number of farmers registered in the toolkit was mainly due to lack of knowledge about the product; not understanding the product; and fear of committing to the unknown in case they were compelled to pay for the supplies they registered for, or that their money will be lost when using M-Pesa to pay Positive International which is not locally based.

Further thought is required on the choice of inputs, but most importantly bringing on board a well-recognized and trusted financial partner would to be a significant boost for the registration numbers in the layaway scheme.

While we do not have the representative data for how farmers ultimately benefitted from the product, going forward, the CGAP report offers some insights on the tangible areas that could be tracked as part of a monitoring system.

Table 2: Improvements in Financial Management Practices at the Farmer Level

Project indicator	Planning, Forecasting & Budgeting	Savings	Prudent spending	Reduced losses	Guaranteed purchases
No. of farmers	19	6	1	4	1
Percentage of farmers	68%	21%	4%	14%	4%

Source: CGAP, 2018

Sustainability

While the product is still sub-scale, PIL envisions a model that provides the opportunity to be sustainable while still offering low-cost services to farmers by focusing on revenues from strategic partners that pay to access DIFTs farmer base. We can analyze sustainability from the producer perspective. We do this to identify two main pathways to sustainability and key related sources of revenue and costs for PIL. The pathways are 1) sustainable access to the DIFT crop investment planning and layaway services, 2) sustainable market access to low-cost inputs.

Sustainable access to the DIFT toolkit:

There were no registration fees in the DIFT at the pilot stage but farmers made a down-payment of 10,000 tsh (approximately USD 4.30) which is ultimately part of payment for their inputs. This is aimed at ensuring farmers are committed to the layaway scheme. Initially registration and layaway services were conducted through agro-dealers, however, PIL now must add an additional distribution channel – the farmer groups - to their business model. However, the costs of a) promoting groups, b) technology adaptations of the app to a group environment and c) managing and reskilling community trainers, pose a significant challenge to possibility of having a service free of charge. On the other hand, given that farmers are still learning about the model, charging a fee does not seem like an immediate option. Instead PIL focuses on cross-subsidizing from other revenue sources discussed below. The financing scheme is not designed to be sustainable in and of itself.

Sustainable market access to low-cost inputs: Farmers currently access inputs at a discount of up to 30% on varied inputs. PIL envisages that upstream large input providers such as PIL, seed, fertilizer companies and off-takers will contribute a revenue stream by paying fees on transactions that are facilitated through the PIL platform with farmers in its network. This will require expanding strategic partnerships. PIL sees its platform as a marketplace for farmers to access inputs, training, output buyers and other commercial services such as soil testing, insurance etc. In turn the suppliers and buyers will access a large organized client base, data and insights on farmers' needs and behavior through the data analysis generated on the platform.

Conclusion

Savings are critical for households whose income flows do not match their consumption, emergency and investment needs. This requirement is amplified in rural areas where income flows are unpredictable. Saving for unclear or long-term goals is often fraught with behavioral challenges such as procrastination or present bias. It is only recently that the financial inclusion industry has started to test tools that allow households or individuals to set specific savings goals or to use diverse hard and soft commitment devices to observe what effect this has on savings preferences, asset building and a range of other economic outcomes. Rigid savings tools such as those that require fixed instalments, or which turn back a lump sum at fixed time periods, are also sometimes less than optimal (although not always), given that different households have diverse preferences when it comes to liquidity, tenure or frequency. The Positive International and Grameen Foundation project is an opportunity to observe if agriculture households are willing to save for short term goals such as input purchases, and whether flexible layaway schemes can substitute conventional savings or credit products to meet financial needs in a timely and cost-effective manner.

Unlike more experimental products, this project has been launched as a full-blown pilot that is trying to solve many problems at the same time. Introducing farmers to new partners, inputs and technologies; getting the financial product right; ensuring that inputs are delivered with the right composition at the right time; that distributors, agro-dealers and community based trainers are appropriately motivated to participate and that the technology platform works well is a complex multi-layered endeavor and understandably the progress is relatively slow. The need for a phased approach becomes evident such that trust, learning and adoption could be facilitated in a more deliberate, planned way. However, some useful lessons have emerged in the process and these are as follows:

1) As with savings, trust matters when it comes to layaway schemes, especially if the scheme is virtual or digital. Since Positive International is a new stakeholder, it has taken a while for smallholders to recognize and understand their role in the rural ecosystem and certainly more needs to be done to ensure great trust in their solution.

2) Just as in the case of finance, inputs as well as farmer adoption are highly dependent on proximal and timely supply, and reliable quality of the product. If a supplier is unable to offer inventory, sufficient input range or the right pricing, the customer will move on and digital layaway may or may not be an attractive enough solution to keep the producer interested. Despite it being at the core a financial product, the success of DIFT is highly dependent on being able to serve agricultural needs efficiently.

3) Any channel or network of businesses being used as a leverage point for outreach comes with challenges. In the case of this project, more needs to be done to systematically think through the incentives and technical capacity of distribution channels – both agro-dealers and community based facilitators.

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