

Mobile Technologies And Digitized Data To Promote Access To Finance For Women In Agriculture



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Acronyms and Abbreviations

AFI	Alliance for Financial Inclusion
CGAP	Consultative Group to Assist the Poor
DFS	Digital Financial Services
FAO	Food and Agriculture Association of the United Nations
G2P	Government-to-person
GIS	Geographic Information System
GPI	Global Partnership for Financial Inclusion
GSMA	Groupe Speciale Mobile Association
KYC	Know-Your-Customer
MFI	Microfinance Institution
MNO	Mobile Network Operator
MSME	Micro, Small or Medium Enterprise
P2P	Person-to-person
SME	Small or Medium Enterprise







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Executive Summary

Smallholder farmers, male and female, face a persistent and well-documented finance gap; they are often invisible to or deemed too risky by banks to serve and their financial needs do not align with the terms of most microfinance lending. They lack access to other relevant products and services as well: agricultural insurance is notoriously difficult to provide, savings accounts are often accessible only in distant urban bank branches and extension agents are unable to reach many rural areas to provide needed training and capacity building. Recently, digital financial services (DFS) have greatly expanded access to many of these products, largely through the mobile device channel, and implementers of agricultural development programs and funds are enthused about their potential to create change along whole agricultural value chains. Yet, women have less access to these innovations than men do, which means they are consistently losing out on the potential to grow their incomes and build secure agricultural livelihoods for themselves and their families.

Female smallholder farmers are key contributors to agricultural and rural economies and livelihood systems. They hold important roles in all parts of agricultural value chains, from production and management of crops and livestock to harvesting and processing to selling and trading products in markets. Women not only expand the productivity of agricultural value chains, they also pass on more benefits of income related to farming to their households (including children) than men do. Women, in turn, rely heavily on agriculture as a source of employment in most developing countries.

The evidence that women both drive agricultural production and rely on it for their livelihoods means that greater financial and informational service provision to women, especially through digital channels, could increase the efficiency and effectiveness of their labor. While the numerous barriers to women's access to DFS are clear, clarifying the best methodologies by which to overcome these is both dependent on situational context and still subject to research and testing. This report provides the World Bank with the state of play of current and promising efforts that use mobile technology and digitized data to close the gap in access to finance for women in agriculture. It includes three components: 1) a review of the financial characteristics and needs of women in

agriculture, based on an extensive literature review; 2) a stock taking of initiatives that use mobile technologies and digitized data for agricultural finance and women's financial inclusion; 3) an analysis of gaps in existing initiatives that would increase access to DFS by women farmers, laborers and women-owned agricultural MSMEs. The report also examines the regulatory environment around DFS and ways that regulators are working to increase responsible access to women.

The stock taking found that while there are many DFS products targeted to or at least relevant to smallholder farmers, almost none are explicitly designed for use by female farmers. The report analyzes findings in the categories of alternative credit scoring, loan disbursement and collection, savings, insurance, payments, market pricing, market linkages and agricultural extension. The categories that were best represented in the stock taking were agricultural extension services (including pricing and market linkages) and loan disbursement and collection. This finding is consistent with expectations, given the long history of development banks, governments, and donors working to increase both extension services and finance in rural areas. Digitization is opening new avenues for service providers, especially mobile network operators, to both gain new customers and provide value to existing customers.

The stock taking also demonstrated the emergence of areas that are either new to the digital channel or are new innovations altogether. Alternative credit scoring, which uses data from airtime transactions, psychometric testing, social data and payment/e-commerce data, is a promising new way for farmers without credit scores to demonstrate their risk profiles to lenders. Mobile microinsurance is coming to the fore to provide a safety net to mobile subscribers, though insuring farmers' crops and other agricultural assets continues to be a challenge. Digital payments along the value chain is a topic that the literature discusses frequently as holding

promise as an onramp to financial inclusion, but hasn't been widely implemented to date.

The report concludes with four recommendations for the World Bank drawing from the analysis of gaps between the available services cataloged above and the needs of women in agriculture as defined by the literature review. The recommendations identify approaches that Strategic Impact Advisors concludes, based on the findings of this research, the World Bank could take in making an impactful investment. These recommendations are to:

- Leverage the strong role savings groups play in rural women's lives through digitization efforts that help groups increase efficiency and transparency and encourage women to, over time, build their own digital financial profiles. This recommendation is based on findings around the importance of savings in women's financial lives and the important role of NGOs, many of whom have been working with women's savings groups for decades, in facilitating relationships between the groups, MNOs, and banks.
- Select companies identified in this research as already successfully offering mobile savings, insurance and credit products, but who have not targeted women as a key customer segment, and provide assistance in their marketing and promotion to women. The research demonstrated that many products have the right characteristics to meet the needs of female farmers, but aren't being promoted or advertised in ways that resonate with women or work to overcome cultural and social barriers to access.
- Invest in the design of new gender-responsive bundled and customized service offerings that meet the financial priorities and lifecycle needs of women farmers. The research showed that women have different financial needs at different points in their lives, or in the cycles of

the agricultural enterprises they are specifically responsible for, and that these cycles might differ from men's. At present, products are designed around cycles most relevant to men. Customer-centric service design can help make formal financial services products appealing to women in agriculture.

- Drive the collection and use of digitized data to expand bank offerings and financing to women in agriculture. The trend in alternative credit scoring holds promise for women, who, research corroborates, frequently lack fixed collateral and financial histories they can present to a lender.







Motivation

Rural and Agricultural Households Rely on Finance and Financial Tools to Prosper

Smallholder farmers manage 80% of the farmland in sub-Saharan Africa and Asia and provide up to 80% of the food supply in these regions.¹ Despite their demonstrated importance to food production and security, smallholder farmers continue to confront a shortfall in available financing.² The Initiative for Smallholder Finance estimates demand for USD 200 billion in agricultural and nonagricultural finance by smallholder farmers in Latin America, sub-Saharan Africa, and South and Southeast Asia with a USD 150 billion gap in available finance.³ These estimates relate to credit as a source of financing and do not capture other financing strategies smallholder farmers use to meet their financial needs including personal, informal group savings or friends and families. CGAP's smallholder farmer research, including national surveys and financial diaries, detail the mix of financial tools women smallholder farmers use including: bank accounts, accounts at non-bank financial institutions (such as MFIs), mobile money and local, informal sources (VSLAs, ROSCAs, money guards and mobile money).⁴

The Sustainable Development Goals (SDGs) and relevant indicators recognize the role that access to finance and digital technologies can play in achieving SDG No. 1 of No Poverty and SDG No. 5 of Gender Equality.

Women Play Many Critical Roles in Agricultural Households and Economies Experiencing the Finance Gap

Agriculture is typically the largest source of employment for women in developing economies, with great variation in how women participate in this sector across and within countries.⁶ The importance of women in agriculture relates both to their prevalence in food production and processing and in their unique roles within their households and communities. Women not only produce food for their communities, but also pass on the gains they accrue by operating or working for agricultural enterprises to their families and local economies.

SDGs and Indicators Impacted by Increased Access of Women in Agriculture to Digitally Enabled Financial Services



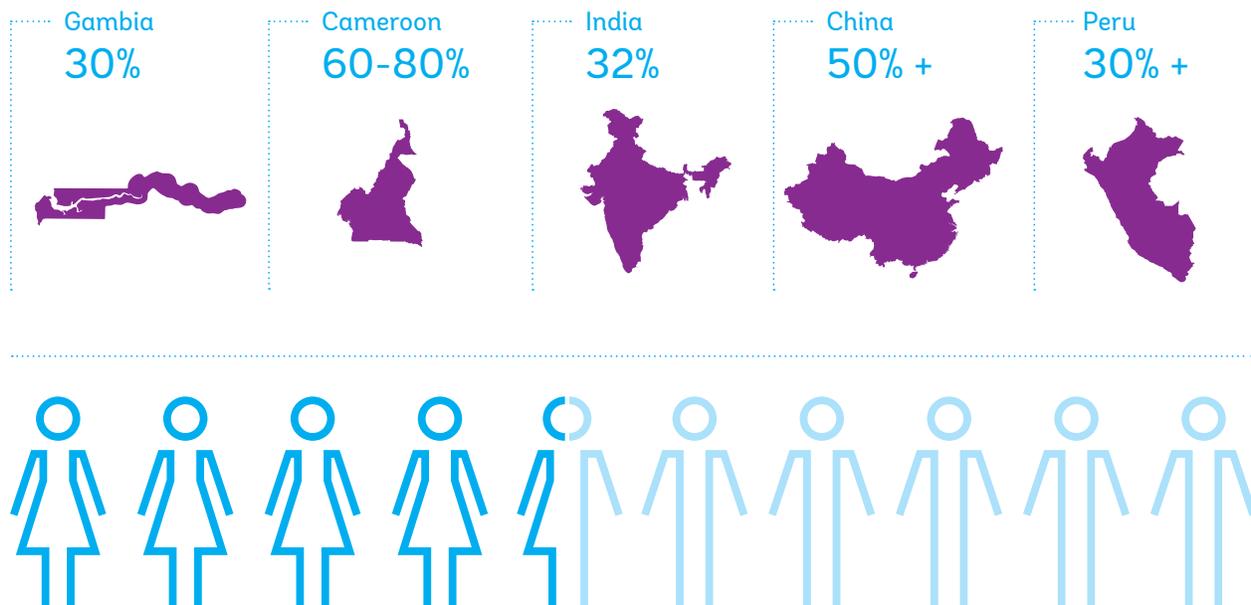
SDG Indicator 1.4 sets a target of ensuring that by 2030 all men and women, in particular the poor and the vulnerable, have equal rights to economic resources, as well as access to basic services, ownership and control over land and other forms of property, inheritance, natural resources, appropriate new technology and financial services, including microfinance.⁵



Indicator 5.a tracks reforms that give women equal rights to economic resources, as well as access to ownership and control over land and other forms of property, financial services, inheritance and natural resources, in accordance with national laws. Indicator 5.b tracks the use of enabling technology, in particular information and communications technology, to promote the empowerment of women and with the measure of individuals who own a mobile telephone, by sex in Indicator 5.b.1.

Source: United Nations (UN) Economic Security Council. 2017. "Report of the Inter-agency and Expert Group on Sustainable Development Goal Indicators." E/CN/3/2017/2, Annex 3: 2.

Figure 1: Time Use Surveys Broadly Indicate Women's Time Spent on Agricultural Activities⁷



"Women make up 45% of the agricultural labor force, ranging from 20% in Latin America to up to 60% in parts of Africa and Asia."⁸

Women Across the World, in Both Rural and Urban Contexts, Remain Outside the Formal Financial Sector

Even when finance is available, research shows women are excluded from formal financial services at higher rates than men. Globally, 1.1 billion women lack financial services accounts according to the World Bank's 2014 Global Findex. The gender gap varies regionally, as shown in Figure 2.

Key Stats

Worldwide, men are 7 percentage points more likely than women to own an account (either at a financial institution or through a mobile money provider). The gender gap in account ownership in developing economies is 9 percentage points. Women worldwide are also more likely to be denied access to formal credit and typically pay higher interest rates than men.¹⁰

Figure 2: Regional Gender Gap



The gap is largest in South Asia, where only 37 percent of women have an account compared with

55 percent of men; this gap is only one percent lower for mobile money accounts.⁹

CGAP Smallholder Farmer Survey Data on the Gender Gap in Financial Accounts

The CGAP smallholder national surveys include sex disaggregated data that show the gender gap in mobile money use and low levels of bank account ownership by smallholder farmers:¹¹

Bank account ownership by all farmers was low in all countries:

- Tanzania and Mozambique: 10%
- Cote d'Ivoire: 5%
- Uganda: 11%
- Bangladesh: 22% and 24% (including non-bank financial institutions)

Mobile money ownership exceeds bank accounts among smallholder farmers but a significant gap exists outside of Tanzania:

- Uganda: 36% mobile money accounts/17% women/26% men
- Cote d'Ivoire: 27% mobile money accounts: 17% women/33% men
- Tanzania: 61% mobile money accounts/55% women/58% men

In the Face of These Challenges, Digital Technologies Have Successfully Promoted Access to Financial Services for Previously Underserved Groups

Over the past decade, the expanded adoption of digital technologies, accompanied by increasing mobile network coverage has influenced initiatives to improve the prosperity of previously underserved consumers, including rural farmers, through access to information and financial services. While financial and informational interventions for farmers have been part of long term agricultural development strategies, it is the translation of these once-analog programs (such as in-person extension services, savings groups, etc.) to mobile technology platforms that is ushering in the potential for a greater scaling up of dissemination and access. Digitized data, when available, also provides the analytical base for developing customer-centric products and new forms of risk evaluation that can aid in the extension of credit and insurance. Yet, like

analog financial services, these new digital channels have so far reached more men than women. While the number of digital distribution channels are growing, industry data shows services delivered over the mobile channel, including financial services, currently reach more men than women. In 2015, GSMA estimated over 1.7 billion women in low- and middle-income countries did not own a mobile phone.¹² The World Bank's 2014 Global Findex database shows that in low- and middle-income countries, women are 36% less likely than men to have a mobile money account.¹³

The rural concentration of smallholder farmers in areas that may have limited mobile network connectivity restricts women farmers' access to digitally enabled financial services. In its analysis of data from the smallholder farmer diaries CGAP cites, as a common estimate, a rural mobile connection penetration rate in Sub-Saharan Africa at roughly one-third of a country's overall rate and women's access to that connectivity at one-fourths below that rate.¹⁴



Study Objectives and Scope

This report is designed to illuminate the state of play of current and promising efforts that use mobile technology and digitized data to close the gap in access to finance between men and women in agriculture. It provides insight into the financial characteristics of women in agriculture and their demand for financial services, takes stock of initiatives that use mobile technologies and digitized data for agricultural finance and women's financial inclusion, and analyzes how to adapt current solutions to the specificities of female smallholder farmers, women wage laborers in agriculture and women-owned agricultural micro, small or medium enterprises (MSMEs). By investigating the constraints to women in agriculture's access to digital finance, the research develops a profile of the characteristics of relevant and needed digital financial services (DFS) and information products. The report overlays these findings with the stock-taking to identify gaps in existing initiatives that would increase access to DFS by women farmers, laborers and women-owned agricultural MSMEs.

It is equally important to define what is beyond the scope of this report. This report was commissioned to cast a wide net to capture the state of current product offerings and initiatives working to broaden the use of mobile and digital technologies to deliver financial services to women in agriculture in developing countries. The report does not attempt to provide a localized level of analysis or market specific reviews but rather to reference those studies to provide examples of differing contexts. Specific interventions will benefit from further segmentation of women in agriculture within a given context based on a broad range of factors including current mobile usage trends, crop selection, education levels and poverty.





Methodology

The report relies on desk research and an extensive literature review that included key studies on DFS, DFS and women, innovative agricultural technologies, and financial inclusion initiatives. These studies provided context for the product profiles and facilitated the identification of broad trends and overarching challenges and barriers to the adoption and usage of DFS by women and women farmers.

Definition of Financial Services and Financial Inclusion

Financial Services: As used in this report financial services includes transactional services, including payments for agricultural goods and inputs and money transfers such as receipt of remittances, as well as more traditional financial services such as savings, credit and insurance.

Financial Inclusion: A state in which everyone who can use them has access to a full suite of quality financial services, provided at affordable prices, in a convenient manner, with respect and dignity. Financial services are delivered by a range of providers, in a stable, competitive market to financially capable clients.

Digital Financial Inclusion: Access to and ability to use at least one formal transactional account that can perform most, if not all, of payment needs; safely store value; and serve as a gateway to other financial services.

We reviewed documentation from over 150 applications, products and deployments and captured key findings and key trends in a searchable database. Our database categorizes products and programs across the following categories:

- Geography
- Eight service/product types
- Organization
- Initiation date
- Target market segment

As shown in Figure 3, we have organized our company/program research into a heat map, which highlights the relative concentration of products and programs by geography and service type. Supplementing the desk research were telephone and face-to-face interviews with leaders at private companies, NGOs, and others on digital finance,

digital technology for agriculture, and digital technology for women's financial inclusion. These discussions provided important details on specific deployments and in some cases yielded disaggregated data on the use of products by women and women farmers.

Figure 3: Heat Map

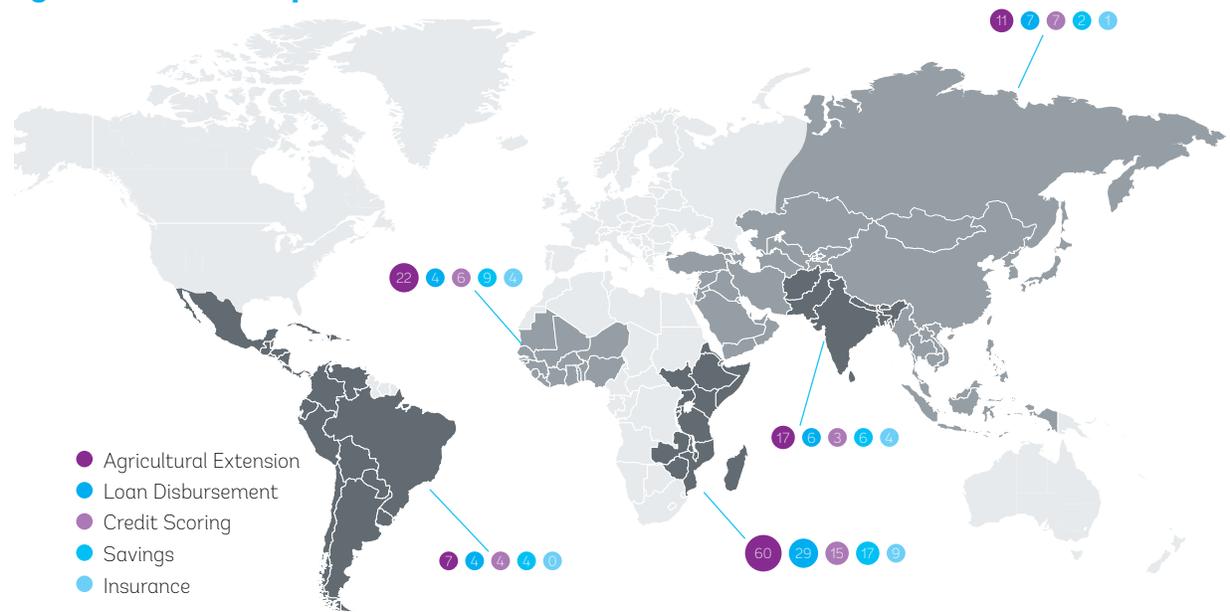
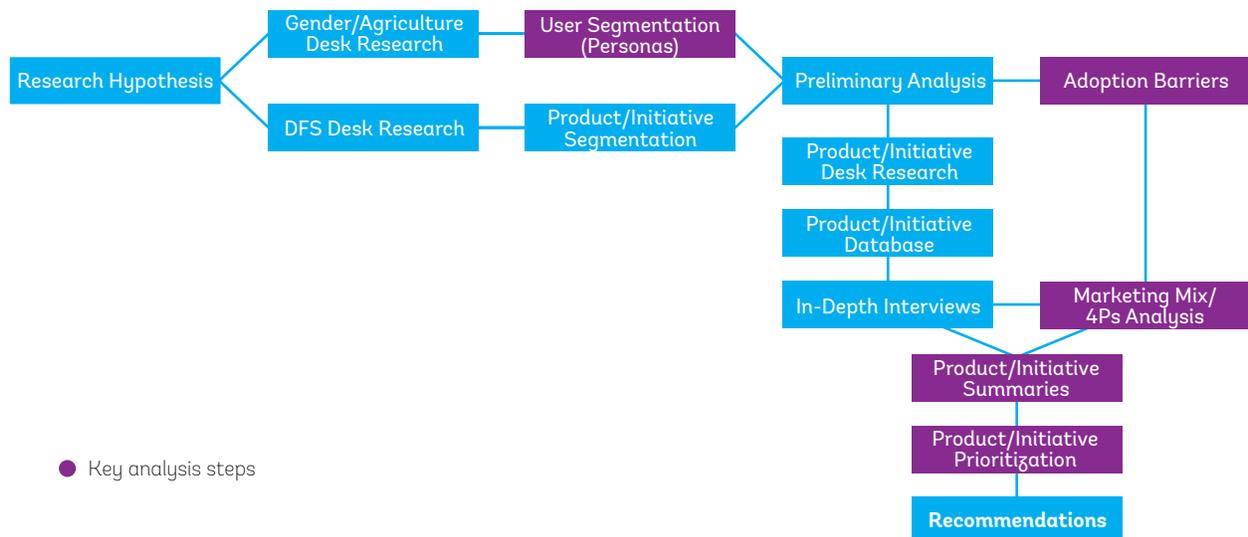


Figure 4, presents our overall methodology for the project.

Figure 4: Methodology



Key analysis elements of our methodology include:

User Segmentation – To better align products and programs with specific market segments for purposes of this report we have divided women engaged in agriculture into four personas:

- Smallholder Farmers – Female-headed households
- Smallholder Farmers – Partnered Women
- Women Laborers
- Women-owned agribusiness MSMEs

The personas provide a framework to segment financial needs and inform our analysis of specific products and programs. Deeper levels of segmentation of smallholder farmers can be completed with country specific data such as the data collected in the CGAP smallholder surveys and financial diaries.

Identification of Adoption Barriers – Based on our review of leading research, we have organized barriers to the adoption of usage of DFS by women and women farmers into (1) demand-side, (2) supply-side, and (3) legal & regulatory barriers.

Marketing Mix/4Ps Analysis – The Marketing Mix is a general framework used to describe the different kinds of choices organizations must make as they

bring a product or service to market. The 4Ps is one way – probably the best-known way – of defining the marketing mix, and was first expressed in 1960 by E. J. McCarthy.¹⁵ By analyzing the marketing mix of the selected products and programs identified in our desk research and testing how the 4Ps address the specific needs and attributes of our target market segments (e.g., women, women farmers, smallholder farmers) we can identify success stories as well as deficiencies that either led or can lead to high levels of adoption and usage of financial services by our target segment or identify instances where the marketing mix was poorly aligned with the needs of our target segment.

It should be noted that for purposes of this analysis, the price component of the marketing mix is defined to include the specific pricing model employed by the entity including factors such as subscription versus pay as you use, availability of pre-payment, availability of monthly payments versus one-time payments and the use free and premium models.

The 4Ps are: Product (or Service), Place, Price and Promotion

In analyzing selected digital products and programs we have developed specific questions associated with each of the 4Ps to assist in our evaluation and prioritization of products and initiatives.



Table 1: Marketing Mix – 4Ps

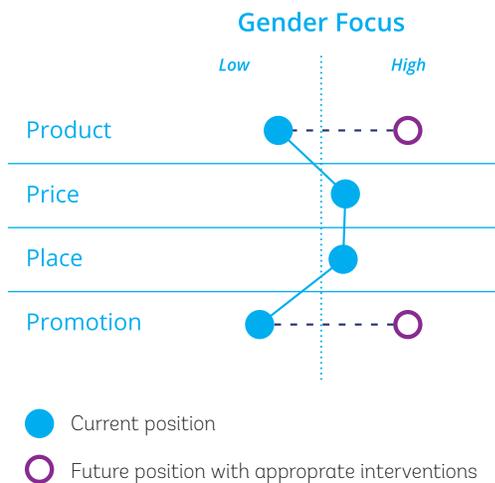
4Ps	Research Questions
<p>Product</p>	<p>Does the product satisfy the needs of the target segment?</p> <p>Is the product easy to use and easily understood given the education levels of the target segment?</p> <p>Does the product have prerequisites (e.g., identification, collateral, power, mobile handset)?</p> <p>Is there post sales customer support available? Is this support accessible?</p>
<p>Price</p>	<p>Does the price align with the perceived value of the product?</p> <p>Does the overall price align with the income levels of the target segment?</p> <p>Do the payment terms and payment structure (e.g., pricing model) align with the needs and cash flow realities of the target segment?</p> <p>Are there more cost effective alternatives?</p>
<p>Place</p>	<p>Is the product sold in areas easily accessible to the target segment?</p> <p>Is the sales channel trusted by the target segment?</p> <p>Is the sales channel available when needed by the segment?</p>
<p>Promotion</p>	<p>Do Above the Line marketing channels reach the target segment?</p> <p>Does the marketing message resonate with the target segment?</p> <p>Is the message coming from a trusted source?</p> <p>Does the product require high touch or low touch sales?</p> <p>Do Below the Line marketing channels and techniques align with target segment needs?</p> <p>Does the sales process include training?</p>

Product/Initiative Summaries—We have developed summaries for selected products/initiatives in each of the service areas identified in our service/program segmentation. A key component of the summary is how well the marketing mix (4Ps) for the product/program addresses specific gender needs and identified gender barriers. The gap between an ideal marketing mix and the current marketing mix helps pinpoint potential areas for

intervention. Figure 5 provides a sample gap analysis.

Product/Initiative Prioritization – A variety of screening and evaluation techniques are applied to our product/initiative database and product profiles to identify leading candidates for more detailed evaluation and possible future intervention activities by the World Bank.

Figure 5: Sample 4P Marketing Mix – Kcb M-Pesa



Key Features

- Transaction-based credit scoring algorithm
- Registration via standard M-PESA account
- Instant approval with notification and funds appearing on mobile handset
- Average loan \$21
- Extremely low default rate





Women in Agriculture User Segmentation and Financial Needs

Defining the Population

The activities, expectations and qualities of women's roles in agriculture are extremely heterogeneous and differ widely from place to place. While women have roles in all different parts of agricultural value chains and lifecycles, the specifics differ from place to place. "Taking account of the heterogeneity of [women's] contribution is essential if policies and interventions are to be effective."¹⁶

Effort has been made to segment women by their specific contributions to farm production, as a means of taking account of this heterogeneity. Such segmentation could be helpful to understanding how women's financial needs differ from men's, for example, if different crops require credit for inputs at different times of year. In some countries or regions, women do grow specific crops or focus on raising and managing livestock alone, making it easier to assess their roles in the farming household. But in many cases, especially in subsistence farming households, women produce food alongside men, and gender-disaggregated crop production statistics are difficult to discern.¹⁷ Cultural and social norms that make men's farm activities more easily observable serve to further obscure women's true contributions to farm income from precise measurement.

Another framework through which to analyze women's different contributions to agriculture and their resulting financial needs is through their relationship to relevant value chains. CGAP has categorized smallholder farmers as falling into the categories of tight, loose or noncommercial value chains with different income and finance needs.¹⁸

Table 2: Smallholder Farmer Categories

Farmer Categorization	Attributes
Non-Commercial	Farming for subsistence and survival; net buyers of food with few opportunities to sell surpluses in markets
Commercial - Loose Value Chain	Not selling into commercial chains, limited income, challenges in meeting day today expenses. Less visibility with retail credit providers, informal sales of crops without contracts, possible farmer association membership
Commercial - Tight Value Chain	Contracts with buyers, Value chain financing options, farmer association or cooperative membership

Segmentation

In order to draw conclusions and make targeted recommendations on relevant initiatives to increase women’s access to financial services, this report divides women in agriculture into four personas that are likely to be relevant in most regions, with the understanding that all women will not fall neatly within them. These personas are profiles derived from our review of literature and segmentation by others. They are not based on specific data but rather are intended as a guide to assess the reach of current products of services to meet financial needs associated with characteristics in the personas.

Women’s activities in agriculture will often fall into multiple personas. For example, women may contribute to farming in partnered households and also work as wage laborers for farms outside their families’ control. In addition, women falling within these broadly filtered groups will have attributes which differentiate them from other women in the persona which should be studied in designing market specific approaches which are beyond the scope of this global stock taking report. Reports analyzing data from CGAP’s smallholder farmer surveys divide smallholder farmers further into six unique segments and provide a more granular level of detail than included in this stock taking report.¹⁹

Smallholder Farmers – Female-headed Households



Female-headed households are prevalent in active conflict zones and post-conflict areas; they also occur in cases where either men or women have migrated for work, or simply in the case of divorce, separation or death of a husband. As the head of household, this smallholder farmer likely bears the full weight of financial responsibility to support the household.

A review of studies on smallholder farmer households headed by men and women between 1990 and 2007 demonstrate gaps based on gender in credit, fertilizer and capital utilization. These studies also noted that fewer extension workers visited female-headed households than male-headed households.²⁰ This access gap may lead to farming choices that are suboptimal as the sole head of household may “choose to produce subsistence crops despite their lower returns in order to lower the risk of price shocks.”²¹ Female-headed households aren’t always poorer than male-headed households.²² While female-headed households may be disadvantaged in some circumstances, it is also possible that their lack of husbands opens the possibility of taking on roles and responsibilities that might otherwise be out of the question. These

women may be particularly open to investing in a new agricultural SME or in trying to add value to an existing farm enterprise and in need of financial services, such as commitment savings and insurance, that can help them meet family needs such as school fees and medical care in emergencies.

Smallholder Farmers – Partnered Women



Female smallholder farmers in partnered relationships (defined as husbands for purposes of this research) may have different financial lives than women heads of households, who are assumed to be sole decision makers and income providers.²³ In this broad category women have many different types of roles and responsibilities and relationships with agriculture. The gendered divisions of labor, responsibility and agency on the farm enterprise can often be quite complex and the visibility on women’s role and contribution

to the household’s income may be obscured. The following segmentations developed by Panos Varangis helps to further define the varied types of roles and financial needs women in agricultural households with husbands may possess.²⁴ It also reflects the various behaviors and perceptions by both women and men to be addressed.

Contributors are involved in some subsistence farming but are mostly consumed with childcare and household chores. Her decision-making abilities are limited, she does not know much about how to start or run a commercial enterprise, and she has limited mobility. Women who are contributors may not want more financial responsibility, or may fear it would strain her relationship with her husband. For example, Innovations for Poverty Action found that providing ATM cards in Kenya made women’s “savings more vulnerable to appropriation by their husbands or other members of the household.”²⁵ Products geared toward family-wide wellbeing, such as commitment savings or insurance, may be helpful in this case.

Moving from Contributor to Collaborator

Whether “contributors” are just that or whether they actually are collaborators may be a difficult distinction to parse. Women’s World Banking, in a cashflow analysis of rural households in Paraguay, Colombia and Peru, found that households, including both men and women, tended to strongly underestimate women’s actual economic contributions. Their study demonstrated that women themselves view some of their work on their family farms, such as providing farm labor, raising livestock or selling food as “helping” rather than generating income. Men’s income, on the other hand, was sometimes more obvious, when it came as one lump sum for a seasonal cash crop.²⁶ Furthermore, some contributors might be collaborators provided greater access to resources. For example, Udry found that “plots controlled by women have significantly lower yields than similar plots within the household planted with the same crop in the same year, but controlled by men.”²⁷ The reason for this gap was higher labor input (perhaps because the men did not have household duties to perform) and higher fertilizer usage on men’s plots.

Collaborators mostly work on the farm that is jointly managed with her husband, but also have childcare and household duties. She has limited mobility and may have interest in expanding her aspect of the business, or a separate business idea, but doesn't have the resources to do so. Collaborators may have much more room to grow into new responsibilities and opportunities given the right financial tools, that are socially appropriate and relevant, and that are advertised in places and through channels that women with limited mobility are likely to see. With flexible, low-risk credit or additional information on how to invest in better inputs, collaborators are in a position to harness new tools for their families' benefit.

Main proprietors can fully make financial decisions and may have control over their own asset-generating enterprise. She wants to use financial tools to grow her family's business and income. Main proprietors may not need women-targeted digital financial and informational services. They are likely to already know a bit about these options and where to access them, and are likely to be curious or enthusiastic about opportunities to harness the to grow their businesses.



Women, partnered or not, may work in agriculture as wage earners for employers. According to research sponsored by USAID's Feed the Future initiative, "there are many opportunities to increase women's economic empowerment outside of interventions focused on production."²⁸ The IFC has documented that women's participation as laborers in industrial agriculture is notably on the rise: the study reports that, women are seen to be increasingly engaged in wage employment in large-scale industrial agriculture, especially of non-traditional products meant for export.²⁹ Indeed FAO's analysis of data indicates that women dominate employment in many of the high-

value agricultural commodity chains in sub-Saharan Africa and Latin America.³⁰ Interventions to increase women's employment in agriculture outside of production have focused on women's cooperatives, with less attention on market women and dealers.³¹

As a means of increasing women's financial inclusion, several recent initiatives have focused on paying women wage earners in the garment industry into financial accounts. For example, FHI360 along with BSR recently published a manual for ready-made garment factories in Bangladesh on digitizing worker salary payments, with a focus on women as primary workers in that industry.³² The Better than Cash Alliance released a report in 2017 on the value of digitizing garment worker salaries in Bangladesh.³³ Their findings could apply to paying women formally employed in agro-enterprises or agro-processing.

Women-owned Agribusiness MSMEs



Women are also entrepreneurs in the agricultural space; they own agribusinesses of all types, make financial decisions, and drive local food systems and economies. For example, USAID's Feed the Future has documented a number of case studies of female entrepreneurs in agriculture, including a woman working as a mango producer group marketing agent, an agronomy trainer in Haiti, an owner of an agricultural inputs store in Zambia, a leader of a women's farmer group in Bangladesh, and sellers of off-farm produced and processed goods in Honduras.³⁴ In 2011, a G-20 report studied the gap in financing for the estimated 8-10 million formal SMEs with full or partial female ownership in emerging markets.³⁵ Comprised of entrepreneurs, this segment is assumed to be more focused on growth and in need of capital and credit. Whether their goal is to scale up or simply to more effectively and efficiently manage their balance sheet, financial tools and services as well as informational services

could be beneficial. The United Nations Foundation lists as priority-level, proven interventions “credit and business management training targeted to women-owned small and medium enterprises (SMEs) (versus subsistence-level enterprises); bundled services, including capital, income generation training and follow-up technical visits, for women-owned micro firms operating at subsistence level.”³⁶ Family

and friends, a common source for borrowing, may not meet the needs of this segment who would benefit from qualifying for credit from more formal sources.

While female agribusiness entrepreneurs are likely to be resourceful and creative, they often still could use higher quality and more reliable sources of agricultural information and advice. “Lacking information about technology improvements and

Table 3: Personas

Personas	Credit Scoring	Loan Disbursement and Collection	Savings	Insurance	Payments	Market Pricing	Linkages	Agricultural Extension	Key Service Needs
Smallholder Farmers - Female Headed Households									<ul style="list-style-type: none"> Secure savings with restricted access Short-term credit products accessible through the phone based on digital data (e.g., consumption, payment patterns) Digital farmer applications that provide market linkages and remote access to extension services Digital access to micro insurance products for medical and other emergency expenses
Smallholder Farmers - Partnered Women Contributors									<ul style="list-style-type: none"> Secure savings with restricted access Short-term credit products accessible through the phone based on digital data (e.g., consumption, payment patterns)
Collaborators									<ul style="list-style-type: none"> Secure savings with restricted access Short-term credit products accessible through the phone based on digital data (e.g., consumption, payment patterns)
Main Proprietors									<ul style="list-style-type: none"> Secure savings with restricted access Short-term credit products accessible through the phone based on digital data (e.g., consumption, payment patterns) Digital farmer applications that provide market linkages and remote access to extension services
Women Laborers									<ul style="list-style-type: none"> Secure savings product that automatically earmarks a portion of wages and savings Low cost payment product that enables P2P and bill payment
Women Owners of Agribusiness/MSME									<ul style="list-style-type: none"> Marketplace and applications that provide access to customers and suppliers Working capital credit products that support business expansion (e.g., inventory, crop purchases)

High relevance Low relevance

their correct application hinders women to upscale agricultural production. The integration into modern agricultural supply chains was shown to significantly increase incomes.”³² Information is needed both at the input and production levels as well as with marketing and business development. “Women face particular constraints marketing their products due to factors such as isolation, lack of knowledge, quality issues, and lack of bargaining power.”³⁸

Financial Needs

In Table 3 we have mapped the financial and information services needs across our personas. While we recognize that the personas include some degree of variation we focused our analysis on broad needs and commonalities within each persona. We then looked at the core attributes of the financial and information services and assessed how they met the needs of the persona. In each case, we have used the desk research and our experience working with women and women farmers to develop relative importance ratings for each service. In developing the ratings we took into consideration cash flow patterns as well as aspirational goals. As an example, Smallholder Farmer – Female Head of Household and Partnered have a cash flow deficit just before harvest. In many countries this deficit is exacerbated by the fact that school fees are often also due at this time. The economic factors of these personas result in a strong need for short term credit products. Our ratings also reflect aspirational goals of the segment. Research indicates that Smallholder Farmer – Collaborators often want to expand their farms and introduce new crops and methods. Consequently, we examined products such as commitment savings that would assist this segment to achieve their farm improvement goals. Specific ratings were arrived at through a Delphi approach using an expert panel that provided specific ratings for each service category. The ratings were consolidated and an average rating for each was entered into the table.

Barriers to Access and Active Use of Financial Services

The financial inclusion gap and gap in financing for smallholder farmers indicate that barriers are hindering women farmers and those engaged in agricultural business as laborers or MSME owners. The gap in financial inclusion and access to finance is not unique to women but exists among all smallholder farmers in developing countries. CGAP collected sex disaggregated data on the financial behaviors and financial inclusion of smallholder farmers in countries complemented by data from financial diaries. CGAP’s comparative analysis of data collected on male and female smallholder farmers in Mozambique and Tanzania identify similarities and differences in women’s financial behavior in the two countries and within countries with their male smallholder farmers.³⁹ The data also allow analysis (beyond the scope of this report) on the statistical significance on financial inclusion on a number of factors beyond gender, such as education level, regularity of income, savings preferences, literacy, and, income. In its analysis of demand- and supply-side data from Mali and Côte d’Ivoire and follow on research, GMSA found a positive linear correlation between education levels, occupation, and mobile money usage, suggesting that education and occupation help to predict how likely one is to become an active mobile money user.⁴⁰

This report takes stock of the barriers identified in prior research that inhibit women’s financial inclusion and use of digital tools with the recognition that the presence and depth of those barriers will vary by country and regionally within a country. As noted in the World Bank’s 2017 edition of the e-resourcebook for ICT and Agriculture, “overall, there is still a need to address current gender discrimination and to ensure gender sensitivity at all levels and within all institutions involved in mobile finance.”⁴¹

Table 4: Barriers to Women’s Financial Inclusion

Demand Side Barriers	Supply Side Barriers	Legal & Regulatory Barriers
<ul style="list-style-type: none"> • Lack of bargaining power within the household • Concentration in lower-paying economic activities • Competing demands on women’s time related to unpaid domestic work • Lack of assets for collateral • Lack of formal identification • Reduced mobility due to time constraints or social norms • Lower rates of cell phone ownership among women needed to access many digital products • Women-specific crops potentially result in lower yields (may not be cash crops) • Low levels of formal education that limit digital and financial literacy and numeracy. 	<ul style="list-style-type: none"> • Inappropriate product offerings • Lack of gender-specific policies and practices for product design and marketing • Inappropriate distribution channels • Lack of participation in formalized farmer organizations or receipt of extension services (cooperatives/associations) • Lack of visibility to buyers as producer • Lack of access to market information for pricing 	<ul style="list-style-type: none"> • Account opening requirements that disadvantage women • Barriers to obtaining formal identification • Legal barriers to owning and inheriting property and other collateral • Lack of gender-inclusive credit reporting systems
Demand Side Solutions	Supply Side Solutions	Legal Regulatory Solutions
<ul style="list-style-type: none"> • Promotional pricing of mobile devices • Promotional and literacy campaigns to build users digital capacities • Digitally delivered services with protected accounts • Tiered KYC with lower identification requirements • Reasonable fees for small transaction volume and value • Incentivized transaction pricing to encourage and reward use • Credit rating based on transaction histories 	<ul style="list-style-type: none"> • Product offerings customized for crop cycles and income • Marketing and literacy campaigns through channels women trust • Increased recruitment of women into organized farmer groups • Increased delivery of market information and pricing to women farmers 	<ul style="list-style-type: none"> • Tiered KYC and account requirements • Improved land registries and use of intangible collateral and alternative credit scoring • Sex-disaggregated and improved reporting of transactional data to credit agencies

• Blue text = Agricultural sector specific barriers

Source: Innovations for Poverty Action and SIA Analysis

A 2017 IPA-led evidence review of knowledge gaps in women's economic empowerment identified a series of gender-based barriers to financial inclusion. Though not specific to agriculture, the findings were still relevant. See Table 4 which describes the barriers identified in further detail.

Demand Side Barriers

Women Farmers Have Fewer Resources Than Men Farmers to Serve as Collateral and Produce Lower Yields

The particular challenges women face in becoming financially included, and whether they are unique from those faced by men do depend on their environment and circumstances. FAO notes, however, that one generalization about women in agriculture is appropriate: “compared with their male counterparts, female farmers in all regions control less land and livestock, make far less use of improved seed varieties and purchased inputs such as fertilizers, are much less likely to use credit or insurance, have lower education levels and are less likely to have access to extension services.”⁴² Research also indicates that women are likely to face more challenges, or to face them more severely - and to have less ability to cope with these barriers and overcome them. Research on farmers in Tanzania

and Mozambique suggests that women and men may face the same initial barriers to accessing finance but that “these disadvantages seem to affect women smallholders’ particular livelihood strategies by limiting their ability to diversify income-generating activities within the agricultural and nonagricultural sectors.”⁴³

Low Levels of Education and Literacy by Women Present Challenges in Use of Financial Services and DFS

Smallholder farmers and women, in particular, have low levels of formal education which produce lower levels of financial literacy, digital literacy, and numeracy. In 2014, the global adult illiteracy rate was 15% (758 million adults) as reported in the Global Education Monitoring Report; 63% of adults who are illiterate are women – a percentage that has been stagnant since 2000.⁴⁴ In developing countries, 69% of men and 75% of women are financially illiterate.⁴⁵ In a review of reports analyzing data from the Financial Inclusion Insights (FII) datasets, literacy and numeracy were found to be key determinants of women's use of DFS. The data show a gap in women's literacy ranging from a low of 7% (Bangladesh) to 25% (Pakistan) in the 7 countries where FII data were collected.⁴⁶

Findings from CGAP Small Holder Farmer Surveys Consistently Show Women Farmers are Less Likely to Attend School than Male Smallholder Farmers

- Uganda: 47% of women smallholder farmers have never attended school compared to 12% of the male smallholder farmers.
- Mozambique: 45% of female household heads who are smallholder farmers have no formal education compared to 30 percent of men.
- Tanzania: twice as many female smallholder farmers than male smallholder farmers have never attended school.
- Côte d'Ivoire: 76% of women in female-headed smallholder farmer households have not attended school

Source: http://www.cgap.org/sites/default/files/CGAP_Smallholder_Household%20Survey_MZO_Technical%20Paper_ENGLISH_final.pdf; http://www.cgap.org/sites/default/files/Working%20Paper_CGAP%20Smallholder%20Household%20Survey_UGA_April%202016.compressed.pdf; <http://www.cgap.org/sites/default/files/Working-Paper-Smallholder-Survey-Tanzania-May-2016.pdf>; <http://www.cgap.org/sites/default/files/Working-Paper-Smallholder-National-Survey-Bangladesh-May-2017.pdf>; <http://microdata.worldbank.org/index.php/catalog/2789>

Women Face Time Constraints and Expectations to Perform Unpaid Labor That Men Do Not

Time – often referred to as time poverty – is a major constraint to women’s greater investment in agricultural development activities. “Women are generally less able than men to participate in economic opportunities because they face a work burden that men do not. In most societies, women are responsible for most of the household and child-rearing activities as well rearing of small livestock, although norms differ by culture and over time. This additional work burden is unpaid and limits women’s capacity to engage in income-earning activities, which often require a minimum fixed time before being profitable.”⁴⁷

Adverse Social Norms May Inhibit Women’s Mobility and Agency, in Many Cases, from Generating and Amassing Resources

A major factor influencing gender-divergent rates of DFS usage is social norms. Cultural and social norms that limit women’s mobility, decision making authority and ownership of resources (including mobile phones) often contribute to the barriers women face in accessing financial services. They may influence both the supply side and demand sides; financial service providers are often hesitant to invest in products and services more relevant to women because of unconscious or consciously held beliefs that women “may not need, want or be able to use financial services.”⁴⁸ Or they lack a true understanding of the business case for female client segments.

“Bright Spots In Gender Parity”

GSMA’s 2017 study on mobile money use in Mali and Côte d’Ivoire found women have lower levels than men of mobile phone ownership and awareness of mobile money but also that when women have a mobile money account, they are as likely as men to try the service and become regular users.⁵²

Among the 26 countries of focus for the Brookings Financial and Digital Inclusion Project (FDIP) scorecard, six countries (the Dominican Republic, Indonesia, the Philippines, Mexico, South Africa, and Vietnam) exhibited either gender parity or a greater percentage of women than men using formal financial institution accounts, according to the World Bank’s 2014 Global Findex.⁵³

Like Analog Financial Services, These New Digital Channels Have So Far Reached More Men Than Women

While the number of digital distribution channels are growing, industry data shows services delivered over the mobile channel, including financial services, currently reach more men than women. In 2015, GSMA estimated over 1.7 billion females in low- and middle-income countries did not own

a mobile phone.⁴⁹ The World Bank’s 2014 Global Findex database shows that in low- and middle-income countries, women are 36% less likely than men to have a mobile money account.⁵⁰ Analysis of gender-disaggregated data highlights rich and complex nuances of where gender parity may exist and where men and women’s access to and use of analog and digitally-delivered financial services diverge.⁵¹

Supply-Side Barriers

The Initiative for Smallholder Finance's 2016 analysis of smallholder farmer finance divided sources of credit for smallholder farmers into the categories of: (1) Formal Financial Institutions (commercial and state banks and MFIs), (2) Value Chain Actors (buyer and input providers), and (3) Informal and Community Based-Financial Institutions.⁵⁴ Not all providers are interested in serving smallholder farmers and the business case of financing is one that, without subsidy, has remained challenging. Gaps in financing for each of the farmer categories exist across the credit supplier type with some regional differences including a higher reliance on informal/community-based financing in Southeast Asia and sub-Saharan Africa with more lending by formal financial institutions in Latin America.⁵⁵

In its recent review of ICT tools for agriculture, the World Bank noted a current need to address gender discrimination and to ensure gender sensitivity at all levels and within all institutions involved in mobile finance. The report found that DFS providers have not yet made substantive efforts to conduct market research and adapt products, services, and marketing strategies to meet the needs of women farmers especially in rural areas.⁵⁶

There is a growing recognition that the intentional design of financial products to meet client preferences and needs is essential to increasing women's access. Recent trends in DFS innovation point toward a future of tailored, customer-centric products and services, delivered through localized access points and capable of meeting the diverse financial needs of women farmers. The trends are encouraging but will require ongoing commitment to achieve the depth, scale and usage rates that will close the gender gap in women's financial inclusion. A financial diary study completed by Bankable Frontiers Associates in India, Kenya and Mexico explored the specific cultural, social and economic

factors that led them to conclude that "it is even more difficult to serve financially excluded women than the generally excluded population."⁵⁷

Digital technology is empowering alternative sources of funding including crowd sourcing and peer-to-peer lending supplied by individuals or institutions physically remote from the borrower. In its benchmarking report on online alternative finance, the Cambridge Center for Alternative Finance (CAF) and Energy 4 Impact measured the size and growth of crowdfunding and peer-to-peer lending markets in 46 countries in Africa and the 12 in the Middle East capturing an estimated 80% of the visible online alternative finance market in Africa.⁵⁸ The report found the highest level of participation by women in crowd-sourced funding with consumer peer-to-peer lending coming in third followed by peer-to-peer business lending. Platforms such as zdisha, provide peer-to-peer lending platforms that can be used to seek loans for projects for any purpose, including funding for farmer inputs and agriculture activities.⁵⁹ The CAF benchmarking data show that agriculture is not a dominate sector in Africa or the Middle East but rather peer-to-peer lending is concentrated in the leisure, hospitality, retail and wholesale sectors and peer-to-peer consumer lending to sole-traders or individuals, most commonly is used for real estate and housing, community, and retail and wholesale projects.⁶⁰

Legal/Regulatory Barriers to women's access to finance are discussed in the following section along with efforts to create enabling environments for financial inclusion.

Women as an Underserved Consumer Segment

In northeastern Uganda, Mercy Corps found 81% of female headed-households and 55% of female spouses were the primary financial decision makers on agriculture and health purchases.⁶¹ However, services and products on the local market were geared towards male clients.



Regulatory and Enabling Environment Assessment

The use of the digital technology and the mobile channel for delivery of financial services and access to credit has expanded the areas of regulatory interest and the number regulators focused on ensuring the services provided are “responsible” DFS. As the types of entities facilitating financial transactions have expanded beyond banks and regulated financial institutions to MNOs and third party providers, policymakers are searching for a balance of the right mix of regulation to protect consumers, while promoting product delivery and service innovation. Governments focused on closing the financial inclusion gap in their own countries have developed national financial inclusion strategies, including those that promote the use of digital technologies. Some include targeted strategies to monitor and close the gap in financial inclusion between men and women. The Alliance for Financial Inclusion (AFI), an independent, member network of central banks and other financial regulatory institutions from more than 90 developing countries, has led a drive since 2011 to get governments to commit to progress on financial inclusion by joining its Maya Declaration.⁶² AFI reports that a third of its members had identified specific gender-based initiatives related to women’s financial inclusion, as shown in Table 5.

Table 5: Summary of Afi Member Gender Related Maya Declaration Targets

Institution	Target	Expected Completion	Use Case
Central Bank of Egypt	Prepare a preliminary report on the state of financial inclusion in Egypt with the focus on supply side before the end of 2017 with a view to preparing progressively more comprehensive report each year thereafter. Gender disaggregated data will be reported by the end of 2020.	In progress	Dec 2017
Reserve Bank of Fiji	Increase access to formal financial services from 64% to 85% (by 130,000) of the adult population, of which 50% are women.	In progress	9 Aug 2016
	Enhance data measurement and analysis by collecting disaggregated data on gender, age, and ethnicity by the year 2020.	In progress	Unspecified
Central Bank of Jordan	Reduce the gender gap from 53% to 35% by 2020 with decrease of 10% annually.	In progress	Dec 2020
Bank Negara Malaysia	Establish database on account ownership based on gender by end-2016.	In progress	Dec 2016
Bank of Papua New Guinea	Reach 1 million more unbanked, low-income people in Papua New Guinea, 50% of whom will be women.	In progress	Unspecified
Central bank of the Solomon Islands	Enable an additional 70,000 (of which 30,000 are women) unbanked and under-served citizens to have access to financial services by year 2015.	Completed	Jan 2015
National reserve Bank of Tonga	Develop and improve access to finance by 20% over the next 5 years, focusing on: (1) SMEs in the agricultural, fisheries and tourism sectors, and (2) SMEs for women and youth.	In progress	Jan 2020
Reserve Bank of Vanuatu	To enable the availability and accessibility of the relevant financial services to at least 76,000 unbanked Ni-Vanuatu (at least 38,000 to be women) by December 2016, through a nationally coordinated effort, in partnership with a range of service providers and relevant government institutions, offering a broad range of relevant and cost effective financial services.	In progress	Dec 2016
	Putting in place policies to support access to SMEs targeting 30% of women.	In progress	13 Jun 2016
Bank of Zambia	Entrench Gender Mainstreaming within the Bank and financial sector so as to contribute to gender equality in Zambia.	In progress	Mar 2017
Reserve Bank of Zimbabwe	Collect and maintain disaggregated financial inclusion data (women, SMEs, youth, small-scale agriculture and rural population).	In progress	Unspecified

Source: Alliance for Financial Inclusion

In 2016, AFI members adopted The Denarau Action Plan, which identifies measures AFI members can take to increase women’s access to quality and affordable financial services globally and close the financial inclusion gender gap.⁶³ The Denarau Action Plan promotes the development and implementation of smart policies and regulations by members of the AFI Network to create an enabling environment that accelerates women’s financial inclusion, including:

- setting specific financial inclusion objectives and targets for women’s financial inclusion within both the framework of the Maya Declaration and their national financial inclusion strategies
- leveraging DFS and other innovative technologies to accelerate progress toward women’s financial inclusion
- highlighting the role of appropriate financial infrastructure, such as interoperable payment systems, credit bureaus and electronic collateral registries, in enabling women’s financial inclusion.

In 2010, the G-20 formed the Global Partnership for Financial Inclusion (GPFI) to carry forward the G-20’s work on financial inclusion, including implementation of the G20 Financial Inclusion Action Plan. GPFI has contributed significantly in thought leadership of structuring enabling regulatory environments, including promoting financial inclusion through digital innovations. GPFI’s work includes research with the Better than Cash Alliance on how DFS can advance women’s economic empowerment, development of ten high-level principles on financial consumer protection, eight high-level principles for digital financial inclusion and a 2017 report on ensuring financial education and consumer protection for all in the digital age.⁶⁴

This collective interest in advancing financial inclusion through digital technologies has led to compilation of guidelines, principles and codes of conduct on how to address key regulatory issues as show in Table 6.

Table 6: How to Address Key Regulatory Issues

Issue	Organization Advocating for Governing Principles for Digital Financial Services					
	Global Partnership for Financial Inclusion (Gpfi)	GPFI	Alliance for Financial Inclusion	European Union	GSMA	International Telecommunications Union (ITU)
	High-level Principles on Financial Consumer Protection	High- Level Principles for Digital Financial Inclusion	Guideline Note on Consumer Protection in Mobile Financial Services	Directive (EU) 2016/680 of the European Parliament and of the Council	Mobile Money Operator Code of Conduct	Security Aspects of DFS
Data Protection	X	X		X	X	X
Regulatory Oversight & Coordination	X	X		X		
Consumer Protection	X	X		X	X	
Interoperability/ Interconnection						
Risk-Based Know Your Customer		X			X	
Competition Policies	X	X				

Source: SIA Analysis

The regulatory issues identified are discussed in more detail in the following sections.

Data Protection

The path to women’s access to a multitude of financial services, and especially credit and insurance, will accelerate with the creation and analysis of digital trails of data, including mobile call detail records, payment and loan transaction history, and for women in agriculture, farm or business-level details. Women’s high use of informal services in emerging markets gives them low levels of visibility by formal providers, hindering credit scoring, risk rating for insurance and understanding of relevant financial service approaches. In addition, women’s roles in partnered households may provide them limited visibility to financial institutions serving the household. Therefore, generating, and using the data trails of these women is likely to produce a net benefit. In research conducted on consumers in Kenya and Columbia, Omidyar Network found that emerging-market consumers were willing to trade privacy of certain data for what they deemed the high value

availability of formal, convenient, unsecured, short-term, small-dollar credit. Omidyar noted its research findings were consistent with CGAP’s work with First Access in Tanzania, where consumers reported their need for a loan superseded their concerns for privacy.⁶⁵

Use of personalized, digitized data raises regulatory issues of data ownership, privacy and theft that are drawing increasing regulatory attention. CGAP, in its research in Tanzania with First Access, noted that consumers’ willingness to trade privacy for credit increases the importance of developing standards for obtaining informed consent and providing data protection and incorporating those standards up front in product development.⁶⁶ There is a strong call for data privacy and protection standards and some digital financial service regulators have begun to incorporate standards of informed consent in their regulations.⁶⁷ There is also a growing movement to allow users of services to opt out of data collection. The GSMA Code of Conduct for Mobile Money Providers includes a principle calling for providers to follow good data privacy practices when collecting, processing, and/or

Figure 6: Consumer Research: Trading Privacy for Credit

Omidyar’s consumer research in Kenya and Columbia found that to improve their chances of getting a loan or a larger loan:

7 out of 10



Would share information on mobile phone use



6 out of 10



Would share information on social media activity



7 out of 10



Would share information on Bank account use



6 out of 10



Would share information on web browsing history



Source: Arjuna Costa, Anamitra Deb, and Michael Kubzansky. “Big Data, Small Credit.” Omidyar Network.

transmitting customers' personal data. The GSMA principle includes a subprinciple on user choice and control calling on mobile money providers to ensure customers are informed of their rights and

have opportunities to exercise meaningful choice and control over their personal information and consent to any changes that materially affect the privacy of their personal information.⁶⁸

Consumer Protection Regulation Review

In 2016 the Evans School of Public Policy and Governance at the University of Washington (the “Evans School”) completed a literature review of on consumer protection institutions and regulatory documents for digital financial services (particularly mobile money) in 22 developing countries.

- 18 were found to have regulations mandating security policies for DFS providers to reduce the risk of loss of funds or data,
- 12 countries have data security requirements,
- 9 countries limit sharing of consumer data with third parties,
- 6 countries have standards for accessing consumer funds or data, and
- 9 countries limit sharing of consumer data with third parties.⁶⁹

In reality, collection of data also can be siloed for use by the organization collecting the data and viewed as proprietary and withheld even from the customer who owns the data. For example, many mobile operators are unwilling to share customer call detail records and information on payments including mobile money transactions and utility bills, or to report this data to credit rating agencies. The World Bank's Women, Business and the Law project measures women's access to credit in part on whether there is a credit rating agency in the country.⁷⁰ These credit rating agencies depend on the contribution of data, including on low-value loans that may currently fall below reporting thresholds and from retailers and utilities such as MNOs and electric companies. The data collected for the Women Business and the Law 2016 report showed:

- of the 173 economies covered, 30 do not have a public credit registry or private credit bureau that covers more than 5% of the population.

- in the 143 economies with credit reporting institutions covering more than 5% of the population, 14 have minimum loan thresholds higher than 1% of income per capita that may not capture women.⁷¹

Regulatory Oversight & Coordination

Women in agriculture will benefit from the increased digitized delivery of financial services that can scale into rural areas through a range of business models and entities. Digitization has increased the type of entities engaged in financial service delivery. Beyond banks and other traditionally regulated financial institutions, such as MFIs, financial services are now delivered by MNOs, third party agents and through new fintech offerings that enable peer-to-peer lending, such as Kiva, and though very nascent – digital currencies and smart contracts for tracing agriculture outputs. The regulatory jurisdiction for these service types can span multiple regulators and typically includes:

- Financial services regulators – typically central banks who license banks and regulate DFS along with providing prudential regulation and regulating market conduct to protect consumers,
- Telecommunications regulators who license radio spectrum to MNOs and regulate the use, access and pricing of mobile services, and
- Competition authorities who address anti-competitive behavior by market actors by enforcing the country’s competition laws.

In most countries, the financial services regulator has taken the lead in adopting regulations for DFS, which may include regulations on e-money as well as agency banking. Ministries of finance also have engaged in shaping agendas for financial inclusion and play an important role in the growing movement to digitize government-to-person

payments, including social welfare payments that may be targeted to women.⁷²

There is a general call to be entity-agnostic in the licensing of DFS providers as an approach to creating an enabling regulatory framework.⁷³ GPF’s High-Level Principles for Digital Financial Services call for a policy environment and regulatory framework that reflects a proportionate and enabling approach to regulation. GPF describes a proportionate approach as involving “... the balancing of risks and benefits against costs of regulation and supervision to the regulator, the supervisor and to the regulated and supervised institutions.”⁷⁴ Empirical research has shown that where mobile money has succeeded, most of the countries did not require a bank to be involved other than to hold funds, had minimal restrictions on licensing, minimal restrictions on agents and light know your customer requirements.⁷⁵

Regulatory Oversight & Coordination

- In Indonesia, there are separate regulations for e-money services and agency banking.
- In 2016, Uganda amended its Financial Institutions Act to allow banks to offer banking services through agents and compete with mobile money providers.
- Nigeria’s Guidelines on Mobile Money Services identify two models for the implementation of mobile money services. These include the bank-led model and the non-bank led model. The non-bank led model stipulates that the lead initiator shall be a duly licensed corporate organization other than a deposit money bank or a telecommunications company.

The existence of multiple regulators requires an intentional level of coordination to avoid unnecessary overlap and support cohesive regulations that enable innovation in the delivery of financial services. GPF’s principles advocate that governments ensure a clear delineation of responsibilities among regulators for the legal and regulatory framework relevant to DFS and for digital financial inclusion in general.⁷⁶ To expand the DFS ecosystem, GPF’s principles

encourage governments to engage in cross-agency collaboration as a means to ensuring the basic infrastructure exists for digital financial inclusion, including telecommunications and power.⁷⁷

Consumer Protection

Globally, women often have less experience interacting with financial service providers and may face disadvantages or discrimination in the marketplace. Therefore, it is critical they understand

the products they are accessing to build trust in the services. Regulations and service provider policies that provide consumer protection help build trust by promoting transparency in terms of a service offering so consumers can make an informed choice and resolve disputes. Consumer protection issues around DFS revolve around three main areas:

- (1) disclosure and transparency of terms and conditions of services, including price,
- (2) customer service and redress, and
- (3) protection of funds from risk of loss.

Disclosure and Transparency

Regulators with jurisdiction over financial service delivery typically require pricing transparency through display of pricing and terms of service at agent locations, online posting of fees. Service providers may also provide notice of pricing through push notifications before a transaction. To further understanding, government disclosure guidelines may require that the terms and pricing be available in plain language or provided in localized languages. The Evans School's 2016 review found 18 of the 22 countries it reviewed have regulations that mandate transparent communication of costs for DFS with six requiring regulator reviews of product terms and conditions.⁷⁸

Customer Redress

Consumers' recourse to resolve service issues is especially important in financial services delivery to women who may be first time users or skeptical of technology and its ability to safely store or transfer value and conduct transactions in real time. Customer redress typically begins at the service provider level but can be escalated to the regulator. Governments are including in DFS regulation requirements that consumers have access to recourse mechanisms to resolve disputes, whether related to incomplete or incorrect transactions, loss of funds due to agent fraud, stolen identity, etc. GPMI notes that "female consumers in particular

should be educated about using and remembering their PINs, knowing the correct amount of money to be received during transactions, and what to do if something goes wrong."⁷⁹

A 2016 review of consumer protection regulations in 22 countries found:

- 10 of the 22 countries researched have regulations mandating specific mechanisms for consumers to report complaints,
- 8 of the 22 countries have regulations requiring the complaint channels be free,
- 13 countries regulations specify maximum response times, and
- 15 countries have regulations specifying alternative dispute resolution channels in case consumers are not satisfied with provider mechanisms.⁸⁰

Protection Against Loss of Funds

As in traditional banking services, prudential regulation of institutions to protect against loss of funds is important. In a finance market where funds are stored digitally, the DFS provider holds the balance of funds for its users. If the provider is not a bank subject to banking regulation that includes capital and reserve requirements, questions arise on the safeguarding of the value attached to the digitally stored funds and treatment of interest on the funds balance. The regulatory approaches to protection of funds typically include 1:1 requirements for funds to be held in pooled bank accounts with safeguards to protect risk of loss from both investment and claims by creditors.

Interoperability/Interconnection

Interoperability of mobile money and the broader set of DFS is becoming a feature of many maturing DFS markets. Systems that are interoperable broaden consumer choice of service provider. This is particularly relevant for women in agriculture who may reside in rural areas and receive remittances

or payments from others as an important source of income. Regulatory concerns exist around the timing and approach to interoperability so as to not interfere with scaling of and investment in services in service offerings or reach. As with systems integrations generally, digital networks can have two levels of interoperability:

- 1. Technical or systems interoperability**, i.e. technical ability for different systems to work together through agreed upon standards or system integration through a third party.
- 2. Commercial interoperability/interconnection**, i.e. the presence of agreements or established principles between the commercial operators on the business side of the systems (e.g. settlement of fees, allocation of risk, transaction reversal, customer care, etc.). Some refer to this second layer as interconnection.

Interoperability arises at multiple layers in the delivery of financial services over the mobile channel. The scope of interoperability in DFS can be defined broadly to include the entire payment and financial services sector (including mobile money systems operated by MNOs) and more narrowly to just include interoperability between the subset of mobile money operators' mobile wallets (m-wallets without linkage to the banking sector) or agents.⁸¹

Increasingly, m-wallets are interoperable with banks allowing the push and pull of funds between the m-wallets and bank accounts.⁸² Mobile money wallet interoperability has proven to be more elusive but is becoming recognized as valuable and is being pursued in multiple ways.

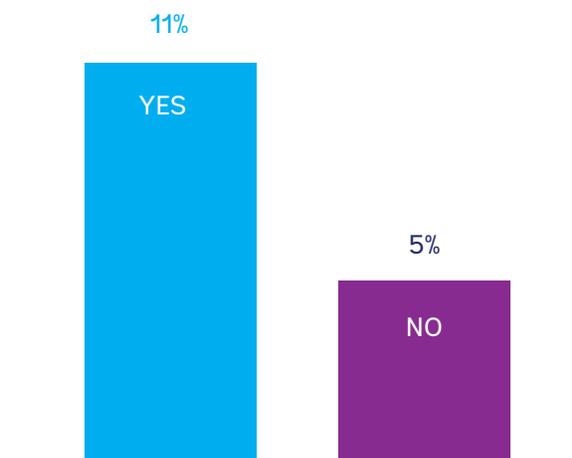
Risk-Based Know-Your-Customer Requirements

Financial service providers, regardless of type, are required to conduct customer due diligence and confirmation of identities prior to account opening. Similarly, access to credit requires documentation of identity. Women's lack of access to legal identity documents poses a barrier to meeting these requirements and therefore access to formal accounts as documented by the World Bank Women's, Business and Law 2016 Report. Married women in certain countries may face as more acute challenge in legal identity. In ten economies included in the Women's Business and the Law database, married women need to provide additional documents to get a national ID card.

Figure 7: Consumer Research

Women are less likely to borrow from a financial institution where processes for getting national ID cards differ by gender.

Borrowed from a financial institution, female (% age 15+)



Can a married woman apply for a national ID card in the same way as a married man?

Source: World Bank Women's, Business and the Law, page 10

Achievements in Interoperability

In Tanzania, mobile money operators reached an agreement on m-wallet to m-wallet interoperability. Their agreement does not extend to integration with the formal banking sector. IFC acted as a neutral, third party facilitator.

In Peru, a more universal approach has been adopted with the launch of a new universal payments platform, BiM, under common ownership of banks and other stakeholders including MNOs.

In Uganda, third party aggregators have provided the interoperability to address the end users' need to send payments to subscribers on different mobile money systems. Aggregators integrate their payments software platform with the systems of the mobile money operators by accessing their application program interfaces (APIs). Payments are initiated through the aggregator and routed through the serving mobile money operator to which the payee subscribes.

Governments are seeking to lower the barrier of identity through initiatives on national ID systems, such as India's Aadhaar program⁸³, and through tiered or progressive know-your-customer ("KYC") requirements that apply a risk-based approach to regulation that lowers the documentation threshold for lower level accounts as approved by the Financial Action Task Force.⁸⁴ The Brookings Institute noted in its digital financial inclusion scorecard, that risk-

proportionate KYC and customer due diligence processes enable financial service providers to meet identification requirements for customers who seek to open low-value or otherwise low-risk accounts while reducing access barriers to financial services.⁸⁵ When AFI surveyed its members, 40% recognized flexible KYC norms (and alternative collateral mechanisms) play a role in advancing women's financial inclusion.

Tiered KYC

Mexico allows tiered KYC procedures with different "levels" of accounts requiring different documentation requirements and transaction limits. This tiered KYC has been associated with facilitating greater access to financial accounts for low-income individuals.

In the Philippines, potential customers for Globe and SMART mobile money have the option of presenting a company-issued ID, among many other types of IDs.

The Central Bank of Nigeria adopted a three-tiered KYC approach in 2013 for banks and financial institutions as part of its financial inclusion strategy.





Technology Landscape

Overview of Trends in the Technology Landscape

Digital technologies are advancing access to finance across the globe and helping to close the financial inclusion gap. The inclusion of mobile money accounts in the World Bank’s 2014 Global Findex is attributed in part for narrowing the financial inclusion gap from 2.5 to 2 billion. Where brick and mortar branches of banks, insurance companies, lenders, and other financial services are unlikely to ever be built, the penetration of mobile services has allowed MNOs and new, entrepreneurial providers to step in with new types of services that potentially lower the costs of serving smallholders enough that a business case exists.

Our desk research draws from research on financial and agriculture support services across eight service areas. While not exhaustive, our sample of 150+ initiatives provides a window into current product and service offerings. While 62 of the products targeted smallholder farmers, only one had a specific target to reach women smallholder farmers. Other programs such as savings groups have a focus on women but were not designated specifically for women farmers.

Figure 8: Service Type Prevalence by Region and Globally

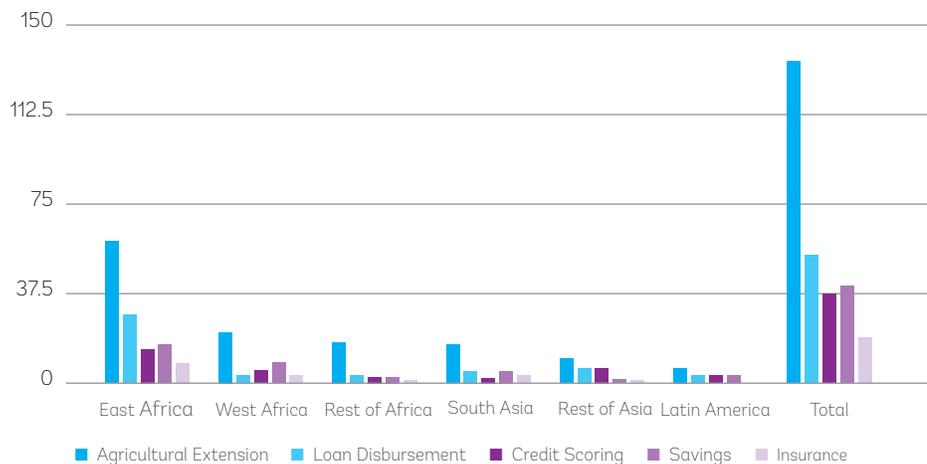
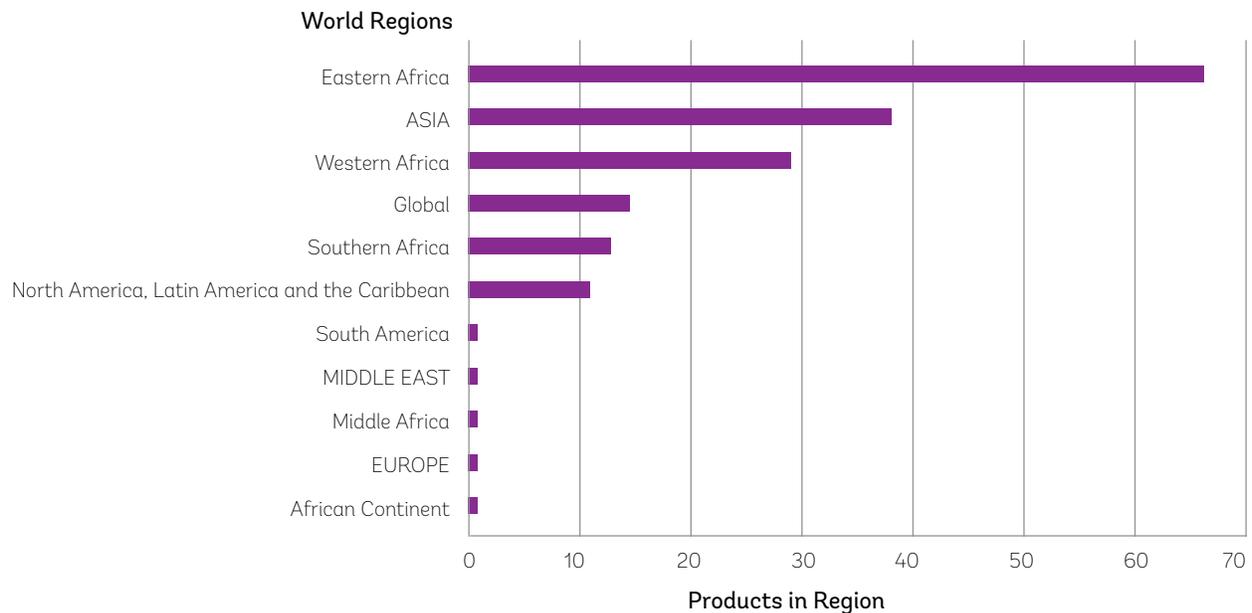


Figure 9: Products in Region



In each of these service areas we identified, digital technologies are contributing to product and service

trends as shown in Table 7 and described in further detail in the sections that follow.

Table 7: Selected Digital Services and Key Trends

Selected Digital Services	Key Trends
Credit Scoring	<ul style="list-style-type: none"> Financial service providers and new third party providers are developing, using, and may market their own credit scoring algorithms based on data collected without access to credit bureaus Increase in the availability of payment and consumption data from digital transactions and mobile phone enabled development of innovative credit scores Growth in mobile money subscriptions greatly expands the number of individuals with credit scores New credit scoring mechanisms are reducing the cost of lending by enabling automated lending
Loan Disbursement and Collection	<ul style="list-style-type: none"> Increase in the use of digital channels to disburse loans and collect payments Digital disbursement enables financial service providers to deliver instant credit to individuals and small businesses and provide short-term, micro-credit products Digital loan payment/collection reduces costs for both the financial institution and the borrower and reduces late payments
Savings	<ul style="list-style-type: none"> Many regulators are allowing non-bank financial institutions to offer interest bearing savings accounts with mobile wallets Banks are using branchless banking agents and digital technology to extend their reach into rural areas

Table 7: Selected Digital Services and Key Trends (Continued)

Selected Digital Services	Key Trends
Savings	<ul style="list-style-type: none"> • Tiered KYC requirements for digital accounts expand the addressable market for lower value savings products • NGOs are facilitating the integration of digital technology to mirror the processes and features of Village Savings and Loan Accounts (VSLAs) and link the groups to formal accounts • Commitment savings products using defined purposes and defined durations are being developed and tested
Insurance	<ul style="list-style-type: none"> • Micro insurance product premiums may be paid using airtime • Digital distribution channels reduce the cost of issuance and payments and enable expansion of micro insurance products • Mobile money service providers are partnering with insurance companies and offering a range of insurance products (e.g., life insurance, health insurance, burial insurance) • Digitized agricultural data is expanding the market for crop insurance by reducing costs (e.g., indexed crop insurance)
Payments	<ul style="list-style-type: none"> • Digital payment products including mobile money, bill payment, and card-based products continue to expand with a growing push for interoperability • Government to person (G2P) payments are moving away from cash and check to digital channels • While Person to Person (P2P) payments remain the dominant use of mobile money, consumer to business payments, particularly utilities are also moving toward digital • Digital payments generate transaction data and are being used to create formal financial identities
Market Pricing	<ul style="list-style-type: none"> • Government and private sector entities are collecting and disseminating agricultural price information digitally • Entities are using geographic information to micro target and tailor information to farmers to maximize revenue in crop sales and provide equal access to market pricing information • Various business models are being explored (e.g., free, subscription, pay as you go)
Linkages	<ul style="list-style-type: none"> • Government and private sector entities are providing digitized information on transportation sources, availability of farm products, availability of farm inputs, and location of buyers through digital marketplaces • Growing trend to link farmers with sellers of specific products through digital market places
Agricultural Extension	<ul style="list-style-type: none"> • Government, buyers, agriculture input suppliers and NGOs are supplementing agricultural extension programs with digital content to improve farming practices and productivity • Geographic information is being used to micro target farmers with localized content including localized weather information • Two-way communications enables farmers to request content and inquiry about specific crop related issues such as disease management or fertilization

In the sections that follow, we provide an overview of the service category, recent developments and findings from our database developed for this project through desk research. We then highlight several products and analyze them using the marketing mix method of the 4Ps, with a specific gender lens, to isolate where the products fit the needs of women in agriculture and where they may need to be modified or customized to be relevant.

Alternative Credit Scoring

Alternative credit scoring is a new area getting much attention in the DFS technology space, with start-ups focused particularly on farmers cropping up worldwide. Our database includes 48 credit scoring products with over a third offered in East Africa, followed by products offered globally and then in Asia. While an area of growing interest and speculation in the industry, the raw number of offerings still seems small because alternative credit scoring relies on cutting-edge innovations in data analytics, so it is a generally new industry. The service providers in this space are mostly third party providers and fintech lenders, but MNOs and banks have also entered this space to a small degree as well. CGAP research in 2015 reported there are 36 companies operating in this space in emerging markets alone.⁸⁶

This method of credit scoring uses information that a wide range of farmers at different income levels may be able to provide to develop a credit profile, including data from mobile prepaid sources, such as airtime transactions, psychometric testing, social data and payment/e-commerce data.⁸⁷ Smallholder farmer surveys conducted by CGAP show that smallholder farmers primary source of credit is informal sources and in some cases, such as in Mozambique, for women informal sources are their only sources of credit.⁸⁸ The success of alternative credit scoring hinges on companies' ability to access and parse available big data to accurately predict creditworthiness; experimentation with algorithms is ongoing in this space.⁸⁹ Entrepreneurial Finance Lab found that psychometric data is slightly more predictive than mobile data, both of which are significantly more predictive than online data (such as social media profiles).⁹⁰

In addition to providing new data, the use of sophisticated analytics and big data sets to assess the creditworthiness of “thin-file” customers can dramatically reduce the cost of lending. CGAP, utilizing McKinsey and Co. analysis, reported that “digital data analytics can reduce the marginal costs of providing a \$200 loan in Tanzania by more than 40 percent.”⁹¹

Product Profiles

Product Profile: Tala

Players and Development: A private company, Tala was founded and is headquartered in Los Angeles, California. It has raised \$44.44 million in six rounds of investment from 44 investors.

Purpose: Tala is a mobile technology and data analysis company that uses alternative credit scoring to lend to the emerging middle class in developing countries, or those who make between \$2 and \$20 per day. It's currently available in Kenya, Tanzania and the Philippines. Customers can apply for and receive short-term loans via Tala's smartphone app.

Price: Most loans carry a 5% interest rate.

Product: Offers 30-day working capital loans through their smartphone-based app.

Once the Tala app has been downloaded onto an Android device, the company is able to use data including from SMS records, contacts, location and more, to determine creditworthiness, through its proprietary algorithm. Instead of using an MNO's proprietary transaction data, any data available on the customer's smartphone is available for analysis.

Their loans range from between \$10-\$200, the average loan size is \$60 and is disbursed and repaid with mobile money.

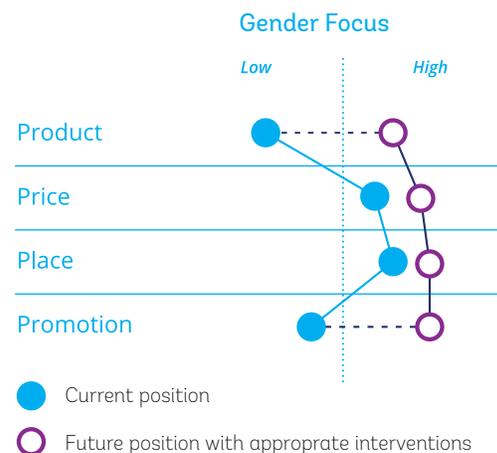
Promotion: Initially, promotion was carried out through digital marketing. Now, it is mainly expanding through word of mouth. The app has been downloaded on over 1.5 million smartphones in Kenya.

Place: Tala's app can be found in the app store on any Android phone in the countries it has rolled out in.

Challenges and Opportunities for Women:

- Approximately 40% of borrowers are women. Anecdotal evidence indicates that women are using the product as an opportunity to expand MSME enterprises.
- The requirement of having a smartphone presents a challenge for women in rural agriculture whose phone ownership lags those in urban centers or if they own or have access to a mobile phone it is a feature phone.
- The 30-day loan cycle may not be ideal for certain agricultural purposes with longer periods between planting and harvest.
- However, the digital/remote quality of this loan may reduce the discrimination women and borrowers engaged in agriculture often face in securing working capital lending from traditional sources.

Gender Assessment



Key Features

- Product is application based and relies on mobile broadband and access to a smartphone. Credit scoring algorithm relies on phone activity based data. Product could be improved by subsidizing handsets and could be offered in other markets
- Price is consistent with similar lending products
- Distribution is via mobile network operator application store. Although downloaded 1.5 million times, this approach limits distribution to women farmers
- Promotion currently focuses on MSMEs with limited below the line marketing. Effort to directly engage women farmers and MSMEs could expand product distribution

Sources: <https://www.crunchbase.com/organization/inventure#/entity> <https://www.fastcompany.com/3039583/inventure>

Product Profile: KCB M-PESA

Players and Development: Kenya Commercial Bank and M-PESA have developed an instant loan product.

Purpose: The product enables customers to receive loans using their mobile phones. Customer loan limits are calculated using a credit scoring algorithm based on the amount of savings that the customer has, the customer's usage of M-PESA, and their savings on other KCB platforms.

Price: Through this program, credit is offered with a flexible repayment period (1 to 6 months) at an interest rate of <2% per month.

Product: The product consists of an instant short-term lending product that is requested, delivered, and repaid via the mobile phone. Loan sizes range from USD 1.00 to USD 10,000 depending on the individual's credit score. Since its inception in March 2015, KCB-M-PESA has issued USD 165 million worth of credit to 7.8 million customers with an average loan size of USD 21.00.

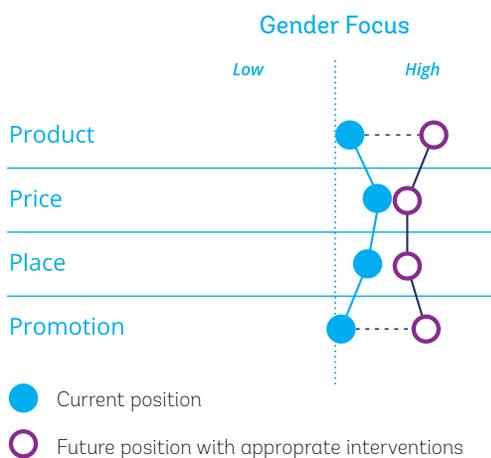
Promotion: The loan is promoted primarily through KCB channels with some co-branding and co-marketing with M-PESA. There is no specific women-oriented or agriculturally-oriented marketing campaigns.

Place: Registration takes place at M-PESA agent outlets or KCB branches with the bulk of the registrations occurring with M-PESA. Loan disbursement and loan repayment are via the M-PESA mobile money platform.

Challenges and Opportunities for Women:

- Current product does not include scoring elements and repayment schedules specific to agriculture.
- Product awareness by women may be limited and the value proposition of the product could be better tailored to women farmer financial requirements.

Gender Assessment



Key Features

- Successful product that has achieved scale. Product could be modified to address specific farmer needs. Scoring algorithm could be adjusted to better evaluate farmer credit worthiness
- Prices are reasonable and do not explicitly inhibit use by women but repayment schedule could better align with farmer cycles
- Broad distribution of M-PESA agent network translates to ready access for women
- Potential to explicitly target women through a comprehensive marketing campaign that encourages participation and highlights the benefit of developing a lending and repayment history

Source: KCB website.

Product Profile: Entrepreneurial Finance Lab (EFL)

Players and Development: EFL is a technology company that uses psychometric and other data to build predictive algorithms that provide innovative credit scores designed to reduce the likelihood of default. EFL offers financial institutions a cost-effective mechanism to screen a large number of applicants and make better lending decisions. EFL is active in 27 countries and is designed to adapt to different cultures revealing insights across all business segments and types of borrowers.

Purpose: EFL seeks to use new sources of digital data to enable financial service providers to access and serve new and underserved market segments through innovative Credit Scoring techniques.

Price: No information available.

Product:

- The psychometric credit score helps financial institutions better understand individual risk across multiple services – consumer lending, business lending, unsecured loans, credit cards and term loans.
- EFL enhances a lender’s existing underwriting process by adding an additional metric of creditworthiness.
- It provides a lending application front-end that is completed and submitted by potential borrowers with financial institutions receiving the results.

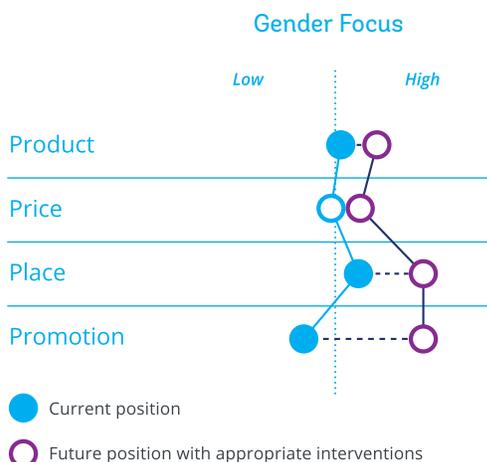
Promotion: EFL is a third-party provider that markets directly to financial institutions and other organizations that offer loans and credit to customers. It enters markets on a country by country basis and also markets to regulators. They employ a license service model similar to Sales Force or SAP and rely on a sophisticated sales force.

Place: Direct sales channels targeting specific organizations.

Challenges and Opportunities for Women:

- Credit scoring algorithm could reduce lending bias against women.
- Partnering with financial institutions that have a strategic interest in serving women and women farmers could improve access to finance for the target segment.

Gender Assessment



Key Features

- Product reduces risk to financial institutions and enables them to make better lending decisions which could increase loans to women and women farmers – Dependent on the focus of the financial institution – Could incentivize EFL to work with financial institution with strategic focus to serve more women and women farmers
- Price information not available and needs to be validated
- Direct sales channel to banks and financial institutions – Sales channel to end users is dependent on partnerships. Partnering with the appropriate institution could benefit women and women farmers
- Promotion of the use of credit scoring dependent on partner financial institution. Focused effort to engage EFL credit scoring model with appropriate financial institution and then market credit scoring lending scheme to women farmers could be effective

Product Profile: FarmDrive

Players and Development: Founded by University of Nairobi students Rita Kimani and Peris Bosire, Farm Drive leverages the SafariCom and M-Pesa platform to develop borrower profiles and credit scores for smallholder farmers.

Purpose: FarmDrive collects relevant data about smallholder farmers and uses algorithms to create a profile and credit score that is used by financial institutions to make lending decisions. The information about the farmer is also used to develop and send limited agricultural extension information designed to improve farm efficiency.

Price: Farmers who use the platform are required to pay a three percent transaction fee of the total loan that they receive through FarmDrive. Partnering financial institutions are charged a fee of one dollar for every farmer profile that they access.

Product: FarmDrive is a tool that leverages mobile technology and data analytics to obtain relevant information on the operations of smallholder farmers. Through the use of short messaging services or a mobile app, farmers record their activities, effectively tracking their expenses and revenues. The gathered information is then used to generate exhaustive credit profiles used to assess the credit worthiness of a farmer. This information allows financial institutions partnered with FarmDrive to make lending decisions. Loans are disbursed and repaid through the M-PESA platform. Insurance is bundled with the loan.

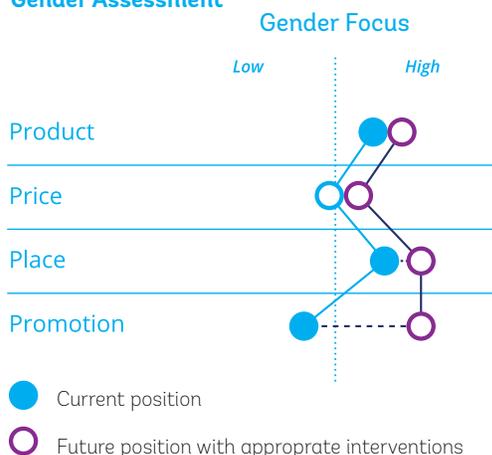
Promotion: FarmDrive currently relies on pilot programs and NGO projects as the initial mechanism for promoting and testing the product. No large scale promotion strategy was available.

Place: Direct engagement with smallholder farmers through NGO and donor programs.

Challenges and Opportunities for Women:

- Awareness of the product is limited and lower IT illiteracy of women farmers remains a challenge despite the availability of the platform in multiple languages and the basic nature of the application.
- Used by NGOs to support beneficiaries providing an option to target women farmers.

Gender Assessment



Key Features

- Product is well aligned with the needs of women farmers and bundles insurance and agricultural information with a credit product
- No cost unless loan is received model is aligned with financial situation of women farmers
- Digital access is convenient for women farmers – Leverages the M-PESA agent network
- Reliance on farmer specific programs to inform and engage customers could be leveraged to focus on women farmers – Scaling the product remains an issue and a comprehensive marketing campaign could be effective

Product Profile: Lenddo

Players and Development: Lenddo is a technology company that builds predictive algorithms that use a wide range of data points, including social media data, to develop innovative credit scores to improve the lending process. Operating in 20 countries, Lenddo offers to third parties, such as banks, lending institutions, utilities companies and credit card companies worldwide to reduce risk, increase portfolio size, improve customer service and verify applicants.

Purpose: Lenddo seeks to use new sources of digital data to enable financial service providers to access and serve new and underserved market segments through innovative credit scoring and social verification techniques.

Price: No information available.

Product: Lenddo offers credit scoring and identity verification to financial institutions, utilities, and credit card companies.

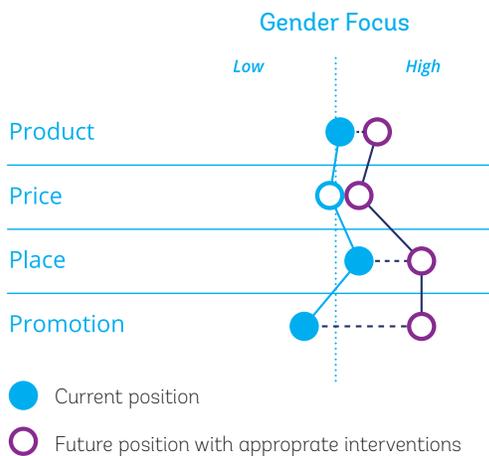
Promotion: Lenddo is a third-party provider that markets directly to financial institutions and other organizations that offer loans and credit to customers. The company markets on a country by country basis and also markets to regulators. It employs a license service model similar to Sales Force or SAP and relies on a sophisticated sales force.

Place: Direct sales channels targeting specific organizations.

Challenges and Opportunities for Women:

- Credit scoring algorithm could reduce lending bias against women farmers with less regular and lower incomes.
- Partnering with financial institutions that have a strategic interest in serving women and women farmers could improve access to finance for the target segment.

Gender Assessment



Key Features

- Product reduces risk to financial institutions and enables them to make better lending decisions which could increase loans to women and women farmers – Dependent on the focus of the financial institution – Could incentivize Lenddo to work with financial institutions with strategic focus to serve more women and women farmers
- Price information not available and needs to be validated
- Direct sales channel to banks and financial institutions – Sales channel to end users dependent on partnerships
- Promotion of the use of credit scoring dependent on partner financial institution. Potential to market service to women focused lending institutions

Product Profile: M-Shwari

Players and Development: M-Shwari, launched in November 2012 through a strategic partnership between Commercial Bank of Africa and M-PESA, is a savings and credit product that can only be accessed through the M-PESA platform.

Purpose: The M-Shwari product bundles interest bearing savings and instant credit with the payment features of a mobile wallet. Funds transfer between the M-Shwari account and the M-PESA mobile wallet are free of charge. The product is designed for the average Kenya and enables both savings for the future and funds for emergencies or other short-term needs; 54% of M-Shwari customers have no other bank account.

Price:

- Account opening and deposits are free of charge with savings interest rates ranging from 2 – 5%.
- Transfers between an M-PESA mobile wallet and an M-Shwari account is free of charge.
- 30-day loans have an initiation fee of 7.5% initiation fee. Loans can be rolled over for an additional 7.5% fee.
- There is no interest on an M-Shwari loan.

Product: M-Shwari is a credit and savings product that pays interest on deposits. It uses credit scoring algorithms to evaluate and approve short-term loans. Account access is strictly through the M-PESA platform and uses that platform for loan disbursement and loan repayment. Funds transfer between M-PESA and M-Shwari is through a menu feature on the handset and is free of charge.

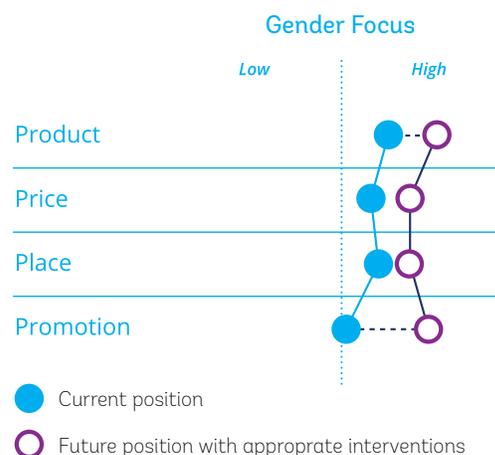
Promotion: M-Shwari is marketed through both M-PESA and CBA channels with the M-PESA agent network being a primary source of new customers. Traditional marketing channels are used including television, radio and outdoor. Below the line marketing activities are more limited. Periodically, M-Shwari engages in various promotions such as the tell a friend promotion whereby existing account holders received airtime value for recommending a new account holder.

Place: M-Shwari leverages the M-PESA brand and M-Pesa agent network. The M-PESA menu has a register for M-Shwari feature built in.

Challenges and Opportunities for Women:

- Provides easy access to an account and credit without gender bias.
- Requires an M-PESA account which is well known and trusted by Kenyan women.
- Product awareness and understanding may be lower in women and with women in rural areas.

Gender Assessment



Key Features

- Product bundle is well suited for the needs of women farmers meeting both the savings and credit need
- Pricing model encourages savings and transfers for payments. Prices short-term credit relatively high
- Sales channel is through M-PESA agent network and online through the M-PESA menu. Product access is through the M-PESA platform
- Potential to explicitly target women through a comprehensive marketing campaign that could include higher airtime bonuses for recruiting women and women farmers

Loan Disbursement and Collection

While brick and mortar microfinance institutions have been successful in reaching rural areas that banks have never found profitable to penetrate, mobile loan disbursement and collection now allows for even greater access to credit for the unbanked in places where there is a well-established mobile money ecosystem. Rather than needing access to a formal financial account, mobile credit customers need only a mobile money account and a mobile phone.

Mobile loan disbursement and collection is made possible by reach of the mobile phone and payment systems. The benefit to the consumer is the rapid nature with which credit is available and the ease of receiving the loan and paying it back remotely. This may be particularly valuable for women with limited mobility or high demands on their time. VSLAs seeking to digitize savings groups may find the mobile loan features provide a valuable means into group-backed borrowing in a more convenient way.

Digitally enabled loan disbursement and collection is the largest financial service type represented in our database, which is in accordance with expectations, given the historical focus on credit of the financial inclusion space. Of the 57 digital loan disbursement and collections services in our

database, the largest number is offered in East Africa followed by services in Asia. The service providers in loan disbursement and collection range widely from fintech lenders to MNOs to banks, third party providers, MFIs and NGOs. The database demonstrates fintech lenders and third party providers tend to also provide alternative credit scoring services, but these services are also sometimes offered by MNOs as well. Banks may make use of alternative credit scores in disbursing loans, but are not leaders in offering this service. Loan disbursement and collection was also frequently paired with savings products.

According to GSMA, there were 52 live mobile money-enabled credit services in 2016, an increase from seven in 2011.⁹² CGAP notes that MNO-partnered-with-bank-led mobile loans are typically smaller and have shorter repayment periods than traditional consumer or microfinance loans. Interest rates tend to be higher for mobile loans, but this is to balance the higher cost and risk of servicing so many small loans.⁹³ Mobile credit is also on offer by some microfinance institutions and an emerging group of pay as you go product offerings (such as home solar kits). The latter are becoming some of the largest recipients of mobile money bill payments.⁹⁴

Gsma State of the Industry Report

According to the GSMA State of the Industry report, mobile credit is most commonly found in sub-Saharan Africa, because the mobile money infrastructure in many countries there is more developed. GSMA's report notes that the Commercial Bank of Africa disbursed US \$495 million in loans in Kenya through M-Shwari in 2015, which offers an interest-bearing account and the possibility of accessing 30-day loans in real time. M-Pawa is a similar product in Tanzania, and as of 2016 it had 4.8 million accounts and had disbursed US \$17.9 million, reportedly mostly to women or youth.⁹⁵

Product Profiles

Product Profile: Kilimo Booster

Players and Development: Musoni Kenya (MFI) partnered with Grameen Foundation on design of the product, while MasterCard Center for Inclusive Growth funded the partnership. Musoni served as an ideal partner because its group lending made credit more available to those without collateral and it was willing to dedicate human resources to the product development process. Grameen Foundation led a human-centered design process, helping Musoni identify the four key reasons Kenyan smallholder farmers seek credit and segmenting farmers into different risk categories.

Purpose: Bespoke agricultural loan for farmers in Kenya who were previously unable to borrow from MFIs or couldn't get beneficial terms (working capital, asset financing for farm equipment, venture finance for new farming activities).

Price: Group (flat interest rate): 22% per annum ; Individual (flat) interest rate: 18% per annum

Other fees: 3% one-off payment for loan processing for the borrowed amount, RTGS transfer of 500 for loans above 140,000. USD \$5 for loans higher than USD \$1,610

Product:

- Loan repayment schedule is flexible and is determined on an individual basis, with a 6-month grace period allowing farmers to harvest before having to repay
- Loans can be disbursed within 72 hours in the case of a shock, such as a weather event
- Includes life insurance and may include crop insurance in the future
- Musoni, a fully cashless MFI, provides financial education and support to farmers throughout the lending period
- 3-12 month loan terms, loan sizes from KES 5,000 – 350,000 (about USD \$58 - \$4,022)

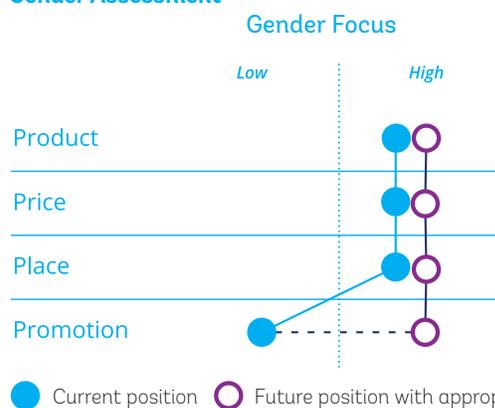
Promotion: The product was originally rolled out as a pilot in two Musoni branches. It has since been extended to all Musoni branches. Incentives for increasing group sizes include rewarding well-performing groups that reached a minimum size, communicated to the group via SMS.

Place: Loans are disbursed and repaid using mobile money (M-PESA), making it easier for those who live far from Musoni branches or have less mobility to access the credit product.

Challenges and Opportunities for Women:

- Variety of products for different agricultural activities and risk levels that can match to women farmers' risk tolerance.
- Flexible repayment plans and grace periods that can accommodate different crop growth cycles of women farmers.
- Option to be part of group lending and then transition to individual later particularly benefits women farmers who can't get access to credit individually until they establish a credit history.
- Includes support and education opportunities for women in agriculture who have low literacy levels.

Gender Assessment



Key Features

- Product is well aligned with needs of rural farmers and benefits from inputs from Grameen. Non-collateral based lending is ideal for women borrowers
- Price is consistent with similar lending products
- Distribution channels leverage the M-PESA platform and are easily accessible to women. Musoni branches are trusted but can do more to reach out to women farmers.
- Promotion does not target women and does not attempt to promote a specific value proposition for women

Source: <http://www.grameenfoundation.org/resource/kilimo-booster-musoni-launches-agricultural-loan-kenya%E2%80%99s-smallholder-farmers>

Product Profile: VisionFund Tanzania Mass Customized Loan Product for Farmers

Players and Development: VisionFund Tanzania using a funding award from a NetHope-Visa Innovation Grant, developed a customized application for loan officers to collect customized data for loan customization. The application was developed for VisionFund by the Software Group and MicroPlanet.

Purpose: Launched in 2017, the product uses a customized application that runs on a mobile tablet to collect information from farmers that can then be used to customize the loan terms to match the farmers' financial flows. The tool includes a credit analysis methodology and subsequent tablet based app. VisionFund Tanzania will perform data analytics and reporting across its entire loan portfolio to identify trends in loan performance, additional social performance and client data. This data analytics and reporting process will be used in the ongoing management of VisionFund Tanzania.

Price: The Mass Loan Customization Tool is a tool for VisionFund's loan processing use. No pricing has been established for customers beyond standard VisionFund pricing.

Product:

- The application will allow a loan officer to quickly assess a farmer's need and structure of a loan based on the data input into the tablet.
- The tablet module prompts loan officers to ask questions about the individual's crop, acreage, maintenance systems, planting and harvesting schedules, as well as family life. Taking community variances into consideration as well, the module is then able to customize the payment plan to fit with the planting/harvesting season.

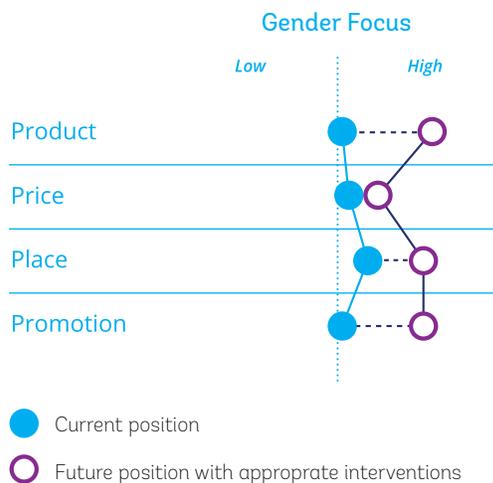
Promotion: Currently being piloted in Tanzania with a percentage of VisionFund's existing loan portfolio.

Place: Localized data collection from farmers with loan officers visiting and inputting data into a mobile tablet.

Challenges and Opportunities for Women:

- Customized data will allow tailored loan terms that better fit their agricultural and family lives.
- Credit analysis based on crop characteristics could increase the potential for loan qualification.

Gender Assessment



Key Features

- New product that would benefit from targeted product development specific to women farmers. (e.g., lending product could take into consideration timing of school fees)
- Prices are reasonable and do not explicitly inhibit use by women
- Digitally enabled loan officers are an effective channel but could be combined with other approaches to better reach scale. Number of women officers should be explored and potentially increased
- Potential to explicitly target women through a comprehensive marketing campaign

Source: Conversations with NetHope and VisionFund.

Savings

Digitally-enabled savings accounts either alone or linked with other products may offer a compelling solution for all personas of women farmers. CGAP's financial diaries with smallholder farmers in Tanzania and Mozambique reveal that women save more consistently and in higher amounts than men despite having lower levels of income. The financial diaries with smallholder farmers in these two countries, document that women rely more on savings to cope with net income dynamics (i.e. negative net income periods) while men rely more on credit.⁹⁶ In addition savings designed as commitment savings may provide valuable protection for women against family or community pressure to share or use the funds for other purposes. The United Nations Foundation upgraded the role of individual savings in contributing to women's empowerment to proven for all women with the exception of very poor women, for which savings needs to be bundled with other interventions to be effective.⁹⁷ Consumers can either use their mobile money account itself as a storage mechanism or as a "gateway to other dedicated mobile savings instruments."⁹⁸ In many cases, consumers who have an account at a licensed deposit-taking institution can transfer value to their savings from a mobile money account. Or, mobile money users can access dedicated savings accounts linked to their digital wallet. M-Shwari in Kenya and Econet in Zimbabwe include savings features backed by an MNO and bank partnership, whereas MiCash in Papua New Guinea and mcash in Uganda are all bank-led mobile savings products linked to a specific mobile money service.⁹⁹

Informal savings groups have proven to be a powerful tool for women to save and are accessible to women farmers. Yale researchers conducted three randomized, controlled trials of the VSLA program implemented by CARE and its partners in Ghana, Malawi, and Uganda over a period of 22–30 months. They found that the "growth in financial intermediation resulting from the program led to improved microenterprise outcomes and women's empowerment. The positive impact on female empowerment stands in contrast to the results of six of seven randomized trials on microcredit."¹⁰⁰

There were 42 products that included a form of savings in the database. Our database reveals efforts by Aga Khan Development Network, CARE, Oxfam, and PACT (the savings category demonstrated a strong NGO interest) along with banks and MNOs. Many digital savings products appear to be a partnership effort between two if not three of those categories of providers. There has been movement among NGOs seeking to improve the livelihoods of women to move savings groups through digital channels into formal accounts.

Between 2014 and 2015, the percentage of mobile money accounts with a positive balance increased by 16 points, to 69%. The average balance of active accounts also increased significantly during that time frame.¹⁰¹ These statistics point to a perception by customers that the mobile money account is, in fact, a trustworthy place to store value.

Additional common types of savings products include:

- Remittance products that link directly, and digitally, to savings accounts, allow important sources of income for many low-income households to be cordoned off rather than cashed out and spent immediately.
- Commitment savings accounts, which freeze funds until a particular date that is associated with a type of need, such as buying seasonal inputs or paying school fees, provide a safe place for money away from the pressures of family or community members.
- Mobile layaway products employ a traditional concept that allows those with inconsistent or infrequent cash inflow to purchase needed farm inputs, while making repayments remotely.

In 2016, there were 26 dedicated mobile savings services in 16 countries.¹⁰² Women's World Banking also has been working with commercial banks to develop product and marketing approaches that reach women. Through women agents (Beta Friends) in Nigeria, Diamond Bank is marketing a

savings product targeted at market entrepreneurs/traders, especially for women who save regularly. Women account holders can deposit any amount, withdraw cash via the use of mobile phone and access to multiple channels (Branch, ATM, BETA Friends – Sales and Service Agents). Savings

accounts are linked to a BETA Kwik loan that offers 30 day loans up to N50, 000 with no collateral. Customers receive an SMS they are eligible for a loan which is processed through a BETA Friend mobile agent.

Product Profiles

Product Profile: Aga Khan Foundation (AKF) Digitized Savings Groups, CARE's Banking on Change & Oxfam's Savings for Change + Mobile

Players and Development: AKF worked with a number of partners to launch a pilot in Tanzania to digitize some of the many rural savings groups it has had a hand in establishing over the past decades. With funding from the Financial Sector Deepening Trust, AKF worked with Bankable Frontiers Associates and payments aggregator Selcom to develop the technology platform (DSG) and roll it out to a group of savings groups participating in the pilot.

Banking on Change is a partnership between CARE, Plan and Barclays, which has been implemented in eleven countries and leverages existing village savings and loans associations (VSLAs). Barclays employees engaged directly with savings groups to understand better their financial strengths and limitations, while Plan and CARE informed Barclays understanding of their financial needs. Barclays developed linked digital savings accounts for groups in Ghana, Kenya, Tanzania and Uganda, whereas previously the bank had accepted only individual accounts.

Savings for Change + Mobile is a program of Oxfam's Savings for Change program that supports the creation and capacity building of savings groups of women. Using a grant from the Cisco Foundation, Oxfam piloted with mature savings groups in the Savings for Change program depositing funds in an Orange Money account.

In Zimbabwe, mobile money provider EcoCash, enables subscribers to use its savings product to create a pooled money EcoCash Savings Club online. Once established each club member receives a SMS notification of transactions occurring in the group account. Every withdrawal must be approved by the club's administrator.

Purpose: The digitization of existing informal savings groups is seen as a way to add safety and security to an already successful model and increase access to financial services by allowing the group and ultimately individual women group members to open accounts at formal financial institutions.

Price: A user fee of \$5 is required to access the AKF Digitized Savings Group platform.

Product:

- The DSG platform, managed by the aggregator Selcom, allows participants to form virtual groups and organize group meetings. Individuals use their own mobile money provider (Tigo Cash, Airtel Money, MTN) to deposit money into the online platform. Selcom holds an e-money license, so is able to hold the money until all transactions have cleared at the end of the day, at which point the value goes to Diamond Trust Bank. Just as with non-digital savings groups, members receive funds from the pool on a rotating basis and any interest accrued is paid out to the group at certain times in the year.
- Barclays links mature savings groups to specially designed group savings accounts and provides women with financial literacy training. While not all groups were linked digitally, a specific mobile platform was developed to assist those far from a Barclays branch in using the service.
- Orange money accounts were used to hold deposits from the Oxfam supported Savings for Change Group.
- PACT has developed a mobile app for android phones it is piloting with savings groups in Tanzania.

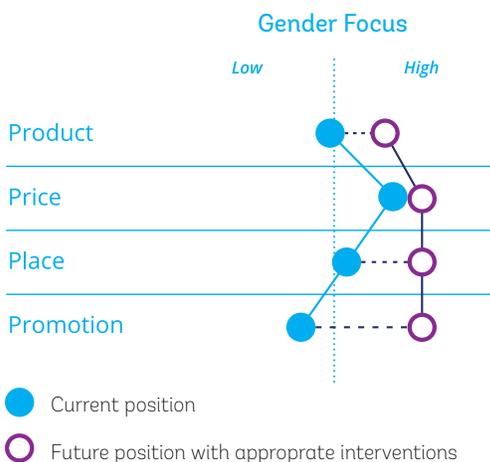
Promotion: The promotion of the digitized savings group has been, at this time, limited to groups chosen by AKF. However, due to the success of the pilot, which launched in 2016, AKF plans to turn to expanding this opportunity to more groups in Tanzania and in other countries where AKF has facilitated savings groups. CARE and Oxfam both work with savings groups as the foundation for their initiatives and seek to support those groups in adopting digital technology as a pathway to account ownership.

Place: All the programs were rolled out as pilots through the respective NGO's existing relationships with savings groups.

Challenges and Opportunities for Women:

- Using digital channels to link group accounts to formal savings allows women maintain the many benefits of participating in a group savings model, while developing a digital profile and visibility that could form an onramp to more financial services in the future.
- Women farmers who have access to NGO facilitated VSLAs have access to payouts that may enable the purchase of livestock as shown in Oxfam's Saving for Change Program in Mali.¹⁰³
- With Banking on Change, 40% of members had opened an individual account within a year of the groups being linked to the bank digitally. Also, when groups opened bank accounts this dramatically affected the rate of savings.

Gender Assessment



Key Features

- Digitizing VSLAs is a proven way to move informal savings into formal accounts. Current product is effective, but addition of commitment savings product and direct graduation to individual accounts would benefit women
- Price is consistent with similar products and appropriate for the target segment
- Current channel requires direct interaction by NGOs with VSLAs. Developing a more scalable approach would benefit more women
- Defining and promoting digital VSLA value proposition, particularly the value of digital financial identity would increase the number of VSLAs adopting this approach

Sources: <http://www.akdn.org/our-agencies/aga-khan-foundation/rural-development/accessfinancial-services/akf-digital-saving-groups>
<https://www.home.barclays/content/dam/barclayspublic/docs/Citizenship/banking-on-change.pdf>
https://www.oxfamamerica.org/static/media/files/SFC_Mobile_Banking_Pilot_Learning_Review_-_Final_Report_November_2015.pdf

Product Profile: AMRET Mobile Tellers and Family+

Players and Development: AMRET is a microfinance institution (MFI) in Cambodia licensed to do lending and take deposits. In early 2013, Amret received a grant from the World Bank Group's AgriFin facility to implement its first mobile financial services project, with the aim of providing smallholders with more convenient access to an even broader array of product offerings. In 2016, AMRET received a grant from UNCDF's SHIFT program for its Family+ product. This product designed for Cambodian women offers a low cost remittance service by linking various savings accounts between the sender and recipient, and provides cash-in and cash-out doorstep services.

Purpose: The mobile teller provides Door-2-Door account registration, savings collection, and cash withdrawal service with SMS receipts. The mobile tellers go out to clients in rural areas where clients are not able to travel to a branch. As a second phase to the initiative, AMRET is seeking to move customers to a self-serve model as their comfort with technology increases.

Price: Remittances under Family +: Low cost, annual fee

Interest rate Agrifin new loan product is on average 0.10% lower than comparable micro-loans

Goal+ savings account interest rate rises with longer term commitment of funds (from 4.5-7% if in USD)

Product:

- Amret offers agriculture focused Agrifin loans products
- Loan repayment schedule is flexible and based on customized score cards for crops in line with farmers' seasonal cash inflows
- Goal+ individual savings account provides for contractual and plan deposits. Small deposits are made each month based on a monthly saving plan.

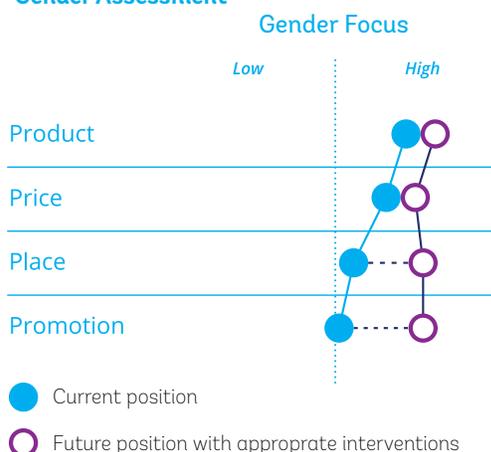
Promotion: The first implementation phase of the mobile tellers plan was completed in September 2016, with 216 mobile tellers operating across 124 branches. As of the end of 2016, the savings balance was 21029 million (KHR) held across 45,476 client accounts.

Place: Mobile tellers travel to customers' door for account registration and savings collection.

Challenges and Opportunities for Women:

- Door-2-Door service provides access to savings and loans by women whose mobility may be restricted based on their agricultural responsibilities.
- Low cost remittances to receive money in from others which can be used by women in agriculture to purchase inputs or supplement their income.
- Tailored agricultural loans with flexible terms that match crop cycles.
- Commitment savings allow segregation of funds and pays higher interest for longer term commitments that can accommodate women's use of agriculture proceeds for financial priorities such as school fees and healthcare.

Gender Assessment



Key Features

- Product bundle is well suited for the needs of women farmers and cover a wide range of financial needs
- Prices are reasonable and do not explicitly inhibit use by women
- Door to door mobile tellers are an effective channel and resonate with women. This approach should be combined with other mechanisms in an attempt to better reach scale
- Potential to explicitly target women through a comprehensive marketing campaign

Sources: <https://www.amret.com.kh> https://www.agrifinfacility.org/sites/agrifinfacility.org/files/vberisha/51/Amret_Project%20Results%20and%20Lessons_.pdf

Insurance

Insurance products, including health, life and agricultural insurance, are important tools for building resilience, especially for highly vulnerable groups. Yet, insuring low-income individuals with volatile livelihoods is notably costly. Microinsurance is specifically targeted at low-income consumers, and includes features and characteristics that make it accessible and affordable for those with fewer resources and more risk.¹⁰⁴ New microinsurance applications allow insurers to provide electronic policy application, approval, and registration to rural residents, and mobile money provides the opportunity to pay premiums and receive payouts digitally. These efficiencies have drastically reduced the amount of time it will take to insure large numbers of people at scale, even with small amounts of coverage (micro insurance).¹⁰⁵

Insurance represented a relatively low percentage of the total number of products in our database that had a financial services component indicating that while there may be a growing number of mobile and digital insurance products, growth in this sector has not necessarily kept pace with growth in other exciting areas, such as mobile credit or credit scoring. The database contains 21 insurance offering; MNOs and third party providers were the main insurance providers.

Research indicates there are three main commercial models for mobile insurance, 1) loyalty (airtime customers who keep a certain account balance or use a certain amount of airtime qualify), 2) premium (a more traditional model but wherein premiums

are paid on more flexible timelines with mobile money), and 3) freemium (customers subscribe to a loyalty-based plan and get more coverage with a fee).¹⁰⁶

Mobile insurance offerings in 2015 still heavily favored life insurance (51% of offerings), with health insurance comprising 22% of the market and agricultural insurance at only 7%.¹⁰⁷ The unpredictability of agriculture as a livelihood is a key factor in demand for such insurance, but it is notably difficult to provide. Limitations on the spread of agricultural insurance are caused by the informal nature of many small farm enterprises and high monitoring costs. Weather-indexed insurance, rather than indemnity-based insurance, is more feasible for suppliers and farmers in low-income countries.¹⁰⁸ The availability of remote monitoring and sensing technologies to evaluate risk and damage and of mobile technology that reduces the need for in-person distribution and payment has reduced premiums to an affordable level for many poor farmers. That said, agricultural insurance continues to lag behind other types of mobile-enabled insurance.¹⁰⁹

Key Stats

- There were 106 live mobile-enabled insurance services available in 31 emerging markets in 2016, a 38% increase since 2011.
- 52.7 million policies had been issued by 2016, nearly doubling from 2015. Seven services alone issued more than one million policies each.¹¹⁰

Product Profiles

Product Profile: World Cover

Players and Development: World Cover is a private company based in New York City. It has raised a large seed funding round of equity investment from several large venture capital firms.

Purpose: World Cover offers a digitally-enabled insurance product for smallholder farmers in Ghana. Its main product offering is crop insurance that covers farmers against the significant risk of drought in Ghana's arid northern region. The insurance product is underwritten by outside investors, or peers, who want to diversify their investment portfolios, and these individuals receive a portion of the premiums paid by farmers. World Cover is particularly focused on rural, poor farmers.

Price: Unknown

Product:

- Uses satellites to monitor rainfall and drought conditions so that payments are triggered automatically under certain drought conditions.
- Uses village agents with tablets to dispense payouts and take premiums from farmers without cell phones, as many farmers lack access to their own phone. Farmers with phones may pay or receive payment through mobile money.
- 160,000 customers are receiving agricultural extension services through voice messages in local languages.
- Community liaisons are enlisted to serve as a phone access point for both extension service messaging and transactions related to the insurance product.

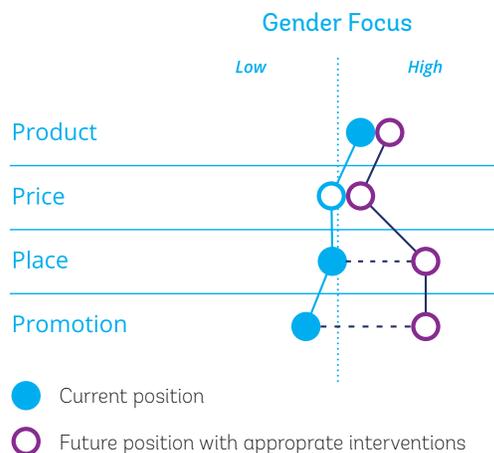
Promotion: World Cover employs field-level agents who conduct group marketing meetings with villagers, and who follow up with women farmers who may have missed meetings because they had duties to attend to at home.

Place: Product registration takes place in villages through direct interaction with agents.

Challenges and Opportunities for Women:

- World Cover has intentionally worked to include in its offerings crops that are specifically grown by women in the northern region of Ghana, where it is working (such as groundnuts). The company found that by intentionally mentioning women-specific crops in marketing meetings, women's uptake increased.
- Because of gender-differentiated crop management in this region, women and men in the same households have been seen to each have individual World Cover accounts.
- Insurance is known to be an important on-ramp to access to credit and could provide women farmers visibility for credit scoring.

Gender Assessment



Key Features

- Insurance product is well aligned with needs of women farmers in Ghana and is specific to crops typically grown by women farmers. Linkage to ag extension information expands the utility for women farmers. Slight adjustments should be considered that enable the insurance product to also serve as a credit mechanism
- No price data is available but assume prices are in line with similar index insurance products
- Use of high touch sales agents is effective and ideal for women farmers. However, approach limits ability to scale. Digital outreach or partnership with entities (e.g., MNO retail outlets, mobile money agents) could improve product reach
- Promotion could be expanded beyond direct sales. Also efforts could be made to include funding of handsets to encourage direct payments and disbursements

Product Profile: EcoFarmer (Zimbabwe)

Players and Development: EcoFarmer is Econet's four year old agricultural insurance and information product that relies on the Econet and Ecocash platforms to deliver a range of services to the farming sector. Econet has partnered with the Ministry of Agriculture, Seed Co. as well as development organizations such as UNICEF and USAID to enhance extension service content and to support subscriber recruitment.

Purpose: EcoFarmer bundles agricultural information and extension services with a micro insurance product to provide a comprehensive service package to farmers. The product uses Ministry of Agriculture information along with real time weather data to deliver content directly to subscriber's mobile devices.

Price: Many EcoFarmer content based services are free to general subscribers including SMS-based agricultural tips and sponsored product and price information. Registered farmers get more tailored information and pay a \$1.50 per month fee for the content. Insured farmers purchase micro insurance for crop failure due to drought or excessive rain is the core revenue generating product. Fees range from \$2.50 to \$10.00 per farm season and per 10 kg bag of Seed Co. seeds planted with claim amounts at ten times the premium (\$25.00 - \$100.00)

Product:

- SMS agricultural content including:
 - Daily weather data from a weather station linked to your field.
 - Farming and market tips
 - Free daily rainfall advice
 - Free weekly best farming prices
 - Access to agricultural experts via a call center.
 - Microinsurance.
 - Free weekly crop data
 - Free monthly market pricing requests
 - Crop information
 - Credit rating
 - Free adverts and marketing links
 - Financial linkages

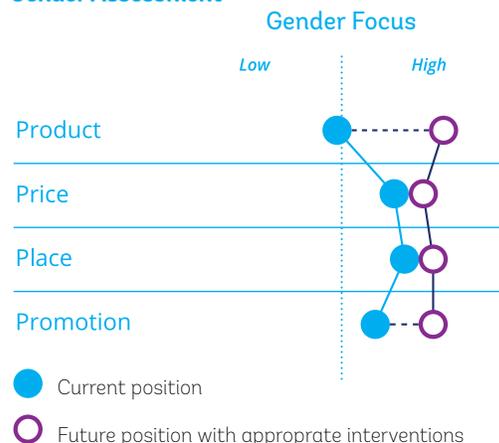
Promotion: Marketing strategy focuses on convincing farmers to evolve from generally registered (free subscription) to fully registered (insurance purchasing) subscribers. Econet uses cross promotional techniques coordinated through standard Econet products and EcoCash products. Naturally, promotional activities focus on key agricultural regions of Zimbabwe. They use both above the line and below the line advertising and leverage their extensive agent and retail network.

Place: General farmers can register remotely via a short code. Registered farmers and Insured farmers must provide information and register at Econet/EcoCash agent or retail locations. Claim vouchers can be redeemed at these same outlets. Content is delivered via SMS and via call centers.

Challenges and Opportunities for Women:

- Provides an opportunity for direct delivery of customized crop information that may overcome women's lower access to information and membership in farmer groups.
- Promotional messages may be more geared toward male farmers given that they are often responsible for input purchases.
- Handset penetration may be another barrier to broader adoption by women farmers.
- Household responsibility for insurance purchases and for primary crop production often lies with male heads of household.

Gender Assessment



Key Features

- Product bundles a variety of "free" subscription fee extension services as a package with a for fee insurance product. Product bundle could be better aligned with women's needs and include EcoCash products such as payments and saving. These could potentially be linked to health insurance and school fee insurance
- Prices are reasonable and do not explicitly inhibit use by women
- Over air registration for basic service and formal registration at Econet retail locations meet the needs of women and are consistent with the high uptake of women for Econet and EcoCash products
- Potential to explicitly target women through a comprehensive marketing campaign

Digitized Payments And Voucher Distribution

Digital payments are the most basic building block upon which other DFS services are offered. Digital payments are typically offered through mobile money but also occasionally through cards or vouchers. Both serve to increase the efficiency of and lower the cost of all different types of transactions, including receipt of income or payments to suppliers. While payments are implicit aspects of nearly all the other services discussed, as in loan repayment or insurance premium payments, they are increasingly recognized as having value on their own as an onramp to greater financial inclusion, because they direct low-income consumers' money into a digital account, and have especially high value when bundled with other useful services.

Currently, mobile money continues to be used primarily for P2P transfers and there is limited use of mobile money for agriculture payments. In research with cocoa farmers in Côte d'Ivoire and Ghana farmers only 54.8% of the farmers surveyed expressed a willingness to receive a mobile money payment for their crop; this percentage was below 50% in Côte d'Ivoire. Farmers' top reported concerns with receiving mobile money payments centered around issues of mobile money agent access, liquidity, proximity and availability. The cocoa farmers' level of interest in mobile money use increases, however, if digitizing payments could lead to services that would increase their ability to purchase farm inputs and access credit. Additional use cases also add relevance, such as the new requirement to pay school fees using mobile money in Côte d'Ivoire.¹¹¹

Digitizing agricultural value chain payments represents a sizable opportunity for MNOs to acquire new customers, given the numbers of smallholder farmers in most developing countries. In a number of more formal value chains around the world, MNOs and large agribusinesses are working together to digitize value chains, down to small-scale farmers. For example, Easypaisa in

Pakistan registered 15,000 dairy farmers with SIM cards alongside Nestle Pakistan. And Vodafone in Kenya launched the Connected Farmer Alliance, a platform that leverages M-Pesa and Agri VAS to facilitate communication and payments between smallholder farmers and agribusinesses.¹¹²

However, digitizing agricultural value chains remains difficult, given the necessity of having a well-developed mobile money ecosystem and a host of participating actors along the value chain. For this reason, outgrower schemes and other organized value chains represent the best possibility for digitizing value chains at this time, as players are already organized into formal relationships. This area is one that appears to be gaining visibility. There are 27 database records that include a value chain payments offering. NGOs, MNOs and third party providers were all seen to be involved in value chain payments in the database.

Mobile money payments are highly dependent on the presence of an agent network for cash-in and cash-out services. Organizations, like UNCDF are supporting efforts to test whether having women mobile money agents can close the gender gap in mobile money accounts and increase women's active use. The Grameen Foundation has worked to develop women as banking agents in the Philippines by creating an independent network of female financial agents who work out of their neighborhood sari-sari (variety) shops. The all-female network now includes 862 trained agents, who provide digital financial services to more than 66,000 low-income clients.¹¹³ Female agents have anecdotally been shown to increase women's comfort with using financial services in public.

Key Stats

- While most agricultural payments continue to be carried out in cash in developing economies, the largest percentage of such payments that are paid directly into accounts are made in sub-Saharan Africa.¹¹⁴
- As of August 2016, there were 295 live mobile money services in 97 countries.¹¹⁵

Product Profiles

Product Profile: Esoko/Tulaa

Players and Development: Esoko is a social business founded in 2005 to bring information services to farmers. One of its first projects was using SMS messages to deliver farmers information over the MTN mobile network in Uganda. In a recent reorganization, Esoko restructured its businesses, establishing a new mobile commerce business for farmers.

Purpose: Tulaa now operates Esoko's business that enables farmers to access inputs, finance, information and markets in a virtual marketplace. The solution uses mobile technology and mobile money to enable farmers to save and borrow to purchase inputs, receive tailored agronomic advice, and market their crops at harvest time. The product uses a mobile wallet through which smallholders can save and borrow towards the purchase of discounted inputs. Tulaa also hosts a virtual marketplace which brings together input suppliers, financial institutions and farmers in a virtual marketplace and has plans to enable direct purchasing from farmers.

Price: Not available

Product:

- Integrated service focused on providing information, financing and marketplace for smallholder farmers.
- Lay away plan allows for dedicated savings as well as access to finance.
- Use of mobile wallet and mobile solutions are an integral part of product design.

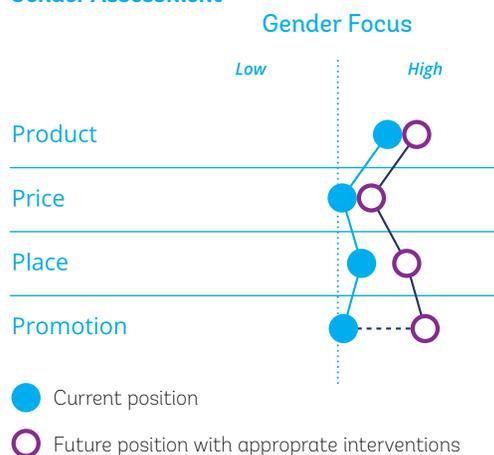
Promotion: Tulaa markets its services to (1) financial institutions seeking to lend to smallholder farmers, (2) input suppliers seeking to increase sales to smallholder farmers, aggregate demand for inputs and build brand and customer loyalty and (3) agroprocessors and buyers seeking to outsource input supply, make fast and secure payments to suppliers and build suppliers.

Place: Relies on mobile network technologies for access and use.

Challenges and Opportunities for Women:

- Provides remote access to market information and connection to buyers that can benefit women with limited mobility and time poverty.
- Bundled service offering can provide women farmers with sources of financing connected to crop sales and build a performance history.
- Layaway plans help with savings for input purchase and platform provides access point to financial institutions which will appeal to women farmers who prefer to rely on savings rather than credit.

Gender Assessment



Key Features

- Product bundle is well suited for the needs of women farmers and covers a wide range of financial needs
- Provides remote access to buyers and finance
- Layaway plan provides way to store cash for agriculture use only
- Price information not available and needs to be validated
- Sales channel is through participating financial institutions and input suppliers – These may not be ideal for women – Consider additional channels that are more often frequented by women farmers
- Potential to explicitly target women through a comprehensive marketing campaign

Source: <https://www.esoko.com/tulaa/>

Agricultural Information and Advice

Connection to market information and advice and knowledge services is especially important for female-headed smallholder farmer households and any other commercial farmers. A research study found that increasing farm size, membership in farmers' associations, access to extension services and access to credit could increase farm output and reduce poverty for female-headed rural households.¹¹⁶

Our database listed 135 products that included agricultural information and advice, indicating this is an important category. Of the three service types listed below, our database showed that most products offering agricultural information and advice focus on market linkages, closely followed by agricultural extension service. There are not as many market pricing services on the market yet. The service types within agricultural information and advice that have been moving from analog to digital channels include:

Market pricing services

Market pricing refers to information flows that provide users with prices for select agricultural commodities and other inputs (e.g. fertilizer). Depending on the level of sophistication of the application, pricing information moves in one direction, from the application provider to user, and is generally disseminated at set intervals (e.g. once a week). In more sophisticated applications, users are able to select which commodities and input prices they receive information on and submit those requests according to when they need access to that information. Market pricing information is sourced either from available data – provided in most cases by government institutions – or directly collected from specific markets. Users can access this information via mobile device in voice (pre-recorded messages) or text format (either SMS or USSD) or via Internet on a desktop, laptop, or touch screen device. Our desk review showed the highest concentration of market pricing services in East Africa followed by Asia.

Market linkage

Market Linkages refer to information flows intended to either a) generate trading and marketing opportunities by facilitating connections and communication among different users (i.e. producers, suppliers, buyers/refiners, and transporters) or b) improve supply chain systems and processes by strengthening data recording, management, and dissemination capabilities. Two important market linkages are trading and marketing to more efficiently match farmer output with wholesaler demand and supply chain systems and processes applications. An advantage of these services is that they help to create farmer profiles. Of the information services included in our database market linkages were the most common with a predominance of products in East Africa followed by Asia.

Agricultural extension services

Agriculture Extension Services refers to information specifically designed to support production capacity and livelihoods among farmers and other rural residents. The information available can consist of farming techniques and trends, weather forecasts, pest or crop disease advice, and seed or other input management techniques. In the most basic offering, communication between application provider and end user is one-way with prepared tips or alerts transmitted via mobile channel in the form of voice, SMS, or video clips depending on the sophistication of the mobile device available to the end user. If the end user has access to a desktop, laptop, or touch screen with Internet, they can receive this information via email and video clips. In some instances, these basic offerings will also allow users to query static information from a dedicated database. More sophisticated applications are able to deliver spatial or location-specific information to users but require integration with remote sensing instruments and geographic information systems (GIS). The agriculture extension services reviewed for our desk research were most common in East Africa followed by Asia.

Product Profiles

Product Profile: Akorion

Players and Development: Akorion is a private company based in Kampala, Uganda. It was developed through a Feed the Future/USAID program.

Purpose: Akorion has developed a proprietary value chain digitization platform, EzyAgric. It delivers directly to farmers information about available input suppliers and prices, and allows direct input ordering. It also allows farmers to see prices for their goods offered by buyers and for buyers to understand available supply. Finally, Akorion develops digital profiles on farmers, including maps of their plots, demographic data, production data, input demand, and product supply, and then allows farmers to bring these profiles to financial service providers and insurance companies. It has so far digitized 42,000 farmer profiles.

Price: Akorion's revenue comes from charging a fee for profiling and selling services to farmers, such as agricultural extension and soil testing, and distributing hermetic storage.

Product:

- Village agents collect data through a smartphone application to compile farmers' profiles and map their land with GPS.
- The agents also push out agricultural extension and weather information to farmers through their phones.
- EzyAgric is a platform available online and via smartphone that brings the smallholder profiles together with financial institutions, input companies and insurance providers.

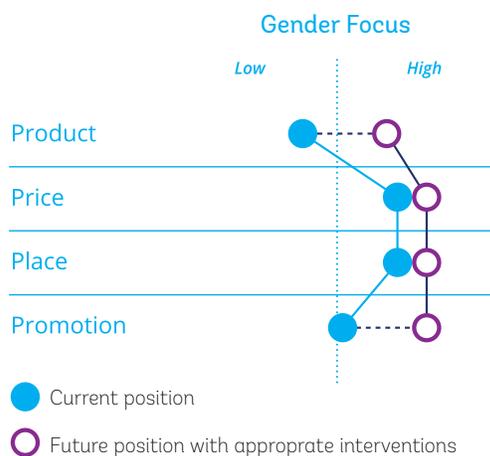
Promotion: Farmers find out about the service either through the agents or through the value chain they are associated with.

Place: Akorion's services are accessed by farmers through 485 Village Agents equipped with smartphones.

Challenges and Opportunities for Women:

- Digital profiling allows women farmers to have a record of their farm activities and gain access to financial services; anecdotal evidence indicates that many women are able to take control of ordering the best inputs for their plots, with better agricultural information and input supply connection.
- Many of Akorion's digitization initiatives are with formal value chain associations, which may leave women out if women's farm activities tend to be more informal.
- 40% of Village Agents are women, potentially assisting with recruitment of female farmers.

Gender Assessment



Key Features

- Farmer data could be adapted to create a credit score that would directly benefit women farmers
- Fee for specific services model may not be ideal for women who may prefer a subscription model
- Current channel brings trusted agents directly to the farmer. More research is needed to determine if women farmers react better to women agents
- Product benefits are somewhat complex. Targeted outreach toward women and potentially combining with nutrition program could increase uptake by women

Product Profile: RUDI Sandesha Vyavhar (RSV)

Players and Development: Developed for the Rural Distribution Network (RUDI) in Gujarat, India, an agricultural cooperative, along with the Self Employed Women's Association of India (SEWA). RUDI is a cooperative that procures agricultural products, adds value through processing and packaging, and utilizing a network of rural RUDI saleswomen to distribute the products at an affordable price. The Cherie Blair Foundation for Women, Vodafone Foundation and Ekgaon Technologies were involved in coordinating the approach and developing and refining the software platform.

Purpose: RSV is a mobile order management and communications system that allows RUDI saleswomen to place orders remotely rather than at a processing center, track inventory and better manage their RUDI enterprises via a mobile device. The product helps women cut down significantly on time spent placing orders and know in advance what inventory is available at the processing center, to better match ordering to customer demand.

Price: N/A

Product:

- RSV is a mobile application available for simple feature phones that RUDI saleswomen use to remotely place orders for new stock, get updates from the broader supply chain, including prices, and track customer orders.
- The application was developed as a bespoke model for the needs of this specific supply chain, within a large agricultural cooperative.

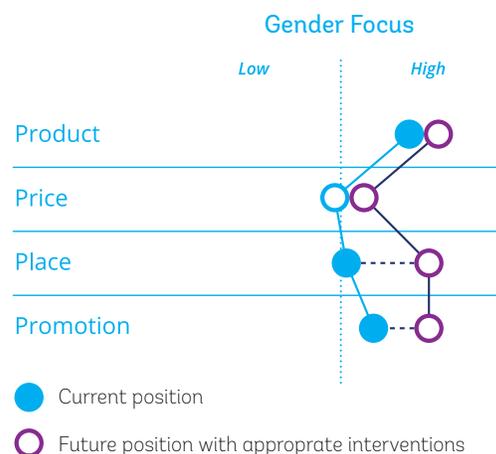
Promotion: The product was rolled out to RUDI saleswomen throughout only this specific supply chain.

Place: Women access the application on basic feature phones.

Challenges and Opportunities for Women:

- Since the pilot was launched in 2013, over 1,300 women working with the agricultural cooperative increased their incomes, some by three times.
- The pilot also provides for entrepreneurial women an onramp to experience with and knowledge of how to use of mobile technologies in agricultural value chains, given the low-income profile of many of the pilot participants.

Gender Assessment



Key Features

- Product is specifically designed for women and addresses order management and sales management needs
- Price information not available and needs to be validated
- Access is via a feature phone and RUDI employs a sales channel consisting of women. Model could be expanded to include other channels besides direct sales in order to increase scale
- Potential to promote additional sales by offering current subscribers commissions for registering new customers

Sources: https://www.vodafone.com/content/dam/sustainability/2014/pdf/transformational-solutions/vodafone_women.pdf
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Product Profile: Mlouma

Players and Development: Mlouma is a virtual agricultural hub that publishes real-time information on the price, location and availability of farm products. Farmers and buyers receive updates via the internet, SMS notifications or through a call center. Mlouma has partnered with Orange in Senegal and has made the application available through SMS, SMS API and the Orange MyStore.

Purpose: Mlouma provides Senegalese farmers with access to up to date agricultural market information via a range of convenient channels. It also provides an opportunity for farmers to post information regarding their crop (e.g., quantity, location, harvest time). The goal is to reduce the information asymmetry between buyers and sellers and make the agricultural sector more efficient.

Price: Mlouma uses a subscription model whereby customers sign up from one week to one year of service.

Product: Mlouma is an information based service that provides information and linkages between agricultural buyers and sellers.

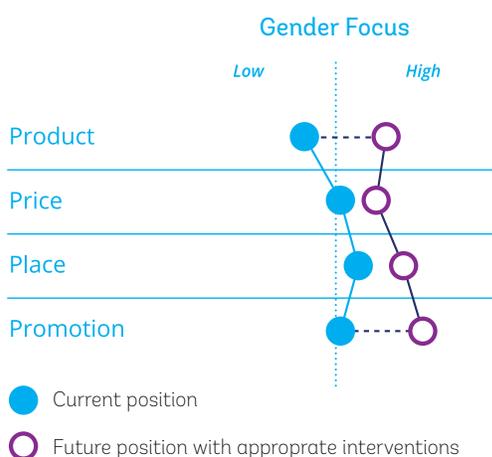
Promotion: Mlouma is active on social media and is leveraging the Orange relationship to expand its user base via the mobile channel. It also aligns with donor agricultural programs and the Ministry of Agriculture in Senegal.

Place: Registration is online or through a mobile device. Product delivery is through the web or mobile device.

Challenges and Opportunities for Women:

- Willingness to pay for market information may be a hurdle for women farmers.
- Delivery channel enables women farmers to get information wherever and whenever.
- Awareness of the product may be lower among women farmers.

Gender Assessment



Key Features

- Value proposition for the product may need to be directly presented and explained to women farmers
- Subscription model with flexible lengths may work well with women farmers
- Mobile channel for sign up and service delivery should work well with the portion of women farmers familiar with mobile services
- Product awareness and understanding the value of market linkages may require focused education and a more hands on promotion approach



Recommendations

In this section, we provide recommendations for further investment by the World Bank. The recommendations are based on our analysis of the financial services needs of women in agriculture across the four personas compared against the current state of product and financial service offering across eight service types: credit scoring, loan disbursement and collections, saving, insurance, payments market pricing, linkages and agriculture extension.

The four recommendations are reflective of our review of the marketing mix in each service category through a gender lens and suggest key segments of focus:

- Focusing on improving access to the women in the first two personas: female-headed and partnered women in smallholder households given the concentration of women farmers in this category
- Investing in targeted promotion to women of products that have scaled
- Investing in scaling initiatives and products targeted to women

Scale Up Successful Initiatives to Digitize Group-Based Savings Accounts Targeted to Women Farmers

Women's participation in local savings groups improves women's livelihoods and produces better outcomes for women than the microcredit offerings of MFIs. Efforts by NGOs to transition these groups to digital accounts (at the group level) using mobile wallets that link to bank accounts has been shown in pilots in Africa to increase group investment and savings. When beneficial and sought by group members the digital migration of the group account can also provide a pathway to individual account ownership by group members. NGOs are a key facilitator in forging the relationships between MNO and banks and provide needed training and capacity building to women's savings groups during the transition. NGOs often also develop the business case for expanding MNO agent networks to reach these savings groups. The rural reach and liquidity capacity of mobile money agents is an ongoing challenge in building a digital ecosystem that reliably meets the needs of rural farmers. Aggregation of farmer demand and use of mobile money services for daily transactions can help build the business case for service investment and delivery beyond urban and

per-urban areas. NGO intermediation for savings groups can also include negotiating transaction fees, and advocating for each group member to have access to a mobile sub-wallet for transparency on any and all deposits and withdrawals from the group account. NGOs capacity building programs can play a role digital literacy – for female group members and often for the FSP that may also be new to DFS.

Suggested Intervention:

What: Invest in scaling efforts to link savings groups to bank accounts through mobile wallets. Help these efforts move beyond piloting by single organizations to promote broader use and development of group savings accounts that can lead to individual account ownership.

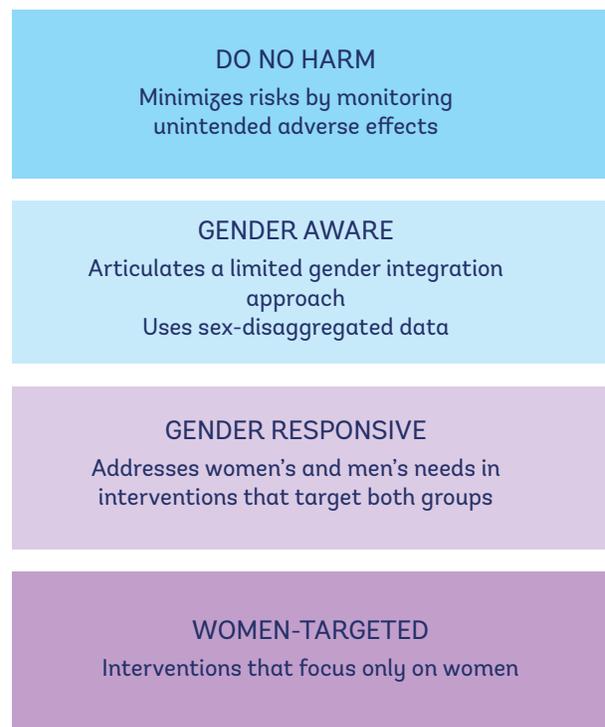
Who: Funding for technical programs of NGOs, such as Oxfam, CARE, Grameen, MEDA, CRS, Mercy Corps, Pact, and Agha Khan to facilitate savings groups opening accounts at deposit-taking MFIs or banks that are accessed through mobile wallets. Invest in MNOs that commit to providing adequate network coverage and agent networks to meet the needs of savings groups for mobile wallet access and cash-in/cash-out. Identify product service elements that enable the identification and tracking of individual member participation to provide a path to individual account ownership and the compiling of digital data for alternative credit rating/scoring.

Where: Sub-Saharan Africa

Invest in Marketing and Promotional Activities by Companies That Have Succeeded in Offering Mobile Savings, Credit and Insurance Products But Are Not Targeting Women As a Key Customer Segment

The desk research conducted for this report revealed that women in agriculture are not identified as a separate consumer segment in marketing and promotional efforts for many agriculture products and for financial services. Furthermore, financial services are not designed with women’s unique user experience needs in mind, such as service access points that are culturally appropriate. Increasingly, products that target agricultural communities and have terms that are more

Figure 10: Gender Integration Approaches



Source: DCED

customer-centric, such as loan terms that match seasonality, are being developed and introduced. In addition, the growth of mobile money offerings has increased awareness of mobile money products among rural segments. Marketing efforts designed to reach women through channels they trust and that emphasize services relevant to them could increase women's use of already available products. This includes gender integration into market segmentation, beyond access and usage of mobile phones. Potential constraints to consider include differences in travel patterns, time-use, and terms defining public interactions, income schedules, asset levels, bargaining power, and access to informational services.

Suggested Intervention:

What: Invest in providing technical assistance on marketing and promotion strategies to leading MNOs to increase women's use of mobile money-powered financial services products. In the desk review, Kenya and Tanzania had the highest number of product offerings but the promotion of these products to women is weak. Tailored marketing for women in agriculture could increase understanding and uptake. In April 2017, Women's World Banking announced a partnership with a MNO in Pakistan and Ideas42 to help JazzCash target the women's market. Women's World Banking and the Global Banking Alliance for Women have been working with banks to understand the untapped market of financial service products for women and to develop marketing strategies that resonate with them. This type of customer-centric marketing and promotion is possible with the increasing availability of gender disaggregated data with a clear gender integration approach. This allows the use of a gender lens in market analyses to fully understand differences in participation, constraints and opportunities between women and men, as well as critical intervention points to create gender-equitable outcomes.

Who: Technical assistance to MNOs with banking and insurance partners: Safaricom, Vodafone, Tigo, and Airtel in mature DFS markets. The level of activity and innovation is significant in these markets, with investment flowing into financial services and data platforms that feed products deliveries to mobile money users. These mature markets with a solid product base provide a good testing group for the role of focused promotional marketing activities targeted to women in agriculture.

Where: Kenya, Tanzania or Ghana

Invest In Design of Gender-Responsive Bundled and Customized Service Offerings That Meet the Financial Priorities and Lifecycle Needs of Women Farmers and Invest in Strategies to Promote Awareness, Trust and First Time Product Use

Gender-disaggregated data provides interesting insights into financial behaviors of women. As customer-centric products are being developed, loan terms, costs of account and products that allow for income smoothing – such as commitment savings accounts – can make formal financial services products appealing to women in agriculture. This includes adapting the design, marketing and distribution of offerings through a gender-lens. This may also include adjusting the physical accessibility of services, promoting products based on different benefits valued by women and men; carrying products that consider gender-differentiated needs; and tailoring payment plans or financial products to varying asset levels or income/repayment/savings schedules.

Suggested Intervention:

What: Multi-purpose wallets enable women engaged in agriculture to send and receive payments, save, manage funds to meet their expenses and access credit to meet their agriculture and non-

agriculture needs. They are more likely to present a value proposition than single services. Human-centered design research can provide insights into the product features and design interface that will appeal to women in agriculture.

Who: Engage a human-centered design firm, agriculture extension providers and a MNO or financial service provider to design a mobile wallet with multiple sub-wallets for women smallholder farmers and test its use and relevance for scale. Work in collaboration with NGOs that engage with farmer groups in providing extension or information services such as Esoko in Ghana and Uganda, Grameen's Community Knowledge Workers in Uganda and the Philippines, CARE's Farmer Business School, Technoserve, USAID Feed the Future Programs partners. Generate co-investment and participation by a leading MNO, or in countries with open APIs, MFI or banks to launch the wallet.

Where: Côte d'Ivoire, Ghana, Rwanda, Tanzania, Uganda

Invest to Drive the Use and Collection of Digitized Data to Expand Bank Offerings and Financing to Women in Agriculture Without Fixed Collateral

Credit scoring trends are moving the basis of lending away from traditional forms of collateral such as land to rely on individualized transaction and consumption data that can be used to create a credit profile. In addition, digital credit scoring

enables automated lending that reduces the costs of underwriting loans and can shift distribution and collection costs lower. Data collection practices vary, with some providers unwilling to share customer data for outside use. This data could be reported to credit registries for broader use by retail lenders. Supporting these types of credit scoring programs should improve access to credit for women.

Suggested Intervention:

What: Expand collection and use of individual level data for credit scoring/rating or risk rating for insurance from mobile phone use, including but not limited to payments, or more geographic and crop-specific farming data.

Who: Invest in expansion to the agriculture market by third party credit scoring companies, such as Lenddo, who provide credit scoring to banks and MFIs, and companies that lend directly such as Tala. These products require smartphone data for analysis so work best in markets like Indonesia where smartphone penetration is higher and the gender gap in phone ownership does not exist. With the price of smartphones continuing to decline, this early work could prove a model for other markets. Invest in scaling farmer specific credit rating applications that use digitized data from individual farmers, including those developed by VisionFund, Grameen Foundation and Akorion, to accelerate the move to customized lending.

Where: Indonesia, Philippines, Mexico, Colombia, Tanzania, Uganda



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