

Update

current awareness bulletin for ACP agriculture

The SmartMoney mobile money solution focuses on penetrating rural markets

The MoBiashara mobile platform promotes access to finance

Higher social penetration of ICTs means more youth are getting involved in agriculture



Mobile finance - next stop agriculture



Mobile finance
– next stop agriculture

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ICT Update



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Guest editor

The agricultural mobile finance revolution

Emerging innovations in mobile finance are revolutionising the agricultural value chain, and in the process they are creating alternative ways of making payments to farmers, giving them greater access to a range of financial services and reducing or eliminating supply chain credit risk.

Welcome to this issue of *ICT Update* from CTA on agricultural mobile finance. Mobile finance provides channels for credit, savings, insurance, transfers and payments. It encompasses not only mobile money and mobile banking but other alternative delivery channels such as e-vouchers, debit cards, smart

how agricultural mobile finance is the key to unlocking the potential at the economic base of the pyramid in rural areas. SmartMoney rapidly evolved from being just a payments solution for cooperative buyers making mobile payments to farmers to becoming an electronic currency for the needs of the entire village-based economy.

There are similar initiatives by TigoCash for rice in Ghana, supported by VISA; Zoono for cotton in Zambia; Vodafone's Connected Farmer Alliance with USAID and TechnoServe in Kenya, Mozambique and Tanzania and several others. Since local microfinance institutions have been included in the SmartMoney ecosystem, the village community at large has embraced a culture of savings.

Increasingly, agriculture is seen as the key entry point for the rollout of mobile finance in rural areas

cards, branchless banking, ATMs and point-of-sale devices. Indeed, mobile money has been causing a huge stir since 2009, when M-Pesa surprised the industry by announcing it had turned a profit. The level of private sector investment – indicated by more than 220 mobile money platforms worldwide – indicates that it is here to stay.

Meanwhile, there is a growing need for more and higher quality agricultural production worldwide by more efficient and effective value chains. Sophisticated mobile financial tools that are used to facilitate more agricultural credit, savings, insurance, transfers or payments will be essential to making targeted value chains more efficient and effective. This issue of *ICT Update* can only cover a few of the rapidly emerging innovations in agricultural mobile finance, but these and others will pave the way for increasing financial inclusion and outreach to the previously 'unbanked' in a sustainable manner and help revolutionise agricultural value chain finance.

The feature article in this issue is about an exciting model that portrays

Holistic use of mobile finance

The holistic use of mobile finance on behalf of the transaction and savings needs of the village community represents a paradigm shift for agricultural value chain finance. This paradigm shift was highlighted at CTA's ICT4Ag conference in Rwanda in November 2013 and is a key element of the World Bank's Consultative Group to Assist the Poor (CGAP), whose mission is to ensure that everyone has access to the financial services they need to improve their lives.

A key takeaway from the ICT4Ag conference was that ICT and mobile applications throughout the value chain, as well as for finance, generally have the same back end. Therefore, given that agriculture is one of the most significant economic contributors in rural areas, perhaps we should think in terms of designing agricultural ICT and mobile applications that have end-user cross-functionalities with other sectors, such as transport, health and education.

This potential for convergence echoes with CGAP's recent initiative Digital Finance Plus. Dedicated to innovative solutions for financial inclusion, and housed at the World Bank, CGAP has been looking beyond the horizon since microfinance burst onto the scene in the early 1990s. They also see opportunities for financial inclusion at the household level, as these mobile finance solutions can cater to the many financial needs related to agriculture, energy, water, education and health.

This type of convergence at the household level will also more explicitly ensure the financial inclusion and hence empowerment of women and youth. Moreover, the convergence of mobile finance with banking and agriculture, and within its own channels, is thought by many to be the key characteristic of the next generation of mobile finance solutions in 2014.

Improving access, reducing risk

Another trend for the next generation of mobile finance is big data analytics. Smallholder farmers have an extraordinary number of challenges to overcome to have a successful and profitable harvest. Exacerbating these challenges is their lack of access to a range of financial services. The human potential of farmers cannot be unleashed unless they have a unique 'financial identity' that financial institutions can access – and unless there is some way of quantifying the credit risk of these farmers.

The Policy and Economic Research Council (PERC) and its partner

Experian MicroAnalytics (EMA) have developed a solution called Financial Identity Risk Management (FIRM). On an opt-in basis, farmers can provide their biometric identity and authorise access to their mobile finance transactions or other aggregated data such as utility bills and phone records. PERC and EMA will then extract that data, pass it through an algorithm and deliver the resulting credit score to partner financial institutions.

FIRM provides critical visibility into the identity of the potential borrower and a measurement of what risk there might be in providing a loan. This nascent industry of alternative credit scoring, that bodes well for farmers' access to credit, is expanding rapidly. There are other such providers, including First Access and Cignifi.

Finally, SlimTrader is a mobile commerce platform working in Nigeria that allows consumers (in any industry) to shop for and purchase goods and services. The platform currently works for airlines, bus companies and other sectors and has recently moved into agriculture. Indeed, the company has introduced its platform to distributors and retailers in the input supply chain for fertilizer. The retailer does field visits with his customer base and can place orders that farmers purchase with their mobile money accounts. This reduces the distributor's supply chain credit risk and the retailer's transport, storage and others costs, which can reduce the fertilizer cost paid by the farmer.

The majority of the more than 220 mobile money platforms, and the



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many alternative delivery channels used by commercial and microfinance institutions worldwide, have generally been confined to urban city centres. But the ecosystem of private sector players (for example, mobile network operators, financial institutions and solution providers) is now expanding into rural areas in pursuit of nationwide penetration. Increasingly, agriculture – and its numerous transactions throughout the value chain – is seen as the key entry point for the rollout of mobile finance in rural areas.

The examples in this issue portray the reduction of supply chain credit risk, the huge potential of big data analytics for the alternative credit scoring of farmers and the capacity to service not only the payments needs of farmers and buyers but other financial services needs for the entire village community, including both group and individual savings. There are many other such initiatives that are helping to expand the traditional definition of agricultural value chain finance.

We hope you enjoy this publication because we believe agricultural mobile finance will do for the base of the pyramid what commercial banking did for the industrial revolution. ◀



‘Where will I get cash?’ asks Mary Masika after learning about SmartMoney’s mobile money service from a local registration agent. ‘How will I buy things with money on my phone? Don’t I need to first exchange it for cash?’ Mary, a farmer in Kasese, western Uganda, grows rice and coffee and sells it to local buying agents. Mary uses the money she earns to pay her children’s school fees and buy staples like salt, soap and sugar from local shopkeepers.

Mary understands that money is only useful if it is widely accepted for purchase and exchange by everyone in her community. This reality highlights

important social benefits to rural markets in Uganda and Tanzania. When the SmartMoney project started in 2010, the intervention was aimed exclusively towards smallholders and agriculture buyers. However, in order to service this group successfully, the company quickly found it necessary to expand its solution to all individuals and organisations in the surrounding rural community.

The SmartMoney service allows individuals and organisations to store and exchange electronic money using mobile phones. By switching from cash to SmartMoney, individuals and organisations can reduce crime,

rural individuals subsidised by fees charged to large agriculture organisations seeking a cheaper and safer payment alternative to cash.

This important innovation to the standard fee-based model makes mobile money affordable to rural people. This, and other innovations to the standard mobile money model, allowed SmartMoney to start a limited rollout of its service in two rural farming districts within Uganda and Tanzania in late 2012.

Expanding as you learn

The initial scope of SmartMoney’s rollout was limited to rural smallholder

Beyond cash

In just three years’ time, SmartMoney has grown from a small intervention targeting market inefficiencies between rural farmers and agriculture organisations to a community-wide rural payment and savings solution with more than 20,000 subscribers.

an important challenge for impact-driven organisations: how to generate targeted, positive social change in complex, interconnected economic ecosystems. Is it possible, for example, to achieve this kind of change with a narrow group of beneficiaries such as smallholder farmers or are more holistic community-wide solutions required?

An affordable innovation

The case of an early-stage East African social enterprise called SmartMoney is illustrative. SmartMoney is a new mobile money service bringing

violence and losses to theft while also reducing payment costs, corruption and other market inefficiencies.

SmartMoney was founded by US and African social entrepreneurs to address the unmet demand for a safer and cheaper payment alternative to cash for rural African farming communities. SmartMoney recognised that mobile money was a promising solution but that existing mobile money providers were struggling to penetrate rural markets. After 18 months of field research in rural villages throughout Uganda and Tanzania, SmartMoney identified an innovative mobile money model that overcomes the many obstacles to mobile money adoption in rural markets.

During thousands of interviews with local farmers and villagers it emerged that one of the most important obstacles to rural adoption of mobile money is cost. Existing mobile money services charge fees that are prohibitively expensive to rural people and organisations for everyday savings and micro-payments. The SmartMoney model overcomes this obstacle by introducing an entirely free mobile money service to

farmers and the agricultural organisations that purchase their crops. However, it soon became apparent that farmers would not accept a new form of e-money as payment for their crops unless they could use it to make purchases in their community.

This discovery led SmartMoney to quickly expand the scope of its rollout beyond the farmers to the shopkeepers that service them. However, this too proved insufficient as shopkeepers would not accept e-money from farmers, unless they could also use the e-money to make purchases or easily convert it to cash. In turn, this led SmartMoney to expand its scope again to include local wholesalers, suppliers and banks.

A further expansion occurred when farmers and shopkeepers began adopting the SmartMoney service and demanding the ability to make deposits. This was an exciting development as it demonstrated a heightened degree of trust in the SmartMoney service and an interest in savings. In most rural communities, saving is virtually impossible because rural people lack access to banks or

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FLICKR/THE REBOOT

By switching from cash to SmartMoney, individuals and organisations can reduce crime, violence and losses to theft while also reducing payment costs, corruption and other market inefficiencies

simply don't trust them. As a consequence, people store their money in their homes under furniture or bury it in holes in their yard. Sometimes women wear their savings under their clothes. All of these options are dangerous and the presence of cash increases the risk of theft.

As trust in the SmartMoney service grew, people recognised the many advantages of keeping their money on their phones instead of in their homes or under their clothes. Customers wanted places where they could take their existing cash and exchange it for e-money on their phones. SmartMoney needed to expand the scope of its rollout again to provide trusted service centres where people could make their deposits. Six months later SmartMoney had recruited more than 750 local shops, savings and credit cooperatives

and other businesses who provide deposit-taking services to the community and partnered with them. The foundation of an exciting new culture of rural savings through the mobile channel was being formed.

Holistic payment and saving needs

Other more established mobile money services such as M-Pesa in Kenya are achieving high adoption rates. A recent story on the World Bank website, 'Mobile payments go viral: M-Pesa in Kenya', suggests that M-Pesa is now being used by an astonishing 40% of Kenya's population, and the service processes monthly transfers totalling 10% of Kenya's entire GDP. Clearly, SmartMoney is not the first mobile money service to reach rural markets.

Established mobile money services are not being used as a new local money system for everyday savings and purchases. Instead they are being used to send money between urban and rural centres separated by large distances. This is not mobile money, it is mobile money transfer.

The technology behind SmartMoney

SmartMoney has developed a proprietary mobile money service that can be accessed free of charge from any location in the world via standard GSM mobile phones and phone networks. Users do not need to have expensive smartphones or internet connectivity to use the service.

SmartMoney is safe and secure. If users lose their mobile phone, their money is not at risk because all electronic money and user account information is stored in a safe and secure data centre. To prevent someone stealing a user's phone and accessing that user's account, SmartMoney requires all users to enter a PIN code when logging into the service. The combination of a physical phone and a PIN code forms a reliable 2-factor security solution comparable to the security used for debit cards and ATM machines.

Related links

SmartMoney

→ <http://goo.gl/8ne0E4>

M-Pesa

→ <http://goo.gl/ZOAJz>

MTN Mobile Money

→ <http://goo.gl/TgVYz3>

Airtel Money

→ <http://goo.gl/8krAAU>

TigoCash

→ <http://goo.gl/oNAXoD>

Zoona

→ <http://goo.gl/HJyoFa>

Connected Farmer Alliance

→ <http://goo.gl/JTCLUZ>

TechnoServe

→ www.technoserve.org

However, in its fully evolved form, SmartMoney challenges traditional notions of what mobile money is and how more established mobile money services such as M-Pesa are, and are not, being used in rural markets.

SmartMoney stands apart from established mobile money services by focusing more on partnerships within rural economies as opposed to just mobile money transfer

Established mobile money services such as M-Pesa in Kenya and Tanzania, MTN Mobile Money and Airtel Money in Uganda are investing heavily to expand their footprint from urban centres into rural markets. However, to the limited extent that these services are now being used at all by rural individuals and organisations, they are not being used as a new local money system for everyday savings and purchases.

Instead they are being used to send money between urban and rural centres separated by large distances. This is not mobile *money*, it is mobile *money transfer*. And while the more established mobile money services are



Established mobile money services are investing heavily to expand into rural markets.

no doubt reducing remittance costs and increasing security for urban and rural people, it is false to call them a new form of money for rural markets. For as soon as any mobile money is received in a rural community using an established mobile money service like M-Pesa, the receiver immediately exchanges the mobile money for cash, which remains the standard medium of exchange. SmartMoney stands apart from established mobile money services like M-Pesa by focusing more on partnerships within rural economies as opposed to just mobile money transfer. As such, SmartMoney is at the forefront of an entirely new rural economic model.

Within the span of three short years, SmartMoney has grown from a small

intervention narrowly targeting market inefficiencies between rural farmers and agriculture organisations to a community-wide rural payment and savings solution with more than 20,000 subscribers. It is revolutionising local rural economies in Uganda and Tanzania, and perhaps even more exciting, SmartMoney promises to revolutionise the very concept of mobile money for rural communities throughout the developing world.

The SmartMoney example provides a robust solution to the many complex interconnections that exist in a typical rural economy and why it is important to view development challenges not in isolation but within the context of the larger economic ecosystems in which they exist. ◀

Helping rural communities

SmartMoney was established in 2010 by an experienced team of finance, technology and development experts from the United States and Africa.

The project's aim is to reduce poverty and improve lives by providing affordable, accessible and secure financial services to remote rural communities throughout the developing world.

SmartMoney is a new form of electronic money called 'mobile money' that is stored and exchanged with mobile phones. It reduces poverty, reduces violence and improves lives by replacing cash with mobile money.

SmartMoney is not just another mobile money project. It reaches beyond the more easily accessed urban population centres targeted by existing mobile money providers to introduce mobile money to the world's most vulnerable people living in remote and underserved rural communities.

It also goes beyond the mobile phone technology by working with local partners to overcome the logistical and operational barriers in each community that have so far largely prevented mobile money from reaching rural populations.

Reducing supply chain credit risk

The e-commerce firm SlimTrader has developed a mobile platform called MoBiashara, which aims to reduce supply chain credit risk and promote 'just-in-time' inventory management.

Mobile finance – next stop agriculture

In 2014, SlimTrader, an e-commerce firm headquartered in Seattle, Washington, will partner with Nigeria-based agro-chemical producer Notore to streamline Notore's fertilizer delivery and collections system to rural areas. For these kinds of projects, SlimTrader has developed a mobile commerce platform called MoBiashara (*mo' business* in Swahili), specifically designed to serve fast-moving consumer goods companies. This proprietary, customisable platform provides enterprises in the fast-moving consumer goods sector with information on their supply chain as well as functionality to accommodate mobile payments by farmers. Their distributors, meanwhile, can electronically process in-coming shipping orders and mobile payments from retailers in the field.

Risky business

Notore has two levels of distribution: the main distributor and the retailer. In

the past, the retailer received supply chain credit from the main distributor. The retailer would store the fertilizer and then seek out customers – often small farmers tucked away in rural areas. Obviously, this supply chain credit risk is costly and inefficient.

Both the main distributor and the retailer have to carry a number of upfront costs without any guarantee of recouping their initial investment. First, the distributor provides the fertilizer to the retailer on credit. This process may not seem like a big deal but in rural Nigeria credit is not based on any formal assessment of credit risk or financial identity. Rather, risk assessment is informally based on personal interaction, imperfect memory and hearsay.

So the main distributor bears the entire burden of financing the supply chain on credit. The retailer, meanwhile, must rely largely on faith and goodwill. First, he must pay for the fertilizer transport to his storage facility as well as costs related to visiting farmers to take orders that he hopes will match what he purchased from the distributor. If he over-estimates the amount of fertilizer he can sell he is still liable to the distributor for the unsold fertilizer. In addition, the retailer also incurs the cost of storage. So up and down the supply chain, there is risk but with only a potential promise of reward, resulting in an inefficient supply chain.

Going mobile

Notore is partnering with SlimTrader to significantly reduce this supply chain credit risk and these inventory management issues. From its offices in Lagos, Nigeria, SlimTrader will launch a pilot programme to train the main distributors and retailers on the MoBiashara platform that accommodates 'just-in-time' inventory management and mobile purchases by farmers.

The main distributor and the retailer download the MoBiashara application

onto their mobile phones. Then, like a waiter in a restaurant, the retailer does site visits and takes orders from farmers for Notore's fertilizer. Using MoBiashara, the retailer examines the main distributor's inventory right then and there, together with the farmer, to see what is available and when.

The retailer then places the farmer's order via his phone. The retailer, therefore, is no longer running up transport or storage costs without a guarantee of a sale. Upon delivery, the MoBiashara platform – which is connected to available mobile money companies – receives a system notification immediately after a successful mobile money payment is made by the farmer, after which the farmer takes possession of the fertilizer.

Everyone benefits

MoBiashara's greatest advantage is that everyone in the supply chain benefits. The main distributor incurs a significantly reduced supply chain credit risk and the retailer has reduced storage costs. These reductions in supply chain costs can benefit farmers with lower prices for fertilizer as well as a more efficient supply chain for them as end-users.

It is also important to note that MoBiashara allows retailers to create a profile of farmers and records their transactional history. As this transactional database becomes deeper over time there is potential to compute an alternative credit score. This type of credit risk assessment can then inform decision making by retailers and financial institutions. Retailers might choose to sell fertilizer to a farmer on credit, or a financial institution might decide to provide a farmer loan.

The bottom line is that SlimTrader's MoBiashara platform significantly reduces supply chain credit risk, promotes just-in-time inventory management and can inform the computation of alternative credit scoring that promotes access to finance. ◀

Smallholder farmers applying fertiliser to their crops, Nigeria



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ANDREW AITCHISON/ALAMY

Big data for smallholders

The Financial Identity Risk Management solution will provide consumer protection while enabling lenders to offer credit that can improve a borrower's life and life chances.

Mobile finance – next stop agriculture

The facts are staggering – of the roughly 2.5 billion people who earn income from working on 500 million smallholder farms, nearly half must make do with daily incomes of US\$1.25 or less. Supporting these farm workers by increasing access to financial services – including affordable credit necessary to build assets and generate wealth – is the quickest and most efficient way to lift over one billion people out of poverty, according to a recent United Nations report.

As always, while goals are lofty (for example, the Millennium Development Goals), resources to achieve them are invariably insufficient and most 'solutions' are never taken to scale. And while there have been successes in global poverty reduction efforts, owing

to a variety of circumstances ranging from climate change to decades of underinvestment, smallholder farmers are increasingly unable to escape poverty and remain highly vulnerable to external shocks.

Despite the spread of microfinance and the more recent proliferation of digital financial services, roughly five in seven persons globally remain financially excluded. This is especially true for the rural poor. The twin challenge confronting lenders and financial services providers in rural areas is the lack of a reliable financial identity – in most developing countries there is neither a consistent national identification number nor anything that can be used as a proxy – and the absence of credit information for assessing credit risk, credit capacity and credit worthiness.

Unless these two problems are surmounted, efforts to support smallholder farmers and other financially excluded populations will remain substantially constrained – as is evidenced by recent troubles in

microfinance and the inability of digital financial services to achieve commercial viability.

To drive financial inclusion and enhance the ability of pro-poor lenders globally, PERC, the Policy and Economic Research Council based in North Carolina, USA, and its partner Experian MicroAnalytics (EMA) have developed an innovative solution called 'FIRM' for Financial Identity Risk Management.

How FIRM works

After receiving prior informed consent from the borrower, lenders can invoke FIRM, which instantly pulls data from alternative data source providers (for example, agricultural cooperatives, mobile network operators, energy utility service providers, fast-moving consumer goods distributors, property management companies and public records) and transforms such data into a single report. Such a report will contain a *financial identity* (which ascertains that borrowers are who they claim to be) and a *financial profile*, including a risk score and a credit capacity estimate.

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EMA manages all the interactions with the data providers and takes care of the communication, data matching, 'deduplicating' and data cleaning. The resulting data is assembled into a FIRM report and delivered to the inquiring party in seconds.

This information is then used by the lender in combination with other available information to make an informed decision about whether or not to extend credit, the amount and the terms. This enables fairer, more inclusive, responsible and sustainable lending.

The challenge lies with implementation. With the support of the Bill and Melinda Gates Foundation, PERC and EMA undertook an extensive feasibility analysis in Kenya. While agricultural transactional data has been digitised, the majority remains physical. Consequently, as part of FIRM's development, a commitment to digitising the data – including substantial capacity building investments for rural data furnishers – is necessary.

There were initial discussions about potential participation in the FIRM system with the Kenyan Coffee Producers Association, the Kenyan Tea Growers Association, the Kenyan Dairy Processors Association, Kenya Power, Orange, Airtel and Safaricom, among others. These conversations were generally positive, as prospective data furnishers see value in the system that was specifically designed to address their concerns about data privacy, data security, fair compensation and restricted data use.

In some cases, memorandums of understanding were secured demonstrating a high level of interest among stakeholders in the agricultural sector in promoting the FIRM solution. It has also received a grant from the Tony Emulemu Foundation and the Rockefeller Philanthropic Fund to pursue a feasibility study for a potential expansion in Tanzania.

FIRM represents the classic 'good news/bad news' scenario. The bad news is that margins on FIRM are expected to be quite low and will require involvement from the philanthropic community or patient capital investors to launch. It will also involve a considerable commitment to working in the trenches to gather predictive data from currently non-digital data sources such as coffee wet mills and tea factories. The good news is that although this is a front-loaded investment, it will continue to yield economic inclusion dividends for many years.

Enhancing the financial infrastructure

FIRM is not a credit bureau, nor does it compete with credit bureaus. In fact a large part of the elegance of this solution is the fact that it complements a nation's credit reporting system by filling vital information gaps. Because traditional credit bureaus focus on financial data, the information in their databases is overwhelmingly on people who already use banking services. In many cases, it is also primarily 'negative' or late payment data, such as delinquencies and charge offs. In such instances, credit bureau data cannot be a driver for financial inclusion because it does not address the 'credit invisible' majority. Indeed, it is negative data that is used to exclude rather than include.

By contrast, the FIRM system begins with accessing data that is not contained in the databases of traditional credit bureaus. The focus is on accessing non-financial data, that is both positive (for example, timely payments and amounts paid, income data) and negative. FIRM also focuses on data for which traditional credit bureaus are ill-suited to handle, such as pre-paid data and call log data from mobile network operators. In this manner, the system is able to provide lenders actionable predictive information for purposes of credit underwriting where none was previously available.

Each time a lender extends credit on the basis of a FIRM report or value-added service (for example, a credit score), a traditional bureau benefits from having a new account created with a new traditional credit tradeline. That is, the more widely the system is used for financial inclusion, the more information will be fed into the databases of traditional bureaus making their data more valuable and generating windfall revenue for them.

FIRM data will also be made available to parties interested in generating value-added services that use alternative data. FIRM is committed to commercial viability in a competitive market context, and believes that the broad mission of driving financial inclusion is optimally met through promoting innovative solutions from a variety of sources.

Development impact

Lenders get access to new data, available for the majority of the potential borrowers and are able to better predict credit risk and affordability. Studies show that moving

from a condition of no information sharing to full file information sharing make it possible to sustain average annual growth rates in lending to the private sector of 45% or more.

PERC research shows that using non-financial payment data in credit underwriting could generate the following benefits:

- 11 million unbanked in Africa will be able to access affordable credit during first five years (Kenya, Nigeria, Tanzania and Uganda);
- 15.4 million people who do not use banking services in Asia will be able to access affordable credit during first five years (Bangladesh, Indonesia and Pakistan);
- average cost less than US\$2 US per person for access to affordable credit;
- increased acceptance rates across all risk tiers for any given default rate;
- reduced defaults for any given acceptance rate;
- sustainable growth in lending by reaching new customers; and
- a more accurate identification of high risk/low risk borrowers.

FIRM can be used both for 'no-hits' (when a borrower lacks a credit report with a 'traditional credit bureau') and when a borrower has a credit file. Supplementing a traditional credit report with more comprehensive predictive data will improve portfolio performance and increase profit margins.

The FIRM solution will provide both consumer protection – by preventing over-indebtedness – while enabling lenders to offer credit in amounts that can improve a borrower's life and life chances. And while FIRM alone is unlikely to lead to complete financial inclusion, it will unfetter digital financial services that can go a long way towards a fairer, more inclusive financial system. ◀

Supporting farm workers by increasing access to financial services – including affordable credit necessary to build assets and generate wealth – is the quickest and most efficient way to lift over one billion people out of poverty.



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ICTs and agricultural entrepreneurship

A workshop on youth, ICTs, entrepreneurship and agriculture discussed young people's experiences developing applications and software for the agricultural sector.

Mobile finance – next stop agriculture

On 19–22 November 2013, CTA organised a workshop in Arnhem, the Netherlands entitled 'Supporting Youth ICT-based Entrepreneurship and Innovations in Agriculture'. The workshop, held in the context of a project called Agriculture Rural Development and Youth in the Information Society, featured 25 representatives from young farmer groups, regional and international organisations working with young farmers, youth ICT innovators and developers, and entrepreneurs.

The workshop was also held in the context of the implementation of ICT-related perspectives in CTA's youth strategy for 2013–2017. Indeed, the increasing social penetration of ICT tools in recent years and the key role youth are playing in the development of ICT applications for agriculture offer important opportunities that CTA would like to tap into in order to boost the number of young people involved in agriculture.

Effective outreach is possible by means of web 2.0 tools such as Facebook and Twitter – platforms where young people often meet and interact.

If adequately supported, young people can develop and provide software and ICT platform services that target and enhance the agricultural sector.

If adequately supported, young people can develop and provide software and ICT platform services that target and enhance the agricultural sector. And young farmers can tap into new communication technologies – more so than previously – to reduce their transaction costs, improve business management and extend their access to markets.

Case studies

The workshop in Arnhem discussed case studies of experiences that young people have gained in developing applications and software for use in the agricultural sector. One of these cases was MLouma, a web and mobile agribusiness created by a young entrepreneur named Aboubacar Sidy Sonko. He entered a competition on social enterprise for Africa held by France Télécom in 2011, and his proposal earned him a place in the finals. With support from CTIC Dakar, the MLouma team then carried out research in the field in order to get a better understanding of farmers' real needs and concerns.

Another case study was E-Market, an agricultural information system initiated by a group of young people and supported by the Farming and Technology for Africa association in Madagascar. This group was one of the winners of the Youth in Agriculture Blog Competition (YoBloCo Awards) organised by CTA in 2011. The cash prize that the group received was instrumental in getting the E-Market software off the ground. The group conducted business research to create the software and then began developing it. They are now encouraging the public and the farming community to test it.

The workshop ended by identifying two key recommendations. The first is to improve the use of ICTs by young 'agropreneurs'. Following are the six most important ideas:

- identify national champions to promote initiatives on the use of ICTs by agropreneurs;
- conduct training sessions that teach

agropreneurs about available ICT tools;

- document and publish success stories of young agropreneurs using ICTs;
- organise field visits to people already using ICT innovations in agriculture so this knowledge can be shared and replicated;
- organise high-impact campaigns aimed at changing patterns of behaviour; and
- engage the technology sector to develop agricultural-specific hardware that will help farmers and others in the value chain to gain more added value, benefits and profit.

The second recommendation is to generate support for the development of ICT applications by young people. Following are the six most important ideas:

- organise regional and national competitions on ICT4Ag, similar to the hackathon that was held at the ICT4Ag conference in Rwanda in November 2013;
- facilitate access to sources of funding to young developers;
- encourage the adoption of sound business models;
- organise regional 'ICT for agriculture' fellowships. These would promote mentoring and coaching partnerships to help young entrepreneurs get successful start-ups running so they can sell and market smart ICT solutions and services;
- develop and agri-app store that would feature and rank apps used in the value chain in ACP countries; and
- organise awareness-raising activities on agricultural issues for youth interested in developing software for agriculture.

In addition to these recommendations, there were several other takeaways for participants of the workshop. Most important perhaps is that they gained a better understanding of how ICT-based innovations and entrepreneurship work in the agricultural sector in ACP countries and what challenges young entrepreneurs face. ◀



FILICIA/SHANI VORA

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Rural Finance Learning Centre



Smallholder farmers often struggle to access financial services that would safeguard them from fluctuations in income.

offer training relevant to rural finance and enterprise development.

'Guides for trainers' are intended to help people preparing to teach others in a classroom environment. 'Self-study guides' offer a mixture of theory, exercises and questions. If the internet connection allows it, the online videos are a great complement to the guides. The 'Training tools' section contains ideas for participative learning activities and creative ways to explain business ideas. The 'Online lessons' have been developed as a novel way to learn and explore certain issues in rural and microfinance. The lessons are simple enough that they do not require a facilitator and are intended for people who have no opportunity to attend training courses.

The centre also features a 'News and events' section with news items related to rural and agricultural finance, various announcements, details of forthcoming events, and links to discussion lists that relate to rural and microfinance.

People do not necessarily have to register as a member to use the centre's facilities. It has a member area with services such as the monthly newsletter (which posts all the new resources that have been added to the website in the preceding month). The newsletter is available in English, Spanish and French. As a member, you are able to interact with the system, for example suggesting new resources to the editors and providing your own abstract, or suggesting that your organisation or website is added to the contact list. Contact information appears in the list of members, and you will be able to see securely who else has signed up as a member. You can add your CV to your details but you should not do this if you do not want it to be publicly available on the internet.

The editors of the Rural Finance Learning Centre maintain a Facebook page with regular updates, and they also share news and announcement via Twitter. One great way to contribute to the platform would be to submit a list of the best mobile apps used in ACP countries meant to facilitate mobile rural finance. A number of these apps or ecosystems are presented in this issue. ◀

The Rural Finance Learning Centre offers online, easily accessible information products related to rural finance. In addition to a reference library, the centre also offers specially designed training material.

To understand the intricate conditions of a loan product or choose the appropriate insurance scheme, those not familiar with the details behind the jargon will need independent sources of verified information, platforms where knowledge can be acquired and experiences shared with peers.

To answer these needs, the Rural Finance Learning Centre (RFLC) – an initiative from FAO, IFAD, GIZ, and the World Bank – offers on its online portal a wealth of easily digestible information products on all things rural finance. The centre helps organisations in developing countries to build their capacity to deliver improved financial services that meet the needs of rural households and businesses.

The RFLC offers assistance in a number of ways. One is the reference library of up-to-date materials relevant to rural finance. The library includes books, case studies, guidelines, training manuals, briefs and multimedia such as videos, CD-ROMs, software and links to websites. The material has been selected with an eye to extending knowledge about good practices and innovations, and enhancing people's understanding of key concepts. To find an item in the library you can use the simple or advanced search function, or you can browse through the topics under 'Business support services', 'Financial services' and 'Policy advice'.

Another useful RFLC resource is its selection of training material, which has been adapted or designed by RFLC editors for self-study or for use by trainers. The material also contains details of various training courses and organisations that

Smallholder farmers are often cut off from regional trade routes and markets, and struggle to access financial services that would safeguard them from fluctuations in income. In fact, most actors in an agricultural value chain – smallholders, cooperatives, extension agents and merchants – are not familiar with or aware of the financial products and services available to them. And while mobile money transfers and mobile banking may have simplified transactions along the value chains and across actors' networks, the success of a deal often still depends on trust and knowledge.

Mobile finance – next step agriculture

Related links

ICT4Ag conference session on 'ICTs and mobile apps for access to financial services and insurance'

→ <http://goo.gl/tb6V8E>

Agricultural finance at the Grameen Foundation

→ <http://goo.gl/20foNc>

Agricultural Finance Support Facility

→ <http://agrifinfacility.org/>

Mobile Money Standards at International Telecommunication Union (ITU)

→ <http://goo.gl/X7Sk5e>



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developments that technology, such as mobile money platforms, can be game changers in increasing outreach and making it more cost effective to reach the rural poor with banking services.

This is all to say that we are very bullish about the opportunity for scaled impact through mobile financial services. There is a growing body of evidence suggesting that mobile financial services are having an impact at the household level in terms of stabilising consumption patterns, promoting savings and transitioning people

technology-enabled channels or not – are used to improve the financial health of consumers. Financial services offer a choice – for example, the choice to save for school or to borrow funds for a new venture – but, as we know all too well from recent experiences in the United States, financial services don't ensure that good choices are made.

What's exciting about mobile financial services is that the mobile phone not only makes the delivery of financial services possible but, through the same device, we can introduce messaging and reminder services that we hope can promote good financial decision making. We are starting to see some examples of this from our work in Mozambique.

Changing market dynamics

Mobile finance – next stop agriculture

Technology, such as mobile money platforms, can be game changers in increasing outreach and making it more cost effective to reach the rural poor with banking services.

What is USAID's commitment to mobile money generally and – more specifically – to mobile money in agriculture?

→ Through President Obama's 'Feed the Future' initiative, USAID has dramatically enhanced its efforts to combat poverty, malnutrition and hunger among the rural poor. We know from decades of investments in microfinance that financial services – credit, savings and insurance – are a fundamental enabler for farmers and their families to reduce their vulnerability and finance new opportunities like schooling, housing and new business prospects. We know from more recent

to formal economic activity via mobile accounts. Perhaps the most exciting development, however, is the market dynamics that change as a result of mobile financial services. Companies like Angaza and M-KOPA are offering lower cost, reliable power to the rural poor because low-cost mobile money payments collection systems are suddenly making commercial sense.

USAID's mobile financial services programme has global outreach and focus on the policy environment and technical advisory services for payments providers. One of the initiatives we co-founded, the 'Better than Cash Alliance', helps organisations and countries to make the transition to electronic payments. The initiative's mission is ultimately to empower people and help emerging economies grow.

On the demand side, the ecosystem of private sector mobile network operators, financial institutions and other mobile money participants are increasingly conscious of an awareness and education gap in rural agricultural communities. What is your organisation's role in closing this gap in these areas and promoting an uptake of mobile finance services?

→ Indeed, governments and donors have an important role to play to ensure that strong consumer protection measures are in place. This includes promoting awareness of products and consumer rights, continuing to invest in financial literacy and technological literacy, and perhaps most importantly ensuring that supervisory and oversight capacities grow as the market becomes more saturated.

But I would also like to stress our important role in ensuring that financial services – whether delivered through

Tell us about your work in Mozambique.

→ In Mozambique, using improved agricultural technology (fertilizer and better seeds, for example) can greatly increase the crop output and family income for farmers, yet adoption is extremely low, in part because of limited cash flow during the planting season. In an effort to increase the use of these better technologies, USAID/Mozambique is using the insight that small changes in timing can make a big difference. We are offering farmers the chance to save for inputs using mobile money right after harvest, when farmers have the most cash on hand.

Early results are promising. For example, although less than 1% of the population is using mobile money, 46% of farmers in the study adopted mobile money. The farmers in the treatment group were offered a small cash incentive to encourage saving during harvest. They had 30% higher savings than the control group. I call this 'mobile persuasion'!

There is little data on the cash use behaviour patterns of farmers that can be used to design mobile finance products and services. What is USAID's role, if any, in closing this gap to ensure the supply of agricultural mobile finance is closely aligned with demand?

→ It is very early days, but we are exploring ways in which we and others can support data analytics capabilities that would reveal the underlying needs and behaviours of the rural poor. This kind of information would help us to understand how we can better serve them. Firms such as Cignifi and Experian MicroAnalytics are showing us how to use and analyse data as a way for us, in development communities, to better understand these families that, for far too long, have been left out of the policy discussions that dictate their futures. ◀





How NGOs and donors can help

Mobile phone subscriptions outnumbered the global population in 2013 – that's more than 7 billion subscriptions. Meanwhile, agriculture is a key sector in rural areas. In sub-Saharan Africa agriculture employs 65% of Africa's labour force and accounts for 32% of GDP. The rapid reach of mobiles presents potential for disruptive business model innovations in many sectors at the base of the pyramid – and finance is no exception. One such innovation is agricultural mobile finance, which can benefit farmers, processors, cooperatives, buyers and traders. However, connecting farmers to formal finance and banking on their mobile phones will require multi-stakeholder alliances of telco firms, financial institutions, value chain participants and development implementers. Together, these partners can overcome the barriers of illiteracy, financial illiteracy and lack of trust that constrain technology initiatives at the bottom of the pyramid.

There's a growing awareness that development implementers can be strategic partners because they understand rural economies and the needs of farmers. They can conduct market research, educate customers and pilot scalable models.

Agricultural development implementers have two insertion points into the mobile finance ecosystem as informed by current agriculture mobile finance work in Zambia, Uganda, Malawi, Indonesia, Tanzania and Ghana:

1. On the demand side, implementers can leverage their status as trusted intermediaries in these communities by integrating awareness of, and education about, the features and benefits of mobile finance into their agricultural value chain work.
2. On the supply side they can help their telecommunication and financial institution partners identify, develop, train and finance the network of agents and merchants that are tightly aligned along targeted value chains where farmers and other stakeholders live and work.

→ <http://goo.gl/GokMNO>

→ <http://goo.gl/4PsKkp>

BitPesa

BitPesa Ltd is a new company in Kenya that plans to use Bitcoins to cut transaction costs for Kenyans working abroad. According to Bloomberg Technology, Kenyan expats send home an impressive US\$1.2 billion a year. BitPesa is awaiting regulatory approval, after which it plans to launch its services on a trial basis in early 2014.

BitPesa is taking on established money transfer companies such as Western Union and MoneyGram, who deduct US\$10 to US\$17 to wire US\$200 to Kenya from the United States for example. BitPesa will charge only 3% on overseas transfers and says the money will arrive the same day.

BitPesa will enable senders of money to use an internet-based service to make

Financial inclusion

The focus of the World Bank's 2014 Global Financial Development Report shows that financial inclusion has recently gained priority on many reform agendas. This heightened interest in access to financial services reflects the realisation that they play a critical role in reducing extreme poverty and supporting inclusive and sustainable development. This interest also derives from growing concerns that half of the world's adult population do not have bank accounts. The adoption of new technologies may help the 'unbanked' to start using financial services. Indeed, these technologies make it less expensive to use financial services, while increasing financial security. To promote new technologies, regulators need to allow competing financial service providers and consumers to take advantage of technological innovations. The 2104 report offers practical, evidence-based advice on policies that maximise the welfare benefits of financial inclusion.

→ <http://goo.gl/9zubAO>



payments, and the funds will be traded into Bitcoins. BitPesa will then convert the virtual money back into a conventional currency at a competitive exchange rate for withdrawal by recipients through either their mobile phones or a bank account.

→ Full article: <http://goo.gl/sJyF9D>

→ www.bitpesa.co

The challenge of scaling-up



FRANK HERHOLDT/ALAMY

Africa's growing mobile penetration brought about innovative services aimed at improving agricultural productivity by giving farmers easier access to expertise and information on everything from weather and market access to pest control. These innovations have had a considerable impact on improving

yields and increasing incomes of smallholder farmers. A recent McKinsey report, *Lions go digital: The internet's transformative potential in Africa*, now calls for government funding of internet-powered agricultural services to create new revenue streams by including other services, such as warehousing and logistics, microfinancing and insurance. However, the report also notes that the scaling up of existing mobile internet services targeted at farmers has been difficult and attributes this to a shortage of technical skills. The report recommends outsourcing product development work to business incubators and increased government support to solve the skills gap.

→ Full article: <http://goo.gl/T7ARRr>

→ Full report: <http://goo.gl/WHhJ6B>

Crowdfunding your new 'big ICT idea'



THE PHOTO LIBRARY WALES/ALAMY

Entrepreneurs, especially in the ICT4Ag community are continually looking for funding options for their next app. Crowdfunding could be one of them. It is a means of securing small financial contributions from numerous persons (the 'crowd') towards a larger monetary target. Michelle Marius has posted five

crowdfunding tips on her Caribbean blog ICT Pulse.

First, clearly understand how crowdfunding platforms work. Second, be specific about your requirements. Although individual donations might be relatively meagre, you are looking for people's buy-in. Third, establish a realistic deadline for support. Fourth, establish a reward system to show your appreciation for persons' investments in your project. And fifth, provide updates and feedback. Blogging and social networks can be essential tools in that regard. Be consistent with your communication.

→ See more at Michelle Marius blog: <http://goo.gl/MJ7rB5>

→ Full article: <http://goo.gl/OHqCw4>

Will taxes kill mobile money in Africa?

At the end of 2012, more than 65 million people in West and East Africa regularly used mobile financial services. In the same year, the total of financial transactions via mobile phones amounted to US\$670 million. Meanwhile a recent GSMA Global Mobile Money Adoption Survey stated that there are now more mobile money accounts than bank accounts in Kenya, Madagascar, Tanzania and Uganda. And there are more mobile money agent outlets than bank branches in at least 28 African countries.

While the use of mobile money services continue to grow recent media reports have highlighted one controversial aspect of the mobile money transfer market: taxation on mobile money services offered by network operators. Kenya and Uganda are among the first to levy a tax on fees charged by operators to use mobile money services. Tanzania is expected to follow suit and recently Zimbabwe added its name to a list of African countries to impose a tax.

A review of analysis from technology experts and industry analysts suggests that taxation could be problematic and many seem to favour this line of thinking. A report by Juniper research, *Mobile Money Transfer & Remittances, Domestic & International Markets 2013-2018*, estimates that the impact of tax on developing mobile money transfer markets could negatively impact growth and could put potential service providers off investment. The rationale appears to be that if a tax is imposed, it could lead to an increase in mobile money service tariffs because it is expected that operators will pass on some of the cost to the consumer and adjust their retail prices accordingly. This would mean an increase in the cost of mobile services.

→ Original article: <http://goo.gl/1syBP2>



FLICKR/RHNMAN

13.4 % of Kenyan adults have used a mobile phone to pay bills.
<http://goo.gl/aUHtMD>

60.5 % of Kenyan adults have used a mobile phone to send money.
<http://goo.gl/aUHtMD>

66.7 % of Kenyan adults have used a mobile phone to receive money.
<http://goo.gl/aUHtMD>

Creating a ripple effect

Mozambique launched a comprehensive ICT policy in 2002. The country has been investing in a number of ICT projects ever since. One of these projects – Provincial Digital Resource Centres, or CPRDs – aims to enhance the use and access of ICTs in remote areas. These centres essentially concentrate ICT infrastructure, skills and investment in one place, and so they act as single entry points for ICT activities in the provinces. They encourage the use of ICTs locally in virtually all sectors of development, and support capacity building and the development of local content.

The first CPRDs were established in 2004 by the ICT Policy Implementation Unit, with funds provided by the UNDP. The centres provide ICT training courses, computer maintenance, network administration, data base designs and many other ICT services that had not been offered previously at the provincial level. The impact of these centres in these provinces has been so great that further funding was provided by the UNDP, Microsoft and the Italian government that made it possible to set up similar facilities in six other provinces throughout Mozambique between 2005 and 2009.

A local initiative

One of the CPRDs' most significant achievements has been to reduce the internal digital divide in Mozambique. The centres act as multifunctional local hubs that reach out across several sectors and provide internet access in rural areas. Not surprisingly, the government has not

been able to install centres everywhere, sometimes due to a lack of infrastructure. This is the case in Manica Province, for example, in western Mozambique.

This area is where GM Services came to life. It is a private initiative that I set up with my husband, Guilherme Matola. GM Services is a small internet café business. We both make constant use of ICTs in our work and private lives, from PCs and laptops, to smartphones and Skype. Realizing that a CPRD was unlikely to be set up in Sussundenga – a village about 40 km from the Manica Province's main city, Chimoio – we decided to set up our own business to fill that gap. The idea was to provide an opportunity for young people to access and use ICTs.

We set up our business in early 2013. We have four employees, one of whom is a woman. GM Services provides access to computers, where users can log onto the internet, send emails and use word processing programs. Our café also has a photocopy machine, a scanner, a fax machine, and we sell school and office materials. Normally students have to travel to Chimoio, which is the closest city, to access these services. We also train basic computer skills to primary and secondary school teachers, students, as well as some local government officials and private enterprise employees.

This experience has taught us that with a modest investment you can set up an initiative that reaches out to many people and enables them to learn how to use ICTs and communicate with other parts of the country and far beyond. So far, our centre has been serving about 50 people a day. Most are especially interested in accessing the internet to search for information and chat with friends, family and others outside the district. We also receive visitors from local government and private businesses, such as market sellers who want information on weather conditions and the latest prices of their produce.

Next step

Our internet café began with a budget of US\$15,000 – our savings from a small consulting business we ran in Chimoio. About US\$10,000 of that was used to buy



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second-hand equipment, such as six computers, a printer, a photocopy machine and software to operate the network. The remaining US\$5,000 was used to renovate the building, which was in terrible condition.

The next step for GM Services will be to secure outside funding through local development initiatives. There is a government strategy, for example, called '7 million', which aims to help small entrepreneurs in rural districts. Additional investment would enable us to sell affordable mobile phones, computers, books and other ICT tools. They would also make it easier to buy the latest equipment and modernise our system. All these tools would go a long way in helping disadvantaged people in this district's communities.

We are also looking to expand our services to other community areas, such as schools, in order to equip their students with useful tools for the future. Indeed, one of our goals is to contribute to the development of our country by giving people in rural areas training and access to ICTs. It is our hope that some of the young people who are benefitting from our services will go on to develop similar initiatives themselves – not just here in this district but in all the other areas of Mozambique. If our example can create a kind of ripple effect, then hopefully it will contribute something at least to alleviating rural poverty. ◀

Young girl in Mozambique passing a house painted in the colours of the Mozambican telephone company Mcel.



BERT DE RIJTER/ALAMY