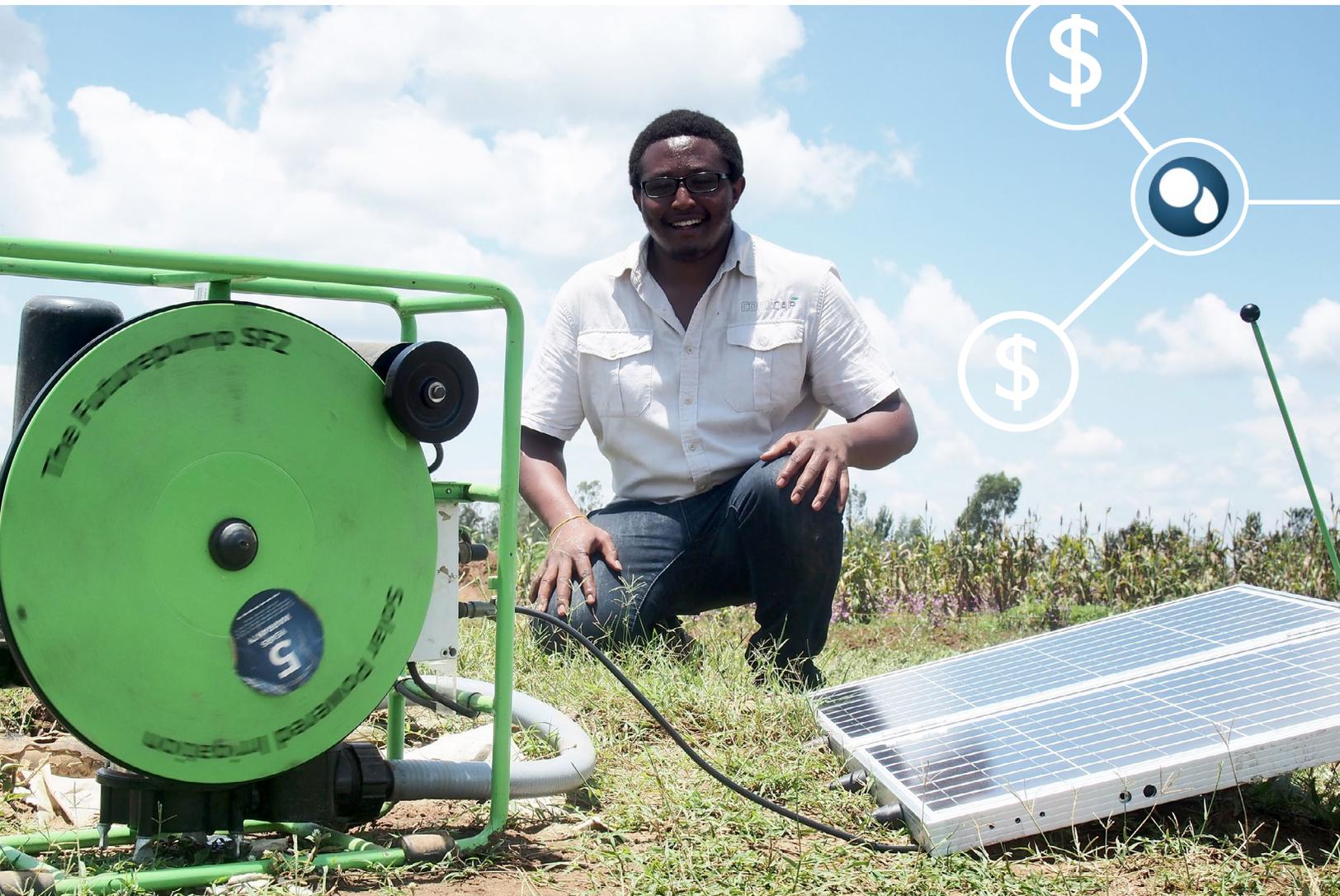


POWERING AGRICULTURE:

AN ENERGY GRAND CHALLENGE
FOR DEVELOPMENT



NAVIGATING THE COMPLEXITIES OF END-USER FINANCING WITH FUTUREPUMP: AN INNOVATOR CASE STUDY



CONTENTS

TYPES OF END-USER FINANCING 1

EXTERNAL FINANCING 2

Formal Financing 2

Semi-Formal Financing 3

Informal Financing 4

INTERNAL FINANCING 5

In-House Financing 5

Partner Financing 7

LESSONS LEARNED 8

KEY CONSIDERATIONS 9



NAVIGATING THE COMPLEXITIES OF END-USER FINANCING WITH FUTUREPUMP: AN INNOVATOR CASE STUDY

Perhaps the most critical part of any company's success is having customers who not only want the services and products it offers, but are also able to pay for them. Affordability is a particularly thorny challenge for the innovators supported by Powering Agriculture: An Energy Grand Challenge, whose end users are typically smallholder farmers in developing countries. These customers often lack the cash to pay for products and services or lack access to bank credit or loans due to structural inefficiencies in the markets where they live. For companies operating in these environments, navigating the complexities of end-user financing may ultimately determine their failure or success in the market.

For more than four years, Powering Agriculture supported Futurepump's testing of innovative financing options in Kenya to help bring solar irrigation pumps to the country's lowest-income smallholder farmers. Futurepump investigated and employed several finance options, both external and internal, in the East African market during this period. Their lessons gleaned from these experiences may help future innovators seeking solutions for end-user financing of productive use assets in emerging markets.



Futurepump (futurepump.com) designs, manufactures, and distributes affordable solar irrigation pumps to serve smallholder farmers in sub-Saharan Africa. The pumps are less expensive, cleaner, and more sustainable alternatives to costly and polluting petrol or diesel pumps. Futurepump also offers remote performance monitoring of its pumps at no extra cost, enabling users to monitor pump utilization, including liters of water pumped, potential area integrated, fuel savings and kilowatt-hours (kWh) produced. Futurepump has a field-testing station for trials of new product designs in Kisumu, western Kenya.¹

TYPES OF END-USER FINANCING²

External financing is provided by third parties, independent from the companies that benefit from the transaction. There are three basic types of external financing:

- **Formal financing.** Money borrowed from regulated financial institutions (also called bank financing).
- **Semi-formal financing.** Money that originates from microfinance institutions (MFIs) and savings and credit cooperative societies (SACCOs).
- **Informal financing.** Money lent through moneylenders, family members, or friends.

Internal financing is provided as part of the company's operating model. In this model, the company becomes its own bank by extending credit directly to customers. The enterprise retains full control over transactions and transaction terms, and is not beholden to external market forces. There are two main types of internal financing:

- **In-house financing.** Companies' partners (e.g., distributors, third-party sellers) extend loans to customers.
- **Partner financing.** Companies' partners (e.g., distributors, third-party sellers) extend loans to customers.



External Financing

Formal financing. Customers borrow from financial institutions such as commercial or investment banks or other organized and regulated groups such as specialized government lending facilities. In theory, these institutions have the largest potential for providing finance as they control a concentrated pool of capital that can be structured to meet market demands. Additionally, these institutions are regulated, which provides borrowers with protection against extortionate interest rates and unsavory collection practices. However, these loans are poorly designed for the realities of cash flow, credit, and accessibility for smallholder farmers; challenges often arise through

administrative burdens and difficulties with consumer credit checks. While financial institutions can have deep pockets and offer protection to their borrowers, their loans are difficult to administer and smallholder farmers find them difficult to access.

Future pump *experience:*

In July 2017, Futurepump secured an arrangement with a financial institution in Kenya to provide loans specifically for its solar pumps. Since that time, any pump sold through Futurepump's main distributor has been eligible for financing if the customer meets certain qualifying criteria.³

Although Futurepump invested significant time and resources in visiting its partner's bank branches, demonstrating the technology to the bank's staff, and training them to understand the capabilities of the pump, only 12 pumps have been sold under this arrangement to date. Most of them were sold via bank transfers from customers who already had a relationship with the bank.

The low sales volume has not justified the commitment and resources invested by Futurepump in establishing this financing mechanism. The low consumer demand indicates that bank loans are still not suitably structured for smallholder farmers if local branch managers and consumers alike are not well-informed on the design and setup of the offerings. The formal financial scheme does not seem scalable at present due to low sales volumes and high resource costs.

PARTNER BANK LOAN CRITERIA:

- Must have an account with a local branch or bank statements from previous banking relationships
- Must have proof of two successful harvests

LOAN DETAILS/TERMS:

- Deposit: 30 percent
- Monthly payments: up to 24
- Setup fee: 5 percent
- Interest rate: 14 percent

Semi-formal financing. MFIs and SACCOs are financial institutions that operate much like traditional banks but are more flexible and can offer informal mechanisms downstream on loan decision-making, distribution, tracking, and collection. Often times, MFIs and SACCOs are designed to better serve the needs of rural customers who live in remote areas far from traditional banks or who require more flexible

and varied products than those found on the consumer finance market. In Kenya, SACCOs provide savings and credit options similar to the services provided by cooperative credit unions in developed economies.

Futurepump *experience:*

Futurepump engaged the Kenya Union of Savings and Credit Cooperatives (KUSCCO), which manages a fund that is loaned to SACCOs under KUSCCO. In turn, SACCOs extend loans to their members at a below-market rate. These loans are only available for the products and services of a few recommended suppliers that have been vetted by KUSCCO. Futurepump is one of those vetted technology suppliers.

Despite the promising features of this semi-formal institutional financing arrangement, the partnership's results have not been significant in terms of Futurepump's bottom-line sales due to a combination of several factors. The greatest challenges have been getting Futurepump's primary distributor to attend and participate in KUSCCO-organized demonstrations, and KUSCCO wanting to be part of all communications between its SACCO network and Futurepump to avoid the possibility of being bypassed by KUSCCO in the process. These added bureaucratic steps have created delays and miscommunications, which have hindered sales. An additional challenge is that Futurepump must invest time and resources into demonstrating its pumps to the SACCOs' boards of directors for approval before it can approach and market to member farmers directly. This has added yet another step to the sales process and lengthened sales cycles.

Informal financing. Informal channels to finance can include moneylenders, family members, or friends, whether individually or through unregulated social savings groups. While this type of financing exists in all economies, it occupies a more prominent position when formal channels are ill-defined or administratively difficult to access. In general, the less developed the country's financial ecosystem, the more prevalent the role of informal financing. While this form of financing can leverage intangibles like personal reputation or trustworthiness due to one's social ties (e.g., family, friends), there are drawbacks in that the financing occurs outside regulated environments with little to no oversight of terms or legalities. In the event of default and the lender's need for recourse, informal channels can result in negative social consequences to borrowers or even violence in extreme cases of retribution. Borrowers are protected against these ills in formal financing arrangements.

Future pump *experience:*

After partner financing (see page 7), Futurepump estimates that informal financing is the second-most frequent financing mechanism its customers use to purchase solar pumps. However, there is no way to distinguish between a transaction where a customer pays cash and one where a customer pays cash that has been lent to them through an informal external arrangement, making this activity difficult to measure.



Internal Financing

In-house financing. In-house financing is a double-edged sword, giving companies more control but adding the burden of credit risk management. Here, an enterprise extends credit or loans directly to customers so they can purchase that same company's goods and services. While this type of financing allows companies to fully control transactions and make their own credit decisions, it comes with the added pressure of needing to manage credit (repayment) risk and correctly forecast losses from defaults so as not to run deficits in the cash they need for day-to-day operational expenses.

Future pump *experience:*

Futurepump began offering in-house financing packages to customers purchasing pumps in areas clustered around its western Kenya office in May 2015. Almost immediately, the company began to see customers failing to make payments on prearranged timelines. Noticing this negative trend, Futurepump introduced an automated text message system to remind people of their payments due. Unfortunately, this approach did not seem to have a meaningful impact on increasing repayments. In July 2016 it became apparent that a significant proportion of customers were behind on their payments. A new process was implemented in which the automatic text messages were stopped and instead monthly calls were made to all customers who were behind on their loans. During those calls, customers were asked for a specific date when they would be paying. In cases where the customer was unable to make that month's payment, achievable actions were agreed on and no penalty was applied.

The more personalized approach had a significant positive impact on the regularity of payments and improved the relationship between Futurepump and its

its customers. The customers on finance before July 2016 made an average of 35 percent of the payments from May 2015 to June 2016. This percentage rose to 80 percent for payments due from July 2016 to February 2017.

Through Futurepump's increased involvement, the field team realized that there was confusion among some customers regarding the loans themselves, the mechanics of how they worked, how interest was charged and applied, and how payments should be made. There was added confusion in the market as some customers saw Futurepump as a non-governmental organization or charitable organization (rather than a for-profit company) and felt less inclined to pay for the pumps.



Futurepump end users with their solar-powered pump (left) and pumped water stored for irrigation (right). Photos courtesy of Futurepump.

Partner financing. In this type of “internal” financing, a firm – often a distributor or third-party seller rather than the technology provider – extends its own in-house financing to customers, allowing them to purchase goods or services. Similar to straight in-house financing, this model eliminates distributors’ reliance on the financial sector for providing the customer with funds to complete a transaction. However, they must then rely on the partner organization to have established the provision of finance as a core competency. This means that the firm typically offers the financing as an additional value-add service to the cost of the equipment itself.

Future pump *experience:*

Futurepump has been working with SolarNow in Uganda and Kenya. SolarNow purchases pumps directly from Futurepump’s primary distributor via its dealer program and then offers the pumps for sale on flexible credit terms. SolarNow’s loans are specifically designed for low-income rural customers purchasing solar products. It competes with traditional financing channels through better customer knowledge gained by building relationships so that the customer experience is more personalized. This is evidenced by SolarNow’s ability to provide attractive financing products that are easy to obtain and have flexible terms.

SOLARNOW

SolarNow is a for-profit business with Dutch origins. Its goal is to transform lives by providing high-quality energy solutions in Uganda and Kenya. The company offers solutions to residential, commercial and industrial customers, packaged with financing options allowing for payment in monthly installments.⁴

Partner financing has proven to be the most successful model Futurepump has found in the Kenyan market. While the model heavily depends on the willingness of distributors and sellers to act as banks, it has allowed Futurepump to refocus its efforts on its core competencies of manufacturing and supplying innovative solutions to the market. In this case, SolarNow has chosen to emphasize financing as a core competency in which to build expertise. Not every organization will want or be able to make the same decision, making partnerships like the one between Futurepump and SolarNow so noteworthy.



Lessons Learned

The most successful financing mechanisms proved to be those linked directly to distributors, particularly partner financing with SolarNow. Even so, Futurepump believes there remains a place for improved formal and informal lending in the productive use product market targeting base-of-the-pyramid end users – the four billion people worldwide living at the bottom of the economic pyramid.

A key lesson from Futurepump's experience is that a product's price point is still critical, even when financing packages are available. If the asset price is too high, farmers are unlikely to be approved for loans that are large enough to cover the price of the asset and are equally as unlikely to want to take on those levels of debt. This is particularly an issue for young markets and new technologies, such as solar water pumps in Africa, where customers have been exposed to few, if any, positive examples of the technology in action.

Adoption of the technology solution also implies a potentially significant departure from historical farming practices, introducing yet another element of risk. The perceived risk is further compounded by end users' general lack of trust in financial institutions. For smallholder farmers in particular, taking on additional risk is challenging to justify as they are already managing risks inherent to their work, such as weather patterns, crop disease, market pricing volatility, and demand variability.

For companies looking to succeed in emerging markets, end-user financing must be appropriately factored into business plans and financial models. Companies who can navigate this challenge by providing solutions at affordable price points with accessible end-user financing options available will have a leading advantage in the markets they intend to serve.

Renewable energy technology providers should consider several financing types and choose the one best suited to them, be sensitive to end-user price points and risk aversion, and factor financing into their business planning.



The Futurepump SF1 solar-powered water pump for irrigation. Photo courtesy of Futurepump.



Key Considerations

In-house financing is not an easy service add-on; to be successful, it must be a core competency.

Companies should consider carefully whether they have the resources and acumen needed to appropriately integrate in-house financing into their business offering.

Repayment and repossession policies are delicate considerations, especially for donor-funded and mission-driven businesses. For in-house financing to work, companies need to think carefully about how to ensure repayment rates and if/how they will be able to recover an asset in cases where end users fail to repay. The repossession of assets that may be supporting the livelihoods of end users at the base-of-the pyramid may be uncomfortable at best, and catastrophic to a company's public image at worst.

Strategic partnerships are an effective solution, but pose the risk of partners not having the same growth and scale ambitions or capabilities. Companies should carefully consider whether external financing partners, like financial institutions, distributors, and microfinance institutions, have the ability to provide financing to meet end-user demand as well as the ability to grow and evolve in parallel with the technology company.

Donors could fill a critical gap. In emerging markets, current options for end-user financing are still inadequate to address farmers' overall needs. This may present an opportunity for donors to fill the void through a combination of providing guarantees to lenders, introducing donor established and locally managed financing facilities for end users, supporting existing financial intermediaries focused on solving this problem (e.g., Root Capital, Grameen Bank), or opening direct credit windows for companies to access when moving financing in-house, to name a few.

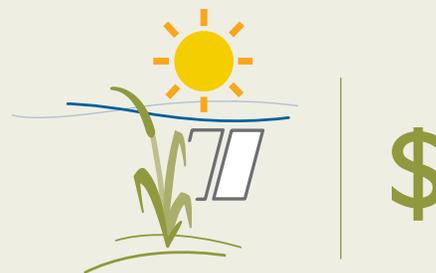
Each market is different, and companies must conduct their own business model discovery. Although end-user financing has been widely discussed over the last ten years, it was still necessary for Futurepump to explore and test available options. While it is important to learn from previous experiences such as Futurepump's, this is not a substitute for gathering firsthand knowledge from the market.

REFERENCES

1. "About Futurepump," About Us, Futurepump, <https://futurepump.com/about-us/>.
2. Jacob Winiacki, Ellen Morris, and Niki Armacost, *End-user finance: A guide for sustainable energy enterprises and NGOs*, (London: The Ashden Awards for Sustainable Energy, 2009), https://www.energy4impact.org/sites/default/files/enduser_finance_guide_final.pdf.
3. Interview with Futurepump employee, November 2019.
4. "What We Do," Our Story, SolarNow, <https://www.solarnow.eu/our-story/>.

POWERING AGRICULTURE:

AN ENERGY GRAND CHALLENGE
FOR DEVELOPMENT



This case study was made possible through the support of the Powering Agriculture: An Energy Grand Challenge for Development Partners, comprised of the United States Agency for International Development (USAID), the Swedish Government, the German Federal Ministry for Economic Cooperation and Development (BMZ), Duke Energy, and the Overseas Private Investment Corporation (OPIC).

Further information about Powering Agriculture can be found at PoweringAg.org

DISCLAIMER

This case study is made possible by the support of the American People through the United States Agency for International Development (USAID). The contents of this case study are the sole responsibility of Tetra Tech ES, Inc. and do not necessarily reflect the views of USAID or the United States Government. It was prepared by Tetra Tech ES, Inc. under the Powering Agriculture Support Task Order.

AUTHORS

This case study was written by Jeff Engell and Christina Tamer of VentureWell (subcontractor) with significant input from Helen Davies of Futurepump and revision by Wynne Cougill of Tetra Tech ES, Inc. under the leadership of Dr. Augusta Abrahamse, Program Manager of Powering Agriculture: An Energy Grand Challenge for Development.

