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DIGITAL FINANCE AND WOMEN'S ECONOMIC EMPOWERMENT IN BEYOND PRODUCTION ROLES IN AGRICULTURE AND FOOD SYSTEMS

FINAL REPORT

FEED THE FUTURE ADVANCING WOMEN'S EMPOWERMENT PROGRAM

February 2022

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Advancing Women's Economic Empowerment

Advancing Women's Economic Empowerment (AWE) Call Order 8, Digital Finance and Women's Economic Empowerment in Beyond Production Roles in Agriculture and Food Systems, was funded on May 11, 2021. AWE provides consulting services for the USAID Bureau for Resilience and Food Security (RFS), Feed the Future Focused and Aligned Missions, and Global Food Security Strategy Target and Aligned Missions worldwide in the areas of gender integration, gender-sensitive design, implementation of agricultural programming, building gender capacity of personnel and programming, and knowledge management and learning.

The AWE activity enhances gender equality and women's empowerment in agriculture programs by providing targeted technical assistance to Missions, implementing partners, the Bureau for Resilience and Food Security, and other USAID operating units to increase women's participation, productivity, profit, and benefit in agricultural systems. AWE is implemented by EnCompass LLC with ACDI/VOCA, MarketShare Associates, and FHI 360.

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CONTENTS

ACKNOWLEDGEMENTS

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ACRONYMS AND ABBREVIATIONS

ACRE	Agriculture and Climate Risk Enterprise Ltd.
AGRA	Alliance for a Green Revolution in Africa
AWE	Advancing Women's Empowerment
DFS	Digital financial service
FGD	Focus group discussion
GSMA	Global System for Mobile Communications Association
IFPRI	International Food Policy Research Institute
IMF	International Monetary Fund
LAC	Latin America and the Caribbean
PAYGO	Pay-as-you-go
R4	Rural Resilience Initiative
RFS	Bureau for Resilience and Food Security
SMS	Short Message Service
USAID	United States Agency for International Development
UNCDF	United Nations Capital Development Fund
WEAI	Women's Empowerment in Agriculture Index
WEE	Women's economic empowerment

EXECUTIVE SUMMARY

CALL ORDER BACKGROUND

The Feed the Future Advancing Women's Empowerment (AWE) Program is a five-year activity to enhance women's empowerment and gender equality in agriculture systems. One of AWE's key learning topics is understanding how digital financial services (DFS) can be used to increase women's economic empowerment in agriculture and food systems, particularly in beyond production activities. Following a landscape analysis report on *Good Practices for Women's Empowerment in Beyond Production Agriculture Interventions: A Gendered Landscape Analysis* conducted by the Feed the Future Advancing Women's Empowerment (AWE) Program in 2020, AWE and the United States Agency for International Development's (USAID) Bureau for Resilience and Food Security (RFS) determined that a knowledge gap existed on whether efforts expended by donors, implementing partners, and DFS providers have resulted in increased women's economic empowerment. Further analysis of DFS for women in agriculture is crucial to understand how financial institutions can better and more regularly interact with women customers, create more trust, and help expand their customer base of rural women. To address this issue AWE, under Call Order 8: Digital Finance and Women's Economic Empowerment in Beyond Production Roles in Agriculture and Food Systems, is addressing existing knowledge gaps on how agriculture and food systems programs address women's financial exclusion through accessible and useful financial platforms and promote economic empowerment.

RESEARCH PURPOSE AND METHODOLOGY

AWE conducted a desk review of 54 documents from USAID programs, international agricultural and development organizations, donors, private-sector stakeholders, and research institutions (e.g., peer-reviewed journal articles and studies, evaluation reports, guides) and consultations with 22 individuals across 20 organizations, including research institutions, implementing partners, donors, and government agencies in six participant groups. The objectives of the research were to:

- Catalogue and analyze digital financial tools and services that are—or have the potential to be—used in agriculture and food systems contexts (provided throughout the report and in Annex C),
- Examine the conditions and pathways through which digital financial tools and services can economically empower women in agriculture and food systems, focusing in particular on beyond production activities.

FINDINGS

The desk review and consultations identified that DFS have the potential to promote women's economic empowerment in agriculture and food systems contexts, especially beyond production, by supporting women in:

- Gaining more free time and money, increased capacity to save and invest, links to higher value markets, improved household bargaining power and control over their own finances, and less vulnerability to environmental shocks.

- Saving more and having more agency over their income when they use digital savings accounts.
- Increasing their access to lending through digital alternative credit scoring systems.
- Increasing their access to credit including services such as crowdfarming and pay-as-you-go approaches that help women develop credit history.
- Increasing their access to agricultural insurance services through digital insurance, though there is no evidence of these services being successfully provided at scale at market rates.
- Bypassing cultural constraints on their mobility which can limit access to financial services.

The research found that barriers to women's access to and use of digital finance include:

- Low digital and financial literacy rates among women
- Women's limited access to and control over mobile phones
- Lack of control over assets that can be used as collateral
- Limited mobility
- Limitations on women's control over money and financial decisions
- Low or no household bargaining power
- Mistrust and the potential for violence from male family members.
- Women not being perceived as farmers or household decision-makers, so that lending and service providers fail to identify them as potential customers and fail to cater products and services to meet their needs
- Women's preference for cash for commercial transactions

However, lending policies, practices, and regulations that protect women have a positive impact on women's access to and use of DFS.

In order to improve women's participation in DFS, donors, implementing partners, and DFS providers can use a range of approaches, as listed below:

- The use of human-centered design and quotas in the design and implementation of tools and services
- Low-tech, simple-to-use approaches
- Product design and marketing strategies that respond to existing market structures and to women's needs
- Use of trusted social ecosystems to support the dissemination and uptake of DFS.
- Literacy, digital literacy, and product-specific training for women

CONCLUSIONS

From the above findings, the following conclusions were developed:

- Digital financial tools and services have the potential to positively affect women's economic empowerment by providing women access to the resources and agency required for economic achievements such as improved savings and income, increased autonomy over financial resources, improved agriculture production, and reduced vulnerability to risk and shocks.

- Women experience differentiated resource and agency limitations that restrict their access to and use of financial resources and services, largely influenced by cultural and gender norms.
- When providers and implementers take women's needs and limitations into account to reach them where they are, women experience increased access to financial resources and services, increased agency over financial decisions, and increased economic achievements.
- Lending and service providers need a strong business case to see the commercial opportunity of targeting women and meeting their needs.
- Training is an important factor for women's successful uptake of DFS and can be incorporated into other types of training that are already being provided, such as that for agricultural production.

RECOMMENDATIONS

The report shares recommendations which are intended to support DFS providers, implementing partners, and USAID operating units and Missions to design and implement programs with women's economic empowerment in mind. General recommendations are shared below, with specific recommendations for each group described in further detail at the end of the report.

- In order to reach women, DFS providers, implementing partners, and USAID operating units and Missions must target women and their participation must be monitored.
- A business case for reaching women must be developed.
- Human-centered design is key to reaching and empowering women.
- Marketing and dissemination of DFS products to women requires digital and financial literacy training, as well as training on product use.

INTRODUCTION

The Feed the Future Advancing Women's Empowerment (AWE) Program is a five-year activity to enhance women's empowerment and gender equality in agriculture systems. AWE, together with the United States Agency for International Development's (USAID) Bureau for Resilience and Food Security (RFS) and other USAID stakeholders, developed a landscape analysis report on *Good Practices for Women's Empowerment in Beyond Production Agriculture Interventions: A Gendered Landscape Analysis* in 2020. Findings from this landscape analysis of 20 active and recently completed Feed the Future projects with substantial beyond production activities in the agriculture sector revealed that USAID projects adapted approaches to enable women to access credit to invest in beyond production livelihood opportunities. These approaches included increasing women's access to digital financial services (DFS) as a means to increase women's access to investment resources for production and beyond production activities. Although efforts have been made to increase women's access to DFS, there was a knowledge gap on whether these activities resulted in increased women's empowerment and the necessary conditions and pathways for empowerment to be reached. In addition, landscape analysis findings also showed that banks and lenders were especially hesitant to provide financial services and products to rural women working in production and beyond production sectors because they considered them risky investments.

Further analysis of DFS for women in agriculture is crucial to understand how financial institutions can better and more regularly interact with women customers, create more trust, and help expand their customer base of rural women. To address this issue AWE, under Call Order 8: Digital Finance and Women's Economic Empowerment in Beyond Production Roles in Agriculture and Food Systems, is addressing existing knowledge gaps on how agriculture and food systems programs address women's financial exclusion through accessible and useful financial platforms and promote economic empowerment.

RESEARCH PURPOSE

The purpose of this study is to:

- Catalogue and analyze digital financial tools and services that are—or have the potential to be—used in agriculture and food systems contexts (provided throughout the report and in Annex C),
- Examine the conditions and pathways through which digital financial tools and services can economically empower women in agriculture and food systems, focusing in particular on beyond production activities.

The report is structured and guided by the learning questions provided in Exhibit 1. In the next phase of this call order, AWE will develop case studies that illustrate approaches in successful and impactful integration of digital financial tools and services for women in agriculture and food systems programs.

Exhibit 1: Learning questions

Learning Questions

- What digital financial tools and services have been or could be used in agriculture and food systems contexts to economically empower women, especially in beyond production activities?
    - What are the characteristics of these tools and services, including each tool's and service's purpose, target users, target geographic area, and costs to users?
    - What factors make digital financial tools and services accessible to different populations of women working in agriculture and food systems?
    - How are these tools and services intended to be used by women in agriculture and food systems? What unintended consequences may exist?
- What are the limiting and enabling factors for women's access to and use of digital financial tools and services?
- Where present during data collection, what are the lessons learned or best practices exemplified by these digital financial tools and services, and how might they be scaled?

FINANCIAL INCLUSION AND PATHWAYS TO WOMEN'S ECONOMIC EMPOWERMENT IN AGRICULTURE

The World Bank defines financial inclusion as "individuals and businesses hav[ing] access to useful and affordable financial products and services that meet their needs – transactions, payments, savings, credit and insurance – delivered in a responsible and sustainable way."[1] An initial first step to financial inclusion is access to a transactional account, which opens the door to other financial services such as saving and lending.[2] Financial inclusion is considered a primary factor for women's empowerment and economic empowerment in agriculture by USAID in the Women's Empowerment in Agriculture Index (WEAI) and Gender Integration Framework, both of which include aspects of financial inclusion—specifically, access to and control over productive resources and control over the use of income—as domains of women's empowerment in agriculture. The Bill and Melinda Gates Foundation describes access to income and assets, control of and benefit from economic gains, and power to make decisions as key financial inclusion achievements supporting women's economic empowerment.[3] DFS is considered by UNCDF to be a driver of economic empowerment when used within an inclusive ecosystem with women-centric financial products and delivery channels.

For the purposes of this study, the AWE team has used the women's economic empowerment (WEE) conceptual framework[4] developed by the Center for Global Development and Data2X, which relies on the domains of **resources**, **agency**, and **achievements** to map a pathway to women's economic

[1] World Bank, "Financial Inclusion Overview," World Bank website, last accessed October 21, 2021.
[2] World Bank 2021.
[3] International Food Policy Research Institute, "WEAI," IFPRI website, last accessed October 21, 2021. Bill and Melinda Gates Foundation, UNCDF "Pathway to Gender Equality and Women Empowerment SF 2018-2021," January 26, 2018, "Financial Inclusion," Bill and Melinda Gates Foundation website, last accessed October 21, 2021.
[4] M. Buvinic, M. O'Donnell, J. Knowles, S. Bourgault, "Measuring Women's Economic Empowerment: A Compendium of Selected Tools," Washington, D.C.: Center for Global Development, 2020.

empowerment. Women's economic empowerment may be conceptualized as both a transformative process and an outcome, influenced by a multitude of contextual factors and realized at the individual, household, community, and national levels. While WEE is multidimensional and complex, it may be understood according to three domains: resources (to enhance the ability to exercise choice), agency (to act and effect change in spheres that are important to the individual), and achievements (measurable empowerment outcomes). Throughout this report, we apply these domains to our findings to demonstrate how DFS contributes to WEE in agriculture and beyond production activities.

HOW TO READ THIS REPORT

Icons: In this report, we include an icon next to findings that demonstrate one or more of the three WEE domains described above: resources, agency, and achievements.

RESOURCES	AGENCY	ACHIEVEMENTS
		

Citations: Where the report shares data collected during consultations, "FGD respondents" or simply "respondents" are attributed. Where statements are attributed to specific documents, we include in-text citations.

Defining DFS: The Alliance for Financial Inclusion defines DFS as "the broad range of financial services accessed and delivered through digital channels, including payments, credit, savings, remittances and insurance."[5] DFS types in this report have been broadly categorized according to the International Monetary Fund (IMF) and World Bank's classification of user financial needs: digital payments, digital savings, digital credit and lending, and digital insurance.[6] DFS as referenced throughout this report aligns with these definitions.

[5] USAID 2021.
[6] "Toolkit on Integrating Digital Financial Services into Feed the Future Programs," Washington, D.C.: USAID, 2021.

RESEARCH METHODS AND LIMITATIONS

RESEARCH DESIGN

The evidence scan was designed through a consultative process between the AWE team and USAID, and was conducted in two phases:

- Phase 1: Conduct consultations and desk review with key stakeholders in June 2021–August 2021
- Phase 2: Develop case studies in October 2021–February 2022

The research team was made up of the Call Order Team Lead and two research associates, with technical guidance and oversight from the AWE Project Manager and research staff from consortium partner FHI 360.

Overview of Phases

PHASE 1:
Consultations and Desk Review

- Stakeholder consultations and desk review of existing data, literature, and tools
- Data analysis
- Report writing and catalogue of tools

PHASE 2:
Development of Case Studies

- Identifying priorities and key tools for case studies
- Developing case studies and recommendations for adaptation
- Dissemination and learning activities

METHODOLOGY

GROUP INTERVIEWS

The research team held focus group discussions (FGDs) with 22 individuals across 20 organizations, including research institutions, implementing partners, donors, and government agencies in six participant groups. The team used an FGD guide (Annexes A and B) that included questions about programmatic approaches and tools they used to increase women's role in beyond production activities and access digital financial tools and services. The research team also received information from two individuals from two institutions via email with questions derived from the FGD guide.

Institutions included in group interviews:

Exhibit 2: Institutions included in group interviews

INSTITUTION	TYPE	COUNTRY/REGION
ACDI/VOCA	Implementing Partner	Global
AgroCenta	DFS Provider	Ghana
Alliance for a Green Revolution Africa (AGRA)	Implementing Partner	Kenya
Alliance in ProMujer	DFS Provider	Latin America and the Caribbean (LAC)
Aspen Network of Development	DFS Provider	LAC
bKash	DSF Provider	Bangladesh
BRAC	DFS Provider	Bangladesh
Caribou Digital	Implementing Partner	Global
DAI	DFS Provider	Bangladesh
E-farms	DFS Provider	Nigeria
Farm-to-Market Alliance	DFS Provider	Zambia

INSTITUTION	TYPE	COUNTRY/REGION
FINTECH Central America	DFS Provider	LAC
IncluirTech	DFS Provider	LAC
International Finance Investment and Commerce Bank	Bank	Bangladesh
Mastercard	Private-sector Partner	Global
myAgro	DFS Provider	Tanzania
SmartMoney	DFS Provider	Uganda
United Nations Capital Development Fund (UNCDF)	Implementing Partner	Uganda
USAID Honduras	Implementing Partner	Honduras
Winrock International	Implementing Partner	Nepal

DESK REVIEW

The research team conducted an open-ended, iterative Internet and scholarly database search to explore the available secondary data on how major types of DFS and digital financial tools contribute to or have the potential to contribute to women's economic empowerment in agriculture programs in USAID and Feed the Future countries. The team also contacted current agriculture and DFS program implementers requesting their recommendations for DFS tools they have used to support women's empowerment in their programming. Sources for the Internet search included the Development Experience Clearinghouse; private sector, agriculture partners,' and donors' websites, and other published and gray literature. The database search took a snowball, iterative approach, relying on a variety of search terms related to DFS, agriculture, and women's empowerment, including the following:

- (Mobile money OR Mobile banking OR Digital finance OR Digital financial services) AND women
- (Mobile money OR Mobile banking OR Digital finance OR Digital financial services) AND (agriculture OR aquaculture OR pastoralism)
- (Mobile money OR Mobile banking OR Digital finance OR Digital financial services) AND empower*

Ultimately, the research team identified and reviewed 54 documents from USAID programs, international agricultural and development organizations, donors, private-sector stakeholders, and research institutions. Documents ranged from peer-reviewed journal articles and studies to evaluation reports and technical guides. The initial findings of the desk review informed the participant list for the consultations.

Exhibit 3: Document breakdown by year

DATE	# DOCUMENTS
2013	1
2014	3
2015	4
2016	6
2017	2
2018	11
2019	8
2020	8
2021	11

Exhibit 4: Document breakdown by geography

REGION	# DOCUMENTS
Global	36
Africa	16
Asia	2

DATA ANALYSIS

Following the data collection, the research team held a two-day, virtual data analysis and interpretation session in September 2021 to analyze data across the consultations and desk review. The team used Dedoose, a web-based application for managing, analyzing, and presenting qualitative data, to thematically code FGD transcripts. The team then reviewed each code and each document to analyze the data and captured the emerging themes in data summary templates. During the session, the team discussed the significance of and interrelationships among the emerging themes guided by the learning questions, and identified draft findings across data sets. The team shared the emerging findings with the USAID during a 90-minute virtual workshop on September 27, 2021 to validate the emerging findings and identify key topics of interest for the report.

ETHICAL CONSIDERATIONS

The research team incorporated an informed consent section into the FGDs to explain the nature of the research, that participation was entirely voluntary, and to obtain consent to record the sessions. The team clarified that participants' names and other identifiable information would be kept anonymous. For this reason, names of specific DFS providers, donors, and organizations are not included by name in this report. The consent request stated that the purpose of this research was not to conduct a formal assessment, but to identify common trends, challenges, and successes as part of a learning exercise. Following data collection, respondent information was anonymized. Location and organization type are included in this report to compare trends, but are not linked back to participant identifiers.

LIMITATIONS

The research team sought to identify evidence for how DFS are used to engage women for the purpose of increasing their economic empowerment in agriculture and beyond production activities. However, little work has been done with the specific objective of economically empowering women working in agriculture and beyond production activities[7] through DFS. The research team gathered evidence from 22 individuals, which limits the study's representative power. FGD respondents had few and mostly anecdotal examples to share on the successes in using DFS to promote women's economic empowerment. Sources and respondents, however, did share evidence linking DFS to financial inclusion, which is used in this report to make a case for women's economic empowerment. Further, while the research team specifically targeted DFS providers to participate in the FGDs, it was often difficult to reach and engage them. Therefore, the research team focused on including only information that is specific to women in agriculture, and calling out opportunities for beyond production activities

[7] Beyond Production Activities- Refers to all agricultural value chain functions outside of production including but not limited to input and agricultural services, processing, marketing and retail sales. (Erin Markel and Lindsey Jones, "Women's Economic Empowerment: Pushing the Frontiers of Inclusive Market Development," USAID, 2015)

whenever possible, with much of the primary data coming from donors, implementing partners, and bilateral organizations focused on women's empowerment in agriculture.

FINDINGS AND WOMEN'S EMPOWERMENT PATHWAYS

Findings from the literature review and primary data collection are organized below by learning question.

LEARNING QUESTION 1: TOOLS AND SERVICES

What digital financial tools and services have been used in agriculture and food systems contexts to economically empower women, especially beyond production?

Among the number of tools that surfaced through the desk review and primary data collection, mobile money was most common as a means to support digital payments, as well as savings via digital wallets. Additional tools and services used to support access to digital credit, savings, payments, and insurance services in agriculture and food systems are outlined in the annexes. The evidence presented below indicates some instances where the use of digital tools and services had a positive effect on WEE in agriculture and beyond production activities through improved savings and income, increased autonomy over financial resources, improved agricultural production, and reduced vulnerability to risk and shocks. However, evidence of the effectiveness of these tools and services varies in different contexts.

FINDING 1: Women can benefit from digital payments by gaining more free time and money, increased capacity to save and invest, links to higher value markets, improved household bargaining power and control over their own finances, and less vulnerability to environmental shocks.

Digital payments are transfers of funds from one payment account to another using a digital device, such as a mobile phone or computer. Digital payments include bank transfers, transactions made with mobile money, and payment cards (e.g., credit, debit, or prepaid).[8] Much of the evidence on digital payments comes from Africa, particularly Kenya, where mobile money penetration is high, and where women-headed households were also more likely to use mobile money.[9]

[8] Better Than Cash Alliance, "How to define digital payments?" Better Than Cash Alliance website, last accessed October 29, 2021.
[9] T. Suri, and W. Jack, "The long-run poverty and gender impacts of mobile money," *Science* 354, no. 6317 (2016): 1288-1292.

Freeing up women's time. Two studies from Africa showed that mobile money may free up women farmers' time by reducing the time they spend on financial transactions[10,11] (for example, by reducing time traveling to a bank), and by allowing women to make their own decisions about what to buy and when, thereby increasing their investment in their businesses.[12] A randomized experiment of a cash transfer program in Niger compared beneficiary households receiving transfers in cash vs. mobile money. Authors found that the mobile money group was more likely to invest in productive activities than the cash group, a difference attributed to the time savings accrued with mobile money.[13]

Increasing income and savings. According to two studies, digital payments support greater income and saving overall for women. In Kenya, a study found higher income and consumption levels for smallholder households after they started using mobile money; also in Kenya, M-Pesa, a digital wallet and mobile money service, has reportedly lifted two percent of households out of poverty.[14]

Linking women to higher value markets and alternative forms of employment. Two studies from Africa found that digital payments are also linked with women accessing higher value markets and greater levels of self-employment and off-farm employment. These linkages could be a possible avenue for women farmers to engage in beyond production livelihoods. In Uganda for example, digital wallets allowed coffee growers, some of whom were women farmers, to transact with buyers located further away, allowing them to sell to buyers in high-value markets instead of to local traders at lower cost. The authors concluded that mobile money also alleviated cash constraints by encouraging higher levels of savings and increased engagement in off-farm income-generating activities, all of which allowed farmers to wait to sell their products when prices were higher, rather than sell immediately after harvest at lower prices. Farmers were also able to transact more easily with buyers from outside the region using mobile money.[15] In Kenya, a study showed that M-Pesa helped 185,000 women transition

Greater financial inclusion supports women move beyond subsistence and production

Kenya, M-Pesa helped 185,000 women transitions from farming to business occupations.

- Researchers concluded that greater financial inclusion allowed women to move beyond subsistence.
- It also allowed women to spread their time across multiple occupations, possibly beyond production activities.

[10] H. Sekabira, and S. Nalunga, "Farm Production Diversity: Is It Important for Dietary Diversity? Panel Data Evidence from Uganda," *Sustainability* 12, no. 3 (2020).
[11] Aker, J. C., R. Boumnijel, A. McClelland, and N. Tierney. "Payment Mechanisms and Antipoverty Programs: Evidence from a Mobile Money Cash Transfer Experiment in Niger." *Economic Development and Cultural Change* 16, no. 1 (2016): 1-37.
[12] H. Haider, "Innovative financial technologies to support livelihoods and economic outcomes," Prepared for the UK Government's Department for International Development Studies (IDS). Brighton, UK: Institute of Development Studies, 2018.
[13] J.C. Aker, R. Boumnijel, A. McClelland, and N. Tierney, "Payment Mechanisms and Antipoverty Programs: Evidence from a Mobile Money Cash Transfer Experiment in Niger," *Economic Development and Cultural Change* 16, no. 1 (2016): 1-37.
[14] T. Suri, and W. Jack, "The long-run poverty and gender impacts of mobile money," *Science* 354, no. 6317 (2016): 1288-1292.
[15] Sekabira and Nalunga 2020.

from farming to business occupations. The authors hypothesized that mobile money opened up greater access to remittances and/or increased agency over their own money, which allowed these women to move beyond subsistence agriculture, reduce their reliance on multiple part-time occupations, and move into business activities.[16]

Increasing women's agricultural investment. Evidence from a study on a mobile money cash transfer program in Nigeria suggests that households benefiting from mobile money are more likely to grow marginal cash crops cultivated by women.[17] Research looking across 16 countries in Sub-Saharan Africa found that women-owned businesses drive a "positive relationship between mobile money use and investment," which "is statistically insignificant for men-owned firms." Mobile money is also linked to greater provision of customer credit and greater demand for more credit by women-owned businesses.[18]

Improving control over finances and household bargaining power. Evidence from studies in Africa and Asia found that digital payments and mobile money can in some cases improve women's control over finances and household bargaining power. While it can be difficult for women to build personal savings in households where husbands control all finances, mobile money provides women an opportunity to control their income without relying on their husbands. Another positive element of digital payments for women is that they can more easily keep their financial transactions private, allowing them to discreetly manage their money if also supporting family members (e.g., husbands). By enhancing the privacy of transactions and/or preventing other family members from accessing them, DFS may, in some cases, allow women to maintain greater control over their finances than traditional financial services.[19] Further, in Kenya, mobile money made it easier for women in rural areas to request remittances from their husbands working in urban areas, empowering them to increase control over their finances.[20]
In Niger, a randomized experiment found that recipients of mobile money cash transfers had improved intra-household bargaining power compared to those who received cash.[21]

Reducing vulnerability to environmental shocks. A study in Tanzania found that mobile money helped villagers avoid a drop in consumption following a rainfall shock by allowing them to

[16] Suri and Jack 2016.
[17] J.C. Aker, R. Boumnijel, A. McClelland, and N. Tierney, "Payment Mechanisms and Antipoverty Programs: Evidence from a Mobile Money Cash Transfer Experiment in Niger," *Economic Development and Cultural Change* 16, no. 1 (2016): 1-37.
[18] A. M. Islam, and S. Muzi, "Mobile Money and Investment by Women Businesses in Sub-Saharan Africa," The World Bank, Policy Research Working Paper Series: 9338, July 2020.
[19] L. Klapper, "Digital Financial Solutions to Advance Women's Economic Participation: How governments, private sector and development organizations can bring more women into the global economy through digital financial services," Prepared for the Turkish G20 Presidency. Washington, D.C.: Global Partnership for Financial Inclusion, 2015.
[20] Morawczynski and Pickens 2009 in L. Klapper, and D. Singer, "The opportunities of digitizing payments: How digitization of payments, transfers, and remittances contributes to the G20 goals of broad-based economic growth, financial inclusion, and women's economic empowerment," prepared for the G20 Australian Presidency, Washington, D.C.: The World Bank, 2014.
[21] Aker et al. 2016.

have rapid access to remittances.[22] A panel survey data of mobile money users in Kenya found that shocks reduced consumption for non-mobile money users by 7 percent, but had no negative effect on consumption for people who did use mobile money.[23] Large use of remittances after a 2008 earthquake was also documented in Rwanda, though this was more common among wealthier people.[24]

FINDING 2: Women save more and have more agency over their income when they use digital savings accounts.

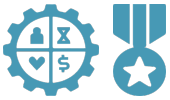
The desk review found evidence from Kenya, Tanzania, and Colombia that digital technology is expanding access to savings for women in agriculture through mobile savings accounts, also referred to as digital wallets. Digital wallets are a savings account that may be hosted in either a formal bank or in a non-bank institution. Some regulators are allowing non-bank financial institutions to offer interest-bearing mobile savings accounts, expanding access to savings for women in agriculture. In countries such as India, Mexico, Nigeria, and the Philippines, access is further expanding with tiered "know-your-customer"[25] requirements for lower-value levels of savings products. Nongovernmental organizations such as Agha Khan Foundation, CARE, and Oxfam are using digital technology to link savings groups to formal financial accounts across Africa, including Ghana, Kenya, Mali, Tanzania, Uganda, and Zimbabwe. [26]

A study from Kenya found that people using mobile financial services were more likely to save, and save more overall, than those who did not.[27] In Colombia, an online banking tool offering savings "pockets" designed for specific goals helped customers increase savings by 30 percent, compared to a group not using the pockets.[28] In addition, CARE's Digital Sub Wallet Program in Uganda found that when programs paired digital financial training with household dialogues on savings, more women participants signed up for new saving bank accounts using digital wallets, saved at the same rate as men, and 69 percent of them reached their saving goals.[29]

Evidence from two studies suggests that digital savings can also improve overall savings for savings groups and may increase women's autonomy over financial resources by enhancing the privacy of their income. The LINK Up project by CARE in Kenya and Tanzania linked informal savings groups, specifically village savings and loans associations, to savings products through banks. Women participants

[22] E. Riley, "Mobile money and risk sharing against village shocks," *Journal of Development Economics* 135, (2018): 43-58.
[23] W. Jack, and T. Suri, "Risk Sharing and Transactions Costs: Evidence from Kenya's Mobile Money Revolution," *American Economic Review* 104, no. 1 (2014): 183-223.
[24] J. E. Blumenstock, N. Eagle, and M. Fafchamps, "Airtime transfers and mobile communications: Evidence in the aftermath of natural disasters," *Journal of Development Economics,* 120, (2016): 157-181.
[25] Know-Your-Customer refers to a risk-based approach to regulations used by financial institutions where institutions reduce the documentation requirements for lower-level accounts as approved by the Financial Action Task Force. World Bank Group, "Mobile Technologies and Digitized Data to Promote Access to Finance for Women in Agriculture," Washington, DC: The World Bank, 2017.
[26] World Bank 2017.
[27] Ouma et al. 2017 as cited in Haider 2018.
[28] Oliver Wyman, "Accelerating Financial Inclusion in South-East Asia with Digital Finance," Prepared for the Asian Development Bank, Manila, Philippines: Oliver Wyman, 2017.
[29] CARE US, "Digital Sub-wallets and Household Dialogues Final Report," CARE 2020.

notably reported that digital savings allowed them to privately control their income.[30] Evidence also indicates that groups with accounts had higher returns, while group cohesion remained the same or improved. Additionally, women with group or individual accounts reported higher control over resources and ability to achieve financial goals. Women who left digitized groups returned because of increased trust in digital mechanisms. Finally, group accounts helped increase women's trust in the financial sector overall.[31]



FINDING 3: Digital alternative credit scoring systems are used by some DFS providers, which may lead to an increase in women's access to lending.

Digital lending is the process of applying for, disbursing, and managing loans through digital channels.[32] Collecting farmers' data into digital footprints can facilitate nontraditional or alternative credit scoring. Evidence from the desk review indicates that for women farmers, who may be unable to qualify for traditional loans, digital footprints may allow them to access credit through digital lenders who can use their digital footprints to inform credit decisions. Finding 4 further addresses digital lending and credit.

Measuring creditworthiness and justifying the cost and effort for banks of disbursing small loans are historical challenges of lending to the poor. Evidence from three sources shows that traditional credit scoring via digital channels is creating opportunities for populations who have traditionally been excluded from access to credit—including women—due to a lack of assets to collateralize and a lack of a formal credit history as assessed by credit bureaus.[33] Nontraditional credit scoring allows many of these populations to obtain credit scores based on alternative digital means, including their digital transaction history, agricultural production estimates, and psychometric assessments, among others.[34] These approaches can reduce the cost of lending for both the lender and the borrower and automate credit transactions, and have led to a proliferation of short-term microcredit products. Evidence on the magnitude to which these approaches are closing the credit gap for excluded groups is minimal, but emerging research shows potential. For example, in Peru, researchers found that a psychometric credit-scoring approach expanded access to credit for small and medium enterprises by 59 percent relative to traditional credit scoring without altering repayment behavior. In Kenya, offering a digital loan via M-Shwari was found to increase credit uptake by 11 percent.[35]

While the evidence base on the effectiveness of nontraditional credit scoring for women is limited, a large-scale initiative in Ethiopia has generated promising outcomes that may be relevant for women in agriculture seeking economic opportunities beyond production.

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[30] S. Hendriks, "The role of financial inclusion in driving women's economic empowerment," *Development in Practice* 29, no. 8 (2019):1029-1038.
[31] J. Arnold, S. Gammage, "Gender and financial inclusion: the critical role for holistic programming," *Development in Practice* 29, no. 8 (2019), 965-973.
[32] P. Lamont, A. Stewart, and K. Yaworkshy, "Demystifying Digital Lending," Cambridge, MA: Accion, 2018.
[33] P. Lamont et all., 2018.
[34] World Bank 2017.
[35] Bharadwaj et al. (2019), as cited in Benami and Carter 2021.

Program Snapshot

The Women Entrepreneurship Development Project was implemented by the Government of Ethiopia from 2012–2019.[36] It targeted growth-oriented micro and small enterprises owned or partly owned by women entrepreneurs with credit and training. The project aimed to reach the "missing middle" of businesses that are too large to receive funding from microfinance institutions and too small to get bank loans. The initiative partnered with LenndoEFL in 2015 to use a 45-minute psychometric assessment to generate credit scores for participants. The program adapted existing LenndoEFL technology by translating it into Amharic and adding more visuals for low-literacy clients. It found that clients scoring high on the assessment were seven times more likely to pay their loans back than those who scored poorly. Endline evaluation findings showed that participating firms receiving project services increased their income by 67.89 percent. However, only two percent of participating firms came from the agriculture sector, even though agriculture makes up about 75 percent of the workforce in Ethiopia.[37]

Several studies show that alternative credit scoring has performed well in predicting the creditworthiness of borrowers. Studies from Latin America and Germany have found that digital records can predict credit default, credit scores, and small-scale loan repayment.[38] Models using only digital footprint data performed as well as or outperformed predictions on small-scale loan repayment against information from credit bureaus.[39]

FINDING 4: New DFS services such as crowdfarming and pay-as-you-go approaches show promise in increasing women's access to credit and helping women develop credit history.

"Crowdfarming" is another digital approach, although nascent, that may have the potential to increase access to credit for smallholders. Crowdfarming links investors, also called "subscribers," to smallholders or small agricultural enterprises.[40] Subscribers receive in-kind or financial returns, typically ranging from 10 to 30 percent, on a quarterly or annual basis. Financial returns are divided among participating subscribers and the crowdfunding enterprise after the harvest season. According to a recent large-scale study of the digitalization of African agriculture by CTA, there are about 30 crowdfarming companies in Africa, following the success of Farmcrowdy in Nigeria. Given the diversity of business models among these companies, there is no definitive evidence on the effectiveness of these

[36] Alibhai, A. S., M. B. Achew, F. Strobbe, and R. D. Coleman. "Designing a Credit Facility for Women Entrepreneurs: Lessons from the Ethiopia Women Entrepreneurship Development Project (WEDP)." Prepared for the World Bank Group. Women Entrepreneurship Development Project, 2020.
[37] "Agriculture and Food Security" USAID website. Last accessed October 20, 2021.
[38] E. Benami, and M. R. Carter, "Can digital technologies reshape rural microfinance? Implications for savings, credit, & insurance," *Applied Economic Perspectives and Policy*, (2021): 1-25.
[39] International Finance Corporation, "Data Analytics and Digital Financial Services Handbook," 2017.
[40] M. Tsan, S. Totapally, M. Hailu, and B. Addom, "The Digitalisation of African Agriculture Report 2018–2019, pg.78" Wageningen, The Netherlands: The Technical Centre for Agricultural and Rural Cooperation (CTA), 2021.

approaches in increasing women's access to credit, although women smallholders' lack of access to credit is a well-documented barrier to WEE.[41]

Another source from the desk review additionally uncovered that digital technology is allowing for innovative asset-financing models that increase access to electricity, which may in turn support women's businesses beyond production. Pay-as-you-go (PAYGO) solar power offers an inclusive asset financing model that expands access by enabling poor households to acquire home assets through flexible digital payments tied to use. Other assets that can be acquired by the PAYGO model include lamps, charging stations, cookstoves, refrigerators, and water pumps. Since poor rural women (often engaged in agriculture) disproportionately bear the costs of energy poverty, particularly time costs, these assets can free up time for income-generating activities. PAYGO also helps such women generate digital footprints of their transaction history, acquire an asset that may be collateralized for future loans, and provide an on-ramp to greater access to formal finance.[42]

FINDING 5: Although there is some evidence that digital insurance, especially index insurance, can increase women's access to agricultural insurance services, there is no evidence of these services being successfully provided at scale at market rates.

Digital insurance products digitize registration, premium collection, and claims processing. In the developing world, agriculture insurance is generally focused on index insurance. In contrast to indemnity-based insurance products, which require individual-level loss assessments, index insurance payouts are made based on a predetermined index or model that calculates probable losses across a designated geographic area. This approach saves time and money compared to indemnity insurance.[43] Two sources from the desk review found that digital insurance products, such as index insurance services, especially digitally-enabled ones, are increasingly available and hold promise for women in agriculture globally. Digital technology has led to the development of accessible microinsurance products that can be purchased using airtime[44] and reduce the cost of insurance issuance and payments.[45]

[41] IFPRI 2021.
[42] FinEQUITY, "Applying a Gender Lens to PAYGo Solar," Presentation at FinEQUITY Webinar, June 15, 2021.
[43] R. Raithatha, and J. Priebe, "Agricultural insurance for smallholder farmers: Digital innovations for scale," prepared for the UK Government. United Kingdom: GSMA, 2020.
[44] Airtime is the chargeable use of a mobile phone, either in minutes or data.
[45] World Bank 2017.

Program Snapshot

ACRE Africa, the brand name of Agriculture and Climate Risk Enterprise Ltd. (ACRE), and former Kilimo Salama initiative, links farmers to insurance products. ACRE Africa is not an insurance company, but rather a service provider working with local insurers and other stakeholders in the agricultural insurance value chain.

Through partnerships with local insurers, ACRE Africa has tailored agriculture microinsurance and insurance products that vary from crop, livestock, and index insurance to shield farmers against unpredictable weather conditions. It has also been able to undertake risk assessment and risk monitoring to facilitate access to crop and livestock insurance products for smallholders. ACRE Africa, which has cumulatively served almost 1,000,000 farmers with 46 percent of them being women, has allowed smallholder farmers in Kenya, Tanzania and Rwanda to confidently invest in quality inputs, increase their productivity, and access agricultural loans.[46]

There is also evidence that digital technology helps insurance reach users faster and at a lower cost. In one study on the Index-Based Livestock Insurance program in arid range lands of Northern Kenya, the program faced difficulty locating clients hit by the 2011 drought. However, once they switched to digital insurance payouts via mobile money they were able to deliver their services more efficiently and at a reduced cost.[47]

Two additional sources have provided evidence that index insurance pilots have shown a positive effect on investment in production technologies and income, benefits for women smallholders, and the ability to reach thousands of farmers previously considered "uninsurable."[48] This is demonstrated in the Rural Resilience Initiative (R4) in Ethiopia, where insurance allowed farmers to invest more in agricultural inputs, and in India, where farmers were able to invest in higher risk production systems with the protection of insurance.[49] ACRE Africa reported a 16 percent increase in earnings and a 19 percent increase in investments by insured farmers compared to their uninsured neighbors.[50] A recent assessment of the R4 program showed that innovations in insurance are currently benefiting women farmers as much as or more than men–potentially a result of the program's gender targets.

In addition to agricultural insurance, there are also documented benefits of DFS when it comes to health insurance. For example: "[t]he Kenya National Hospital Insurance Fund (NHIF) used mobile money to facilitate premiums collection among informal sector populations. To accommodate the irregular incomes of informal sector workers, NHIF used M-PESA to allow incremental payments for monthly

[46] ACRE Africa "About us," 2021.
[47] Benami and Carter 2021.
[48] H. Greatrex, J. Hansen, S. Garvin, R. Diro, M. Le Guen, S. Blakeley, M. Le Guen, K. Rao, and D. Osgood, "Scaling up index insurance for smallholder farmers: Recent evidence and insights," Copenhagen, Denmark: CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS), 2015.
[49] Greatrex et al., 2015.
[50] Greatrex et al., 2015.

premiums, which helped reduce penalty charges for missed payments. M-PESA also lets family and friends send remittances to cover premium payments."[51]

However, uptake of index insurance at commercial rates is still low, potentially limiting the sustainability of its impact. After a number of pilots, there is still no evidence of strong demand for index insurance at market prices, and no products have successfully reached scale on the private market.[52]

Three sources suggest that farmers are not willing to pay commercial rates for index insurance because of the risk that coverage provided will not correspond to their individual losses, also known as the "basis risk" inherent in using an index, which measures covariate risk, vs. measuring individual or idiosyncratic risk.[53] Index insurance may become more viable as technology, such as advancing earth observation technologies, makes indices more accurate and reduce basis risk.[54] Other innovative approaches are also emerging to make insurance more appealing to farmers by reducing basis risk. For example, picture-based insurance allows farmers to photograph their crops to demonstrate proof of damage. In India, farmers were willing to pay higher prices for picture-based insurance within a weather-based index than for index insurance alone.[55] However, demand for these products was analyzed at subsidized rather than market rates.

FINDING 6: DFS can help bypass cultural constraints on women's mobility that limit access to financial services.

Seven respondents from the primary data collection reported that cultural norms restricting mobility can be a limiting factor for women's access to DFS. However, five respondents representing implementing partners and DFS providers in Africa, Asia, and Latin America shared that by using DFS women can avoid traveling to banks, which can be time-consuming, difficult with children to look after, or, if culturally inappropriate for women to travel, expensive and risky.

> *"One of the things we have always found is that being able to (stay) where they are and avoid trips to the branches of the entities or to the urban areas is something that the women are very grateful for, because they really spend their time working the land, tending to their families, and they are even leaders in their communities. Therefore, (they value not) having to travel to access a loan and being attended to directly on their plots of land." – FGD Participant, DFS Provider*

Two respondents, a digital lender in Nigeria and an implementing partner who has worked in Bangladesh, demonstrated how DFS can help women participate in the market from home. A project in Bangladesh registered women dairy farmers, who are often unable to physically go to market, with an

[51] USAID "The Role of Digital Financial Services in Accelerating USAID Health Goals" 2019, 12.
[52] Jameel Poverty Action Lab 2016 as cited in McIntosh, C., and C. S. Mansini, "The Use of Financial Technology in the Agriculture Sector," *Asian Development Bank Institute 872*, (2018).
[53] Smith, V. H., and M. Watts. "Index based agricultural insurance in developing countries: Feasibility, scalability and sustainability." *Gates Open Res* 3, no. 65 (2019): 65.
[54] Benami and Carter 2021; Tsan et al. 2021.
[55] F. Ceballos, B. Kramer. "From Index to Indemnity Insurance Using Digital Technology: Demand for Picture-based Crop Insurance." Washington, DC.: International Food Policy Research Institute, 2019.

identification card linked directly to their mobile money account. Women could then send a male relative to sell the milk in their place and have the proceeds upload directly to their mobile money account. In Nigeria, the digital lender noticed that women in rural communities do not have access to meetings for farmers' association cooperatives, where training and input financing are often marketed. The provider mentioned how digital services are an opportunity to engage women who would not be able to access financing through these traditional channels.

LEARNING QUESTION 2: LIMITING AND ENABLING FACTORS

What are the limiting and enabling factors for women's access to and use of digital financial tools and services?

FINDING 7: A range of factors, primarily influenced by social and cultural norms, influence women's ability to use and their ease of access to digital financial services.

The desk review and primary data collection demonstrated that restrictive gender, social, and cultural norms underly any limiting factors of women's access to DFS. Broadly, noting that gender, social, and cultural norms vary across contexts, the research found that barriers to women's access to and use of digital finance include low digital and financial literacy rates among women, women's limited access to and control over mobile phones, lack of control over assets that can be used as collateral, limited mobility, limitations on women's control over money and financial decisions, low or no household bargaining power, mistrust, and the potential for violence from male family members.

Digital and Financial Literacy. Evidence from the literature and 11 respondents representing DFS providers, private-sector and implementing partners, and donors across Asia, Africa, and Latin America and the Caribbean (LAC) showed that both digital and financial literacy are a barrier to women's use of DFS. In addition, these mentioned that DFS use is typically lower for women than men in Feed the Future countries, particularly in rural areas. Digital literacy challenges shared by respondents included (1) women's inability to read or send text messages on their phones, (2) lack of understanding on how to use mobile devices to access money or financial services, (3) a lack of confidence in using digital services, and (4) language barriers. For example, in Honduras, an implementing partner wanted to disseminate a mobile financial app, but it was in Spanish and the women in the rural community only spoke an indigenous language. Additionally, respondents from LAC noted the importance of basic training for women on how to use and access apps on their mobile devices.

Digital financial literacy can be an obstacle for women when social norms restrict women's access to and agency over digital technology and financial services.[56] Globally, there is a gender gap in ownership of financial accounts.[57] In many economies, women experience low financial independence—where women require some level of financial support and have minimal decision-making power over financial decisions—paired with unequal access to education, which reduces their opportunity to develop

[56] NetHope, "Building Resilient and Inclusive Digital Ecosystems: A Toolkit for Using Digital Payments in Development Programs," Prepared for the United States Agency for International Development, Fairfax, VA: NetHope, Inc., 2020.
[57] Demirguc-Kunt, A., L. Klapper, D. Singer, and S. Ansar. "The Global Findex Database 2017: Measuring financial inclusion and the fintech revolution." Washington, DC.: World Bank, 2018.

financial literacy.[58] A private-sector partner in Kenya mentioned when talking about women's knowledge gaps:

> *"From my experience, there's a lot of financial literacy knowledge that is lacking. There's also (the issue of) culture, where in most African cultures, you don't expect the woman to be leading in terms of making decisions around money. – FGD Participant, Implementing Partner*

Access to Mobile Phones. Access to mobile phones is lower for women than men globally, with 84 percent of men and 74 percent of women owning a mobile phone in developing countries. This varies substantially by region; South Asia and Sub-Saharan Africa have the highest gender gap in mobile internet use at 36 percent and 37 percent respectively.[59] In Bangladesh, mobile phone ownership is low overall at 20 percent, but it is much lower for women at only 10 percent.[60] Access is much higher in Sub-Saharan Africa, but varies across the continent. In East Africa, both men and women are likely to own a mobile phone, while in Niger and the Democratic Republic of the Congo, women are 45 percent and 33 percent less likely to own a phone than men.[61] Five DFS providers in Asia, Africa, and LAC cited this discrepancy as a challenge to reaching women, particularly in rural areas where fewer women and smallholder farmers have access to mobile devices than in urban areas, and where a phone may be shared among many people.

A further, far-reaching challenge in reaching women through DFS is that women are less likely to own smartphones, so the service may not be designed with women in mind, according to a respondent working in alternative credit scoring. Gender gaps in mobile phone ownership and mobile money accounts can jeopardize product uptake.[62]

Access to Assets for Collateral. Provider and implementing partner respondents from the Africa and LAC regions identified challenges for women in meeting collateral lending requirements, such as land tenure, as a barrier to accessing digital lending and, de facto, accessing credit and loans more broadly. In places where women are permitted to own land, cultural norms may still prevent official ownership by women, according to respondents. The literature as well as five respondents indicated that without documentation (e.g., identification cards, land titles), women's access to financial services and loans is quite limited.[63]

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[58] Klapper 2015.
[59] GSMA, "The Mobile Gender Gap Report," 2021.
[60] International Monetary Fund, and World Bank Group. "Fintech: The Experience So Far." IMF Policy Paper, June 27, 2019.
[61] Arnold and Gammage 2019
[62] P. Varangis, J. Buchenau, T. Ono, R. Sbero-Kessler, and A. Okumura, "Women in Agriculture Using Digital Financial Services: Lessons Learned from Technical Assistance Support to DigiFarm, Fenix, and myAgro," Washington, DC: The World Bank, 2021.
[63] R. Goodwin-Groen, L. Klapper, M. Miller, and A. Woolonough, "Advancing Women's Digital Financial Inclusion," prepared for the G20 Global Partnership for Financial Inclusion, Better Than Cash Alliance, Women's World Banking, and World Bank Group, 2020.

Mobility. As indicated by three sources and three respondents, gender norms can often prevent women from traveling away from home or for long distances, especially in rural area that are far away from areas of economic activity, and therefore reduce women's access to financial services, mobile money agents, or even the ability to purchase a mobile phone.[64] In many contexts, stereotypical gender roles require women to spend a large portion of their time on domestic duties, which can limit their mobility.[65] Cultural or religious norms can also limit women's mobility; for example, a representative of a bank in Bangladesh mentioned that in Islamic areas, women must stay within the home and depend on female service agents for access to DFS.

Financial Decision-Making and Household Bargaining Power. Two respondents representing private-sector partners and implementing partners, along with three desk review sources, highlighted how women's lack of control over financial decisions and low household bargaining power present a challenge to women utilizing financial services at all.[66] Though there has been an increase in financial inclusion worldwide, with increases in the number of adults with bank accounts, the gender gap remained unaltered between 2011 and 2018.[67] Where cultural norms dictate that men handle finances and financial decisions, women do not open bank accounts, apply for loans, or interact with banks.

Trust and Violence. Two respondents, one bilateral organization in LAC and one Uganda-based implementing partner, shared that women may face distrust and even gender-based violence from their male relatives if they access mobile and digital financial services. According to the respondent from Uganda, there is a belief among some men in Uganda that women will use mobile devices to do something untrustworthy, such as engaging in romantic affairs. Further, the use of DFS by women has the potential to invoke gender-based violence against them because their male relatives do not want them to be economically independent or empowered.

FINDING 8: When women are not perceived as farmers or household decision-makers, lending and service providers fail to identify them as potential customers, and fail to cater products and services to meet the needs and preferences of different segments of women customers.

According to the desk review as well as six respondents representing implementing partners, private-sector partners, and DFS providers in Africa and Asia, cultural, social, and gender norms may often pose a barrier on the supply side to reaching women with DFS.[68] Such norms may prevent providers, projects, and communities from seeing women as farmers, and therefore potential customers of DFS to invest in. Even in cases where men migrate away from their homes and women become the de facto heads of household and farm, evidence showed that women were often still not seen as farmers who need loans to invest in agriculture. Some respondents noted that often providers or implementers will only speak with men, assuming they are the heads of household, that women are often producing fewer

[64] Duflo 2012 and Doss 2013, as cited in Hendriks 2019.
[65] Goodwin-Groen, Klapper, Miller, and Woolonough 2020.
[66] Klapper 2015; Goodwin-Groen, Klapper, Miller, and Woolonough 2020.
[67] Robino et al. 2018, abstract.
[68] H. Schiff, E. Hernandez, "Channeling Women's Potential to Strengthen Last-Mile Agent Networks," *CGAP (blog),* June 22, 2021; P. Nelson, "FinTech Partnerships Playbook: How Donors can Pursue Private Sector Engagement to Strengthen Digital Finance Ecosystems," 2019; World Bank Group 2017, 19.

high-value commodity crops and more food crops, and therefore are not targeted as customers, and women are self-selecting out of the market because they do not see their farming activities as having potential for growth and do not know that they could access financing to do more with their farms.

> *"The private sector has really been slow to accept women as customers…the landscape has really changed [in Nepal] such that with the outmigration of men over the last decade, women have become the de facto head of household, the de facto farm managers, the de facto money managers within the household, and yet the entire (private sector) business model is still based entirely around doing business with men." – FGD Participant, Implementing Partner*

As a result, financial service providers, and by extension DFS providers, often fail to collect the data needed to understand women's digital financial needs.[69] Providers thus fall short in serving women, and lack a deep understanding of the barriers and incentives women face when access or using DFS.[70] As a result women, as well as the elderly and rural poor, may not be targeted for services nor have services available that meet their needs. Furthermore, women as a user group are not a monolith, and additional segmentation among women is necessary to improve their access to DFS.[71]

The World Bank has developed a typology of "personas" representing different DFS users among women in agriculture, which DFS providers could use as a model to segment women clients, visualize them as possible clients, and create strategies to work with them. These personas include smallholder farmers from female-headed households, smallholder farmers from partnered households, women laborers, and women owners of agribusinesses and MSMEs.[72] Smallholder farmers from partnered households are further divided into three groups: contributors, collaborators, and main proprietors. Contributors are somewhat involved in subsistence farming, but mostly engaged with domestic tasks, collaborators work jointly with their husbands on farming in addition to household tasks, and main proprietors exercise full control over decision-making related to finances and income-generation.

Based on the World Bank's analysis, DFS needs varied among these different user segments in significant ways. For instance, while services like credit scoring were identified as relevant to all user segments, it was seen as most relevant for agribusiness owners and least relevant to laborers. Agricultural extension services, on the other hand, were identified as most relevant for smallholders from female-headed households and, again, least relevant for laborers.

Further, respondents noted that decision-makers in companies and organizations do not realize that women are being excluded. Together with the above market research challenges, this results in inappropriate product offerings, lack of gender-specific policies and practices, inappropriate distribution channels, lack of participation in formal farmer organizations or receipt of extension services, and lack of access to market information for pricing.[73]

[69] Schiff and Hernandez 2021; Nelson 2019.
[70] Nelson 2019, 10.
[71] Varangis, Buchenau, Ono, Sberro-Kessler, and Okumura 2021.
[72] World Bank Group 2017.
[73] World Bank Group 2017, 19.

Respondents noted the importance of partners, banks, and providers understanding the business case for reaching women. They also noted that there needs to be buy-in from commercial partners and DFS providers so that the tool can be used beyond the program cycle. An implementing partner working globally shared that often financial institutions are not necessarily the partners best aligned with development needs, and that it is important to find a partner who already recognizes or are open to recognizing how inclusion is important for their business.

> *"We're very focused on sustainability and the ability of solutions to be offered once the project ends. We don't want things to stop when our project stops. So, (it's important to) identify the business case for lending to new segments, and often our work in agriculture is new to different value chains. Agriculture is already considered one of the riskier sectors to lend to and within that, some value chains are considered riskier than others. This really forces us to identify the business case for lending to these sectors." – FGD Participant, Implementing Partner*

FINDING 9: Despite the demonstrated benefits of DFS, women continue to prefer cash for commercial transactions.

The desk review and primary data collection with two DFS providers in Africa and Asia showed evidence that there is a need to raise awareness among women of the value in using DFS, as opposed to cash. In rural communities, cash is the biggest competitor to DFS because it's easily available, trustworthy, does not require an agent, and is free to exchange. Women also tend to spend in smaller amounts than men, which can make cash more convenient. Further, while cash is readily available, digital wallets and mobile money require networks of users for exchange, which can take time to build up. A DFS provider noted that because mobile money incurs transactional fees, they have found success by subsidizing the costs of services to provide them free of charge. This makes transactions more affordable, convenient, and accessible and minimizes travel in rural communities. However, the respondent did not provide clarity on how subsidizing was viable for their business.

> *"Cash is our biggest competitor. They know it is familiar, is trustworthy, they use it every day, they can hide it in their pocket. They can put it in a tin can buried in the backyard. So, here we come with our fancy digital technology assuming they think it's better (and) they don't, we have to persuade them. And if you tell them they've got to pay a fee to use it, oh it's game over. So, the very first thing we learned was the price must be free, it's got to be free, or you cannot compete with cash, it's just a non-starter." – FGD Participant, DFS provider*

Desk review sources noted that providers use several strategies to stimulate demand in order to expand women's access to DFS, such as offering promotional pricing for mobile devices, offering incentivized transaction pricing to encourage and reward use, charging reasonable fees, and promotional campaigns to build customer's digital literacy.[74]

[74] World Bank 2017, p. 19.

Strategies used to stimulate women's demand and access to DFS

"In 2014, when Dnet started disbursing incentives via mobile payments, Khadija was required to open a mobile money account with bKash. She received training on how to use her account and learned about its potential benefits. Khadija now uses her account to send money to her relatives in her village, which she previously did via a courier service."

"Despite such immense opportunity for IFR through DFS channels, promotion of these channels for such purposes is still in a nascent stage."

"bKash, SureCash, ROCKET and a few other MFS providers also enable parents or other family members to pay school fees digitally - offering them flexibility to pay in smaller increments or prepay, as their budgeting allows."

"Relevant stakeholders can implement and design awareness and education campaigns promoting the potential benefits of digitization catered to garments workers such as Khaleda. These could highlight other relevant services, such as paying school fees through her MFS account, which would help in avoiding trips to the school and thus will save her time."

"Relevant stakeholders could invest in financial literacy and awareness programs or campaigns catered to the urban crowd such as Rizwana, where they could highlight other relevant features of digital financial services - utility payments, insurance, deposit premium scheme (DPS), etc.

Providers could deploy relevant data to evaluate customers such as Rizwana's needs and reflect those in product design and promotion. Examples include loyalty programs and saving schemes."[75]

[75] USAID: T. Sinha, C., Highet, "Guide to Increasing Women's Financial Inclusion in Bangladesh Through Digital Financial Services," (2017) pgs. 13-21 USAID

FINDING 10: Lending policies, practices, and regulations that protect women have a positive impact on women's access to and use of DFS.

The desk review and primary data collection identified that gender-intentional lending practices and regulations that protect women can improve women's access to DFS. The World Bank has identified five practices for improving women's uptake, which include tiered know-your-customer account requirements, alternative credit scoring, intangible collateral, improved land registries, and improved reporting of transactional data to credit agencies. Since women are less likely to have a formal ID than men, relaxed know-your-customer requirements can open up access to financial accounts for large numbers of women. Alternative credit scoring mechanisms can track the types of transactions women are more likely to engage in, promoting women's access to credit. [76]

> The Alliance for Financial Inclusion has issued guidelines on promoting women's financial inclusion through setting explicit policy objectives and sex-disaggregated targets; collecting and analyzing sex-disaggregated financial data; reforming legal and regulatory frameworks to enable innovation for women's inclusion; refining consumer protection regulations to ensure they are gender sensitive; improving financial education and literacy; and implementing gender equality policies to eliminate discriminatory laws and practices.[78]

Four DFS providers in Asia, Africa, and LAC and one implementing partner shared that regulatory policies may positively affect women's uptake of DFS, namely by promoting DFS and protecting users from fraud. Regulations that promote DFS uptake for women include gender-sensitive consumer protection regulations and eliminating discriminatory laws and practices.[77] One implementing partner in Nepal mentioned the need for policies to promote DFS and increase accessibility through government subsidies and technology.

LEARNING QUESTION 3: LESSONS LEARNED AND BEST PRACTICES

Where present during data collection, what are the lessons learned or best practices exemplified by these digital financial tools and services, and how might they be scaled?

FINDING 11: To address cultural barriers and improve women's participation in DFS, implementing partners use a range of approaches, such as human-centered design and quotas, in the design and implementation of their tools and services.

Respondents engaged in primary data collection broadly emphasized the use of human-centered[78] and system approaches, building a business case, and utilizing key monitoring and evaluation measures to improve DFS uptake. Specifically, six respondents, three implementing partners, two DFS providers from

[76] World Bank 2017.
[77] V. Bersudskaya, L. Chassin, D. Dian, I. Musat, and A. Wildt Dagneaux, "Digital Transformation of Microfinance and Digitization of Microfinance Services to Deepen Financial Inclusion in Africa," prepared for the Alliance for Financial Inclusion. Brussels, Belgium: PHB Development Group, 2018.
[78] Human-Centered Design is an approach to product creation that studies the needs, challenges, and opportunities faced by the intended customer. It requires validation, testing, and iteration.

the Africa and Asia regions, and one private-sector partner, cited the importance of designing digital financial services, tools, products, and programming through human-centered approaches with a gender lens. Respondents from various regions noted the need to develop DFS activities and products within the cultural context and with target audiences, particularly women, in mind. There are many considerations, such as gender gaps in digital literacy, geographic location, convenience, and labor burdens, that respondents noted should be taken into account when developing such products and services. Several respondents also pointed to the need to integrate their DFS tools or products into women's day-to-day habits and within cultural contexts in order to be successful at reaching them. Furthermore, one respondent stated that interventions need to go beyond providing finance and address women's negotiation power and behavior change.

Additionally, the desk review and primary data collection indicated the use of quotas to target women for DFS activities. Private-sector respondents who discussed the use of targets indicated that partnerships with donors or implementing partners often required these quotas, which they kept in place after the project ended. One respondent, a digital lender in Nigeria, used quotas to ensure women participated in their DFS activities, noting how cultural norms had reinforced women's exclusion. The lender's quota system requires at least 40 percent of the smallholder farmer clusters they work with to be made of up of women.

> *"So, these cultural and social (norms are) very, very real… barriers (to technology) …We realized that in terms of making sure these tools were really relevant to our broader clientele, particularly women, we needed to make their use part of their everyday lives, integrate them in use cases that that are super relevant and in in the same vein, provide them with assisted services and that (support that) ecosystem. So, we first introduced mobile money through our savings products." – FGD Respondent, DFS Provider*

FINDING 12: Despite a growing number of sophisticated high-tech approaches to expand access to DFS, simple, low-tech approaches continue to serve users.

The desk review showed a proliferation in the use of historically non-financial digital solutions that has revolutionized DFS, such as artificial intelligence, data mining, and algorithmic computing. Respondents from primary data collection, however, were quick to point out that many rural women are more comfortable with simpler platforms. For example, a digital platform provider in Africa uses an SMS-based approach, having identified that the majority of their clientele are still best served through an SMS platform despite the growing prevalence of smartphones and use of mobile applications in rural areas.

> *"We see that smartphones and mobile money and applications are increasingly becoming more available in rural areas. It's still a minority and I think that the fact that our solution is based as an SMS system makes it also more available. Sending a SMS is something that almost all women know how to do.[79] It doesn't require you to have a smartphone, you can do it with a normal phone. That said, we are also evolving and*

[79] Literacy rates vary from country to country, and the ability to use SMS is linked to literacy. Therefore, higher literacy rates would contribute to a higher ability to use SMS.

we are also now looking into how to integrate mobile money, but I think that it is still a big percentage of our clients that are just better served with the SMS." – FGD Respondent, DFS Provider

Finding 13: Product design and marketing strategies that respond to existing market structures and to women's needs are used by implementing partners and DFS providers to increase and sustain women's use of DFS.

The desk review and primary data collection highlighted the importance of designing and marketing to women with their needs in mind. Two implementing partners, one from the United States and one from Kenya, discussed the importance of taking an ecosystems approach to providing DFS services, working within existing markets to ensure that their product or service fits within the current market structure for sustainability, and does not end with the program cycle. Many respondents provided specific program examples of partners they work with in the marketplace, including other businesses, banks, financial partners, and governments. In addition, a private-sector provider in Africa noted that working with partners who do not have a goal of women's inclusion can present a challenge for reaching women with DFS services.

Both literature reviewed and primary data respondents indicated the need for DFS to be relevant to women. For example, women often grow specific "women's crops" with unique cycles that require investment at specific periods; to improve uptake by women, service providers can better align their products with these unique investment cycles. Further, two participants from Africa noted that DFS are sometimes bundled with information services to add value to users in agriculture. The desk review showed there is evidence that some governments and private-sector providers are providing digitized information on transport sources, farm product availability, input availability, and location of buyers in digital marketplaces.[80] Examples of this include digital marketplaces/e-commerce platforms linking buyers and sellers, agricultural extension services that can also be digitized, and localized geographic information on agricultural conditions. Four respondents cited the use of digital tools that bundle and link farmers to input providers. One aspect of this approach is to create a supplementary service to a DFS tool that bundles inputs for increasing production; another is connecting smallholder farmers' loans directly to input providers.

Two implementing partners with global reach and one Africa-based private-sector partner cited the approach of bundling additional services and training through digital channels alongside digital financial services. These services and training are related to the overall well-being of the user, particularly women, by providing information and sensitization on topics such as financial inclusion, education, and health. A private-sector partner noted that this is a holistic approach to accompany digital financial services.

"Bundling is key to sustainable deployment in the long term. (For example) - if you create a new agricultural input, you're not going to try to open a store in each village…. - what you need to do is to peg your service

[80] World Bank 2017.

into an existing business environment at the community level so that service (uses existing) distribution channels and doesn't die off." – FGD Respondent, Implementing Partner

In marketing DFS, providers and implementing partners suggest using social networks in which women already participate. Service providers can use farmer groups to reach larger numbers of women with promotional content. Agent networks can also be used to expand access to DFS. Six respondents described a variety of ways to use agents to provide DFS services. For example, agents can have a variety of responsibilities, such as providing technical advisory services and educating customers on how to use the DFS tool or product. One implementing partner's agents double as agro-input dealers in Asia; a DFS provider in Africa stated that the agents often use the DFS tool or product on behalf of farmers who do not already know how to use it. Two DFS providers in Asia also explained that their agents start by providing hands-on training to customers on how to use the DFS product or tool, but once they train users, they shift to acting more as resource entities.

A lender in Africa noted that agents are a point of access for financial services, and that increasing agent networks increases those points of access and includes more people in the financial economy. On the other hand, a private-sector partner stated that using agents does not work because agents are "too few and far between," requiring customers to travel long distances to access services, and it is very costly to set up and train agents. There is also an opportunity cost for agents, who would be unable to sustain their own businesses while also working as an agent; this also may lead to high turnover.

FINDING 14: Implementing partners and providers use trusted social ecosystems to support the uptake of DFS.

Several respondents, including private-sector partners, providers, and bilateral organizations, worked with microcredit organizations, local banks, local schools, existing savings groups, local churches, farmers groups, and cooperatives to reach farmers and/or women and teach them how to use a DFS product or service to access credit, loans, or savings. One respondent wanted to tap into "the trust circles that are already in place" within the community. A private-sector partner in Africa also noted that there is trust in financial services when transactions can be done with actors in the community with whom an individual has an existing relationship and trust.

DFS providers, implementing partners, and donors across Africa, Bangladesh, and LAC discussed the importance of trust in DFS; women need to trust DFS, and those introducing them to DFS, to use them. It takes a long time to build trust in DFS and it is very easy for people to lose that trust. If people are unsure about using mobile money and can't access it, they may give up. Some respondents shared that this is particularly critical in working with women. In Bangladesh, some DFS users withdraw money as soon as they receive it digitally because they are afraid to keep it in the mobile account. The Nepal-based implementing partner explained that finding people within the community to promote DFS is important to achieving scale, because people who already have established trust with that person will trust what they are promoting.

Especially in cases where there is limited adoption of digital technology, more traditional forms of engagement, such as meeting as a savings group, can help bridge the gap to DFS adoption, even more so

when strong social ties are present. Four DFS providers from the Asia, Africa, and LAC regions created women's savings groups to provide DFS services. A mobile savings provider in Africa provided money directly to groups, while three other respondents used savings groups to provide DFS technology, such as digital wallets, and encourage private savings. The mobile savings provider in Africa stated that group savings can be ineffective if one member doesn't pay back a loan or loses the money, so they instead encourage them to save privately, but teach them how to do so as a group. Another respondent stated that these groups are formed to use the social networks within a community because they believe that "women's economic empowerment has to happen as a community."

> *"So, we work with local churches, we work with local schools, we work with farmer groups, existing savings associations where women are already meeting, and we can then kind of tapped into the trust circles that are already in place. This actually benefits us in many, many ways." – FGD Respondent*

FINDING 15: Training can help facilitate women's uptake of DFS.

Historically, women have been found to save more in traditional cash-based savings groups, preferring them for ease and convenience, as well as due to fear of using digital savings tools. Once women feel comfortable with digital savings, and there is infrastructure that supports its operation, they rarely go back to non-digital savings. This could be because there is often a large mental chasm that needs to be overcome when convincing people, particularly women who have less digital and financial literacy, to adopt DFS. One of the ways in which that transition can be made easier is through training that employs human-centered design methods to convince women of the benefits of DFS.[81] Many respondents discussed providing training on how to use DFS tools with customers. Training topics included financial literacy, how to use the DFS tools or products, and why using the tools is important and useful. For example, one DFS provider mentioned the importance of making it clear to the consumer why the DFS tool is useful and needed before beginning training on the tool itself. One Nepal-based implementing partner also noted that they couple financial literacy training with agricultural production training. This took the form of hands-on training with the technology, using worksheets to teach savings, radio broadcasts targeted to users, and step-by-step training on the products. Two DFS providers also noted the importance of doing consistent training rather than something that is one-off to make sure users understand how to use the product or tool. In addition, two DFS provider respondents mentioned starting out with training and phasing out to have a representative/agent as support when needed.

> *"Several studies have shown that women make good use of the training they receive and are open to using new technologies if these will ease their responsibilities. Simple interfaces and human touchpoints for support ensure higher uptake of tools such as digital financial services." (Building Resilient and Inclusive Digital Ecosystems: A Toolkit for Using Digital Payments in Development Programs 2020)*

[81] "The Business Case for Financial Inclusion of Female Smallholder Farmers." Prepared for Mastercard Foundation. Nairobi, Kenya: AGRA, 2020.

CONCLUSIONS AND RECOMMENDATIONS

CONCLUSIONS

Digital financial tools and services have the potential to positively affect WEE by providing women access to the resources and agency required for economic achievements such as improved savings and income, increased autonomy over financial resources, improved agriculture production, and reduced vulnerability to risk and shocks.

DFS can provide a pathway to economic empowerment for women in agriculture. Evidence shows that digital payments, savings accounts, and credit can free up women's time and provide women with more agency over their income and savings. DFS is also shown to support women in making decisions about agricultural production and productive resources, and may ultimately increase agricultural investments and reduce their vulnerability to environmental shocks. While digital insurance may ultimately support women to increase their investment in agricultural production, this study found that many women are opting out as, in many contexts, digital insurance has yet to exhibit market value.

Women experience differentiated resource and agency limitations that restrict their access to and use of financial resources and services, largely influenced by cultural and gender norms.

When resources such as literacy, mobile phones, and collateral are limited due to cultural norms or other socioeconomic structures, this study found that women may be prevented from using digital financial tools to exercise agency over financial decisions. Gender norms were also shown to affect whether DFS providers saw women as customers, ultimately limiting women's use of DFS. Further, the byproducts of sociocultural and gender norms—such as limited mobility, mistrust from male relatives, or the threat of gender-based violence—were shown to discourage women from exercising agency over financial decisions. Where these norm-driven barriers exist, the potential economic achievements for women promised by DFS are limited.

When providers and implementers take women's needs and limitations into account to reach them where they are, women experience increased access to financial resources and services, increased agency over financial decisions, and increased economic achievements.

Lending policies, practices, and regulations that protect women result in increased confidence in exercising agency over financial decisions while using DFS for increased economic achievement.

Quota requirements and targets, women-centered product and service design and dissemination, and training support women's access to DFS resources. Low-tech approaches, such as SMS, are a resource more commonly available to women. Designing for women, with cultural and social nuances in mind, takes into account women's needs around resources and agency. Training improves digital and financial literacy and supports women's agency through improved self-confidence in the use of the tool through consistent touchpoints.

Gender-intentional lending practices and regulations protect women and improve women's access to DFS resources. Relaxed know-your customer requirements, where women do not need to have formal

IDs, alternative scoring systems, and regulations against fraud also improve women's uptake of DFS and tools and agency over financial decisions.

Lending and service providers need a strong business case to see the commercial opportunity of targeting women and meeting their needs.

Evidence indicates that, overall, the private sector has been relatively slow in recognizing women as customers, and in developing DFS tools and services that cater to women's needs in the agriculture and beyond production spheres. In addition, when the private sector does cater to women, they do so in monolithic ways not understanding the nuances of the different types of women populations.

The role of the DFS provider, as a provider of technology and services, and as a key resource for women's uptake of DFS, needs to be further explored to understand what makes a DFS efficient, especially in introducing women to technology and supporting its uptake.

Training is an important factor for women's successful uptake of DFS and can be incorporated into other types of training that are already being provided, such as that for agricultural production.

Women face digital and financial literacy issues, such women's inability to read or send text messages on their phones, lack of understanding on how to use the mobile device to access money or financial services, and lack of confidence in using digital services, which must be addressed if providers hope to see their uptake of digital financial tools. Resources such as training on the tool or service will need to include literacy training, and may require more touchpoints for women than for men as women overcome these literacy barriers. Training should additionally account for women's other needs and limitations that may limit their agency, such as time burdens, mobility, and the ecosystem of social networks in order to engage with them in times and spaces where women feel safe and can access easily. Women will more likely see the benefits of the tools when these are combined with other training that they are already receiving, or may wish to receive.

RECOMMENDATIONS

The following recommendations are intended to support DFS providers, implementing partners, and USAID operating units and Missions to design and implement programs, products, and services more effectively.

In order for DFS providers to reach women, they must target women and monitor their uptake and use.

DFS Providers should explicitly identify women as potential customers and collect sex-disaggregated data by user segmentation as part of their market research. By recognizing the potential of including women as potential customers, they could collect data to better understand their needs and patterns, and develop tools and services using human-centered designs that include a gender lens as well as cultural norms and practices.

Implementing partners need to continue to work with DFS providers to increase women's participation. Implementing partners need to continue to support providers' market research, product

design, and marketing, and support providers to develop approaches and strategies are feasible and sustainable to reach women. In addition, implementing partners may also help DFS providers understand barriers to women's access to the tools and services and the social and cultural norms that influence their ability to access, understand, and use the tools. Implementing partners may also work with service providers to develop adequate training, and strategies such as using to female agents to support DFS uptake by women.

USAID OUs and Missions should conduct research to inform program design that addresses the barriers to accessing DFS tools and services faced by women in agriculture. Further, Missions and OUs could mandate that implementing partners design strategies with women in agriculture in mind, collect sex disaggregated data, and use the data to make implementation decisions.

A business case for reaching women must be developed.

DFS Providers need to understand the business case of targeting women as customers. They should ask why and how it would it be profitable to reach women. Conducting inclusive market research can support DFS providers to understand answer these questions and design business models that help bring in women as customers.

Implementing partners can support providers in identifying the business case for women and promoting them as a target customer base. Additionally, implementing partners can help connect providers to users.

USAID OU's and Missions should encourage implementing partners to develop a business case for women, with cost-benefit analysis, and support implementers in promoting the business cases with DFS providers.

Human-Centered Design is key to reaching and empowering women.

DFS Providers should use human-centered design to develop products that are based on women's needs, and consider bundling complimentary services important to women. Providers should take into account that human-centered design requires piloting and feedback loops, and budget resources appropriately.

Implementing partners should conduct research to better understand gender, social, and cultural norms and facilitate private-sector partners and providers in designing products and services that consider these norms.

USAID OUs and Missions should understand that human-centered design takes time and testing to be fully effective in reaching women and that implementing partners may need additional time and resources to support providers to embrace these types of designs.

Marketing and dissemination of DFS products to women requires training.

DFS Providers should be prepared to train women in digital and financial literacy, with multiple touch points. Trust needs to be earned, so providers should plan to staff for multiple touch points in the community and take advantage of existing social networks.

Implementing partners should create budgets with money and time for training women. Women will need training in digital and financial literacy, and may require more touchpoints than men to see value in and trust a DFS product.

USAID OUs and Missions should require implementing partners to budget for the adequate amount of time and resources required to train women to use and uptake DFS services and products. Missions could also collect sex-disaggregated data on the success of different training approaches and use it to monitor progress.

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ANNEXES

ANNEX A: FOCUS GROUP DISCUSSION GUIDE FOR DFS PROVIDERS

Participant Name(s), Title(s), Institution: _____

Interview Date: _____

Interviewer: _____

Please record notes using the following best practices:

- Save as a separate document on SharePoint using the naming convention: FGD.LastName_LastName_LastName.Date.InterviewerInitials, e.g., FGD.Robinson_Smith_Jones.6Jan2020.KC
- Where possible, audio record interviews as a backup to note-taking, unless the respondent does not agree to recording equipment.
- Take notes as close to verbatim as possible and in first person, i.e., in the voice of the respondent; the respondent is "I"
- Take notes directly into the guide. If additional questions, other than probes are asked, they should be added to the transcript and indicated as such

INTERVIEWER: INTRODUCTION

Thank you for setting aside the time to talk with me today.

Taking part in this discussion is voluntary. This conversation will take about 75 minutes, we have nine questions. If you don't mind, I would like to record this session so that I can make sure I am capturing the entirety of your responses. Your responses will be used only to inform our research, kept confidential, and no respondents will be identified individually unless we specifically request to identify you, and you choose to release this information.

Do you consent to having this conversation recorded, understanding that it will be kept confidential?

Thank you. The USAID Feed the Future Advancing Women's Empowerment (AWE) program is a mechanism that offers technical assistance, capacity building, tools, and resources to USAID and implementing partners to advance gender equality and women's empowerment for improved development outcomes.

Under this particular project, we are reviewing and curating existing knowledge and evidence on how agriculture and food systems programs address women's financial inclusion through accessible and useful financial platforms and promote their economic empowerment. This focus group discussion will ultimately inform a desk review and case studies that aim to support USAID Missions and implementing partners in addressing and strengthening women's access to digital financial services.

For the purposes of this study, digital financial services can be defined as "any application of digital technology used to deliver financial services." For the following questions, we ask that you keep this definition in mind.

Before we begin, do you have any questions?

QUESTIONS

1. To start, please share in a couple of sentences the DFS tool you work with and how your work has been related to providing women with digital financial services in agriculture or other sectors.

2. I'd like to invite you all to take a moment and reflect on a time where you were able to **successfully reach women** through your DFS tools, specifically. What strategies or interventions did you employ to ensure women had access to digital finance tools/services?

Probe: What kind of activities have you implemented? Have you paired them with other interventions? Are these strategies specific to certain contexts?

3. What were some of the outcomes for women as a result of these interventions? How have implementing these strategies or interventions economically empowered women in agriculture?

Probe: If they cannot point to a specific example, prompt participants to think about ideally what would a strategy or tool/service need to include to economically empower women?

4. What made these interventions or tools/services successful?

Probe: How are these tools and services intended to be used by women in agriculture and food systems? What were the motivations for using this tool to promote women's economic empowerment? Are these factors specific to your country/regional context or are the universal?

5. What barriers have you experienced in empowering women through your digital financial tools/services, specifically in the implementation of this tool/service?

Probe: What gaps in knowledge or skill need to be filled to address these challenges and barriers? How would you address these challenges/barriers? Are these challenges/barriers specific to your country/regional context or are they universal?

CONCLUSION

6. For someone looking to promote women's economic empowerment through DFS tools and services, what is one key takeaway or lesson learned that you would like to share?

Probe: Best practices for reaching women with DFS?

7. As we continue our research, are there any resources you would point us to on women's economic empowerment through DFS?

8. Is there anything else you would like to share with us about DFS tools and services used to promote women's economic empowerment?

Probe: Tools they have heard about from colleagues, or others? Other stakeholders our team should consult or engage?

9. What questions do you have for us?

ANNEX B: FOCUS GROUP DISCUSSION GUIDE FOR IMPLEMENTERS AND DONORS

Participant Name(s), Title(s), Institution: _____

Interview Date: _____

Interviewer: _____

Please record notes using the following best practices:

- Save as a separate document on Sharepoint using the naming convention: KII.LastName_LastName_LastName.Date.InterviewerInitials, e.g., KII.Robinson_Smith_Jones.6Jan2020.KC
- Where possible, audio record interviews as a backup to note-taking, unless the respondent does not agree to recording equipment.
- Take notes as close to verbatim as possible and in first person, i.e., in the voice of the respondent; the respondent is "I"
- Take notes directly into the guide. If additional questions, other than probes are asked, they should be added to the transcript and indicated as such

INTERVIEWER: INTRODUCTION

Thank you for setting aside the time to talk with me today.

Taking part in this discussion is voluntary. This conversation will take about 90 minutes, we have ten questions. you don't mind, I would like to record this session so that I can make sure I am capturing the entirety of your responses. Your responses will be used only to inform our research, kept confidential, and no respondents will be identified individually unless we specifically request to identify you, and you choose to release this information.

Do you consent to having this conversation recorded, understanding that it will be kept confidential?

Thank you. The USAID Feed the Future Advancing Women's Empowerment (AWE) program is a mechanism that offers technical assistance, capacity building, tools, and resources to USAID and implementing partners to advance gender equality and women's empowerment for improved development outcomes.

Under this particular project, we are reviewing and curating existing knowledge and evidence on how agriculture and food systems programs address women's financial inclusion through accessible and useful financial platforms and promote their economic empowerment. This focus group discussion will ultimately inform a desk review and case studies that aim to support USAID Missions and implementing partners in addressing and strengthening women's access to digital financial services.

For the purposes of this study, digital financial services can be defined as "any application of digital technology used to deliver financial services." For the following questions, we ask that you keep this definition in mind.

QUESTIONS

1. To start, please share in a couple of sentences how your work has been related to providing women with digital financial services in agriculture or other sectors.

2. I'd like to invite you all to take a moment and reflect on a time where you were able to **successfully reach women** through your DFS programming, specifically. What strategies or interventions did you employ to ensure women had access to digital finance tools/services?

Probe: What kind of activities have you implemented? Have you paired them with other interventions? Are these strategies specific to certain contexts?

3. Please briefly describe the DFS or tools that you worked with and how.

Probe: Ask for any details on characteristics of the tool/service that are important for moving forward with the conversation (tool/service type, geographic location, target users, point of the value chain, pairing it with other interventions, etc.)

4. What made these interventions or tools/services successful?

Probe: What were the motivations for using this tool to promote women's economic empowerment? Are these factors specific to your country/regional context or are the universal?

5. What barriers have you experienced in empowering women through digital financial tools/services?

Probe: What gaps in knowledge or skill need to be filled to address these challenges and barriers? How would you address these challenges/barriers? Are these challenges/barriers specific to your country/regional context or are they universal?

6. How have implementing these strategies or interventions economically empowered women in agriculture.

Probe: If they cannot point to a specific example, prompt participants to think about ideally what would a strategy or tool/service need to include to economically empower women?

7. Could the strategies or tools discussed be used in other contexts and still be successful in increasing women's economic empowerment? What strategies would you use to adopt this to different contexts?

CONCLUSION

8. For someone looking to promote women's economic empowerment through DFS tools and services, what is one key takeaway or lesson learned that you would like to share?

Probe: Best practices for reaching women with DFS?

9. As we continue our research, we plan to speak with local DFS service providers and experts. Are there any that come to mind you recommend we speak to? Are there any resources you would point us to?

10. Is there anything else you would like to share with us about DFS tools and services used to promote women's economic empowerment?

Probe: Tools they have heard about from colleagues, or others? Other stakeholders our team should consult or engage?

11. What questions do you have for us?

CREDIT

APPROACH: ALTERNATIVE CREDIT SCORING – BOTH INDIVIDUAL AND GROUP

Description:

The World Bank defines alternative credit scoring as "digital approaches to credit scoring that do not rely on traditional scoring approaches or credit bureaus. These include digital transaction histories, agricultural production estimates, and psychometric assessments (typically in tandem with other methods of assessing creditworthiness), and relational data. These methods are used by fintechs, third party lenders, MFIs, and sometimes MNOs or banks."[1]

How to use in agriculture

Scores based on agricultural metrics may be used to assess creditworthiness and determine access to agriculture-specific loan products. Access to loans generally can improve investment in agricultural activities.

Link to WEE

Because women have less access to loans than men for various reasons, including lack of access to collateral, they are less likely to build a formal credit history required for traditional credit scoring. Alternative credit scoring breaks this cycle by providing a means for more women to build up a credit history or credit score based on other measures, without requiring collateral.

Cost to user

Banks, MFIs, NBFIs, and other credit providers pay for alternative credit scoring services as part of the cost of their credit assessment. While borrowers do not pay directly, they do have to provide access to their data, some of which may be considered sensitive.

Accessibility

Credit scoring dependent on digital transaction history requires: a device such as a mobile phone to provide access and, in some cases, Internet connectivity; basic financial and digital capabilities for the user to transact; and a digital transaction history. Credit scoring based on psychometric assessment may require Internet connectivity to take the assessment. Credit scoring based on social media requires connectivity and social media access. Credit scoring based on agricultural production estimates typically rely on external remote sensing technologies.

ILLUSTRATIVE EXAMPLES:

LenndoEFL (20+ countries; individuals and businesses); hiveonline (Honduras, Lebanon, Niger, Uganda, Mozambique, Zambia; individuals and cooperatives); FarmDrive (Kenya; individuals); Impact Terra's Golden Paddy (Burma; individuals and households); Farmforce (global; individuals)

APPROACH: PERSON-TO-PERSON (P2P) LENDING: CROWDFARMING

Description:

P2P lending allows individuals or businesses to access financing outside of traditional bank loans by linking them directly to groups of lenders/investors. This is particularly prominent in agriculture, where this approach is known as crowdfarming.[2] Crowdfarming (not the company of the same name) uses digital platforms to link farmers who need capital with sponsors who wish to invest, lend, or donate.[3] Crowdfarming may also include value-added services, such as training for farmers or linkages to off-takers. Several different models exist, including: donations to smallholders (charity, with no return to funder); rewards (which provide in-kind value such as produce to funders); lending (loans for farmers that generate return via interest); or equity (shares or other financial instruments sold in pieces to groups of investors).[4]

How to use in agriculture	Link to WEE	Cost to user	Accessibility
Platforms provide smallholders, who may have difficulty obtaining loans from a bank, an alternative source of funding.	Crowdfarming allows women to circumvent the barriers to accessing traditional credit. P2P platforms can also be used for gender lens investing, which links value-based investors or donors with women farmers with the intent of supporting women's economic empowerment or achievement.	Interest on loans. Equity (shares or profits) or rewards (portion of harvest). Platforms may charge a fee for transactions.	Requires Internet connectivity and device such as a mobile phone to provide access; basic financial and digital capabilities for the user to transact.

ILLUSTRATIVE EXAMPLES:

Farmcrowdy (Nigeria); Thrive Agric (Nigeria); Livestock Wealth (South Africa); Bayseddo (Senegal); CompleteFarmer (Ghana); Agrikaab (East Africa); Kwidex (Ghana); EZFarming (Nigeria); FedGroup (South Africa); CropCrowd (East Africa); AgriKool (South Africa); Crowdy Group Farm (Kenya); WorldCover (Ghana, Uganda, Kenya); iFarmer (Bangladesh)

APPROACH: DIGITAL LENDING: BANK-ORIGINATED DIGITAL LENDING

Description:

Bank loans that are digitized at each step of the process, from onboarding to credit decision, disbursement, and collection. Digitizing lending reduces costs for both the financial institution and the borrower and reduces late payments. Consumers benefit from a faster process and ease of receiving and repaying the loan.[5] Bank loans are well-regulated.[6]

How to use in agriculture	Link to WEE	Cost to user	Accessibility
Improves access to credit in rural areas without a bank branch. Bank loans may be designed specifically for different agricultural value chains.	Reduces time cost of borrowing for women, who face time constraints related to domestic obligations. Overcomes mobility barriers to accessing credit.	Reduced transaction costs relative to traditional bank loans. Interest varies depending on the loan product and may be higher for mobile credit than traditional credit to balance the higher cost and risk of servicing so many small loans.[7]	Mobile-based loans require a device such as a mobile phone to provide access and, in some cases, may also require Internet connectivity; basic financial and digital capabilities for the user to transact; access to at least an agent network or brick and mortar financial institution. Formal bank accounts require valid proof of identification.

ILLUSTRATIVE EXAMPLES:

KCB M-PESA (Kenya); VisionFund Tanzania Mass Customized Loan Product for Farmers; AMRET (Cambodia); Musoni (~20 countries); Bank Asia (Bangladesh)

APPROACH: DIGITAL LENDING: BALANCE SHEET LENDING

Description:

Internet-based fintech platforms for non-bank lenders to offer loans at their own risk. Because they do not take deposits, these institutions use alternative sources of funding, like their own equity capital, debt issuance, or securitization of the loans they originate. This type of lending comprises a minority of digital loans (estimated to be about 10 percent in Kenya). It is much less regulated than bank-originated lending and can introduce a number of consumer protection concerns, resulting in over-indebtedness, breach of data privacy, and threatening messages from lenders.[8]

How to use in agriculture	Link to WEE	Cost to user	Accessibility
Improves access to credit in rural areas without access to a bank branch. Rather than needing access to a bank account, mobile credit customers need only a mobile money account and a mobile phone.[9]	Reduces time cost of borrowing for women and barriers to accessing bank accounts.[10] Without financial capabilities, however, women may be at risk of over-indebtedness.	Reduced transaction costs relative to traditional bank loans. Interest varies depending on the loan product and may be higher for mobile credit than traditional credit to balance the higher cost and risk of servicing so many small loans.[11]	Requires a device such as a mobile phone to provide access and in some cases, may also require Internet connectivity; basic financial and digital capabilities for the user to transact.

ILLUSTRATIVE EXAMPLES:

Branch (Global); Tala (Global); Carbon (Nigeria); Sempli (Colombia)

APPROACH: ASSET FINANCING

Description:

This model allows consumers to receive an asset on credit and pay for it in small increments using mobile money.[12]

How to use in agriculture	Link to WEE	Cost to user	Accessibility
Asset financing can be used to finance farm equipment, phones, or sources of energy for user households that can free up time for users to engage in income-generating work. In agriculture, some of these asset financing models are reaching cooperatives for large investments such as in cold storage, tractors, etc.	Asset financing allows women to buy assets without having to save large amounts or take on huge debt up front, granting increased access to resources. Labor-saving assets allow women, who experience heavy demands on their time for domestic labor, to free up time for income-generating activities, granting them more agency in their use of time. Asset financing can be an entry point to the resource of formal finance by helping women generate a digital transaction history, or acquire an asset that may be collateralized for future loans.[13]	May incur fees for digital payments and/or interest.	Requires device such as a mobile phone to provide access for repayment, though not necessarily for purchasing; in some cases, may also require Internet connectivity; basic financial and digital capabilities for the user to transact.

ILLUSTRATIVE EXAMPLES:

PEG (West Africa); SunCulture (Kenya); PayJoy (emerging makets across the globe); Baobab+ (Senegal, Madagascar, Ivory Coast, Mali); Solaris Offgrid (global); NewPath (Burkina Faso and Niger); Juhudi Kilimo Ltd. (Kenya); TNM (Malawi); Advanced Chemical Industries Limited (Bangladesh)

BUNDLED PRODUCTS

APPROACH: FINANCIAL SERVICES AND NON-FINANCIAL AGRICULTURAL SERVICES

Description:

Digital financial services (DFS) may be bundled with training, market linkages, market or agricultural advisory services, or other non-financial services to increase value to the consumer and drive demand.

How to use in agriculture

It is considered a best practice for DFS interventions in agriculture to feature bundling DFS products with other agricultural services "at multiple points in the value chain to help farmers access the right inputs when they need them."[14]

Link to WEE

Evidence shows that financial services, including credit and savings, increase measures of women's economic empowerment and achievement, such as financial risk-taking, especially when offered in a suite or bundle.[15] Non-financial agricultural services are intended to support women to improve their agricultural output and better utilize financial services.

Cost to user

Interest rates and fees related to loans, payments products, or other financial services, and potential fees for additional non-financial services provided in the bundle.

Accessibility

Requires a device such as a mobile phone to provide access and, in some cases, may also require Internet connectivity; basic financial and digital capabilities for the user to transact.

ILLUSTRATIVE EXAMPLES:

Safaricom's Digifarm (Kenya); Tulaa (Kenya); Twiga (Kenya); One Acre Fund (East Africa); Multiservices Agricole (Senegal); KCB MobiGrow (Kenya); SAP Rural Sourcing Platform (global); Olam (60 countries); Smart Nkunganire System (Rwanda); Farmerlink (developing countries); Esoko (Africa); Alibaba's Rural Taobao (China); Green-led digital agriculture consortium and related initiatives in Ethiopia; Mastercard Farmers Network (global); Econet (global); iProcure (Kenya); Farm to Market Alliance (East Africa)

APPROACH: CREDIT AND SAVINGS

Description:

For a bundled savings and loan product, a financial institution might require a client to open a savings account to be approved for a loan. Product bundling can generate cost-savings for a provider, but can also discourage customers who desire greater freedom to choose the products they use.[16]

How to use in agriculture	Link to WEE	Cost to user	Accessibility
No current evidence was found on how this type of product is used in agriculture.	Bundling reduces the barriers women face in accessing individual financial products, including time costs.	Bundling products lowers costs for the financial service provider and consumer relative to offering individual products.	Requires a device such as a mobile phone to provide access and, in some cases, may also require Internet connectivity; basic financial and digital capabilities for the user to transact; access to at least an agent network or brick and mortar financial institution. Bundled services typically require high-capacity service providers, which may not be available in areas with poorly developed financial institutions.

ILLUSTRATIVE EXAMPLES:

Absa (Africa); M-Shwari (Kenya); Capitec, FNB, Nedbank, Discovery (Southern Africa); M-Pawa (Tanzania)

APPROACH: CREDIT AND INSURANCE

Description:

Agricultural insurance is often bundled with credit products. Insurance can serve as collateral for loans and makes it easier to assess farmers' creditworthiness. According to GSMA, "almost 90 per cent of all index insurance services are either bundled or offered together with credit, inputs or agronomic advisory."[17]

How to use in agriculture	Link to WEE	Cost to user	Accessibility
Insurance protects farmers against losses and frees up assets otherwise held in reserve for investment.[18] Insurance reduces the risk of lending for financial institutions, which can then provide larger loans to underserved farmers. Bundling agricultural insurance with credit can improve the accessibility and acceptability of agricultural insurance.[19]	Bundling reduces the barriers women face in accessing individual financial products, including time costs.	Bundling products lowers costs for the financial service provider and consumer relative to offering individual products.	Requires a device such as a mobile phone to provide access and, in some cases, may also require Internet connectivity; basic financial and digital capabilities for the user to transact; access to at least an agent network or brick and mortar financial institution. Bundled services typically require high-capacity service providers, which may not be available in areas with poorly developed financial institutions.

ILLUSTRATIVE EXAMPLES:

Absa (Africa); M-Shwari (Kenya); Capitec, FNB, Nedbank, Discovery (Southern Africa); M-Pawa (Tanzania)

APPROACH: SAVINGS AND INSURANCE

Description:

Insurance linked with a savings product.

How to use in agriculture	Link to WEE	Cost to user	Accessibility
Both savings and insurance help agriculturalists cope with shocks, including shocks that may affect production.	Bundling reduces the barriers women face in accessing individual financial products, including time costs.	Savings accounts typically have a minimum deposit amount. See details for other insurance products below.	Requires a device such as a mobile phone to provide access and, in some cases, may also require Internet connectivity; basic financial and digital capabilities for the user to transact; access to at least an agent network or brick and mortar financial institution. Bundled services typically require high-capacity service providers, which may not be available in areas with poorly developed financial institutions.

ILLUSTRATIVE EXAMPLES:

FINCA (global); ACRE Africa (East Africa); Safaricom's DigiFarm (Kenya); Green Delta Insurance (Bangladesh); Pula (Africa)

INSURANCE

APPROACH: DIGITIZED INDEMNITY INSURANCE

Description:

A digital insurance product whereby the insured is compensated for certain financial losses up to a certain limit. Insurance companies will provide coverage in exchange for premiums paid by the insured.[20]

How to use in agriculture	Link to WEE	Cost to user	Accessibility
Farmers can insure their crops or livestock against losses using indemnity insurance.	Women who mitigate risk using insurance rather than savings can protect that money against competing family demands and realize the benefits of insurance, which is linked to higher spending on inputs and greater yields.[21]	Varies. High administrative costs for claims verification leads to higher premiums. Indemnity-based insurance requires individual certification to minimize fraudulent claims but results in delayed payouts and low customer satisfaction.	Indemnity insurance is usually too expensive for smallholders because of the cost of farm-level loss assessments and marketing to remote locations.[22] Requires a device such as a mobile phone to provide access and in some cases, may also require Internet connectivity; basic financial and digital capabilities for the user to transact.

ILLUSTRATIVE EXAMPLES:

Bancolombia "Ahorro a la Mano" (Colombia); MicroEnsure savings-linked insurance (Ghana)

APPROACH: INDEX INSURANCE (AREA YIELD OR WEATHER)

Description:

Index insurance payouts are made based on a predetermined index or model that calculates probable losses across a designated geographic area. This approach saves time and money compared to indemnity insurance

How to use in agriculture	Link to WEE	Cost to user	Accessibility
Index insurance is used to insure smallholders at a rate that is much more affordable than traditional indemnity insurance.	Women who mitigate risk using insurance rather than savings can protect that money against competing family demands and realize the benefits of insurance, which is linked to higher spending on inputs and greater yields.[23]	This approach saves time and money compared to indemnity insurance. However, farmers may still perceive index insurance as non-essential and, therefore, premiums as too expensive.	Though much more affordable than indemnity insurance, index insurance is still perceived as expensive and sporadically available for farmers. Requires a device such as a mobile phone to provide access and, in some cases, may also require Internet connectivity; basic financial and digital capabilities for the user to transact. Must be in a location with enough historical data to build an index.

ILLUSTRATIVE EXAMPLES:

ACRE Africa (East Africa); Philippines Crop Insurance Corporation (Philippines); Mauritius Sugar Insurance Fund (Mauritius); Agricultural Insurance Corporation (India); generally very few private companies serve smallholders.[24]

PAYMENTS

APPROACH: PERSON-TO-PERSON (P2P) PAYMENTS

Description:

Payments between individuals made through mobile money, which is a service that allows users to store and transfer money digitally on a mobile phone.[25]

How to use in agriculture

P2P payments enhance access to remittances and can help rural communities smooth consumption after a shock.[26] P2P payments can also lead to higher income and consumption levels for smallholder households, which are able to transact with buyers at greater distances for more profit.[27]

Link to WEE

P2P payments can give women greater access to remittances and have been linked to an increased willingness to work outside the household.[28] P2P payments also offer women privacy and the ability to exercise greater agency over their money, time savings, and the ability to build a transaction history for credit scoring.

Cost to user

Pricing structures include free accounts, percentage-based fees, and slab-based (flat) fees. Slab-based is most common and most expensive for small transactions.[29] Fees may be incurred for P2P transfers, cash-in cash-out, or transferring money across networks.[30]

Accessibility

Requires a device such as a mobile phone to provide access and, in some cases, may also require Internet connectivity; basic financial and digital capabilities for the user to transact.

ILLUSTRATIVE EXAMPLES:

M-PESA (Kenya, Tanzania, Mozambique, DRC, Lesotho, Ghana, Egypt, Afghanistan, South Africa); bKash (Bangladesh); MTN Mobile Money (East Africa); Abeg (Nigeria); Alipay (China); PhonePe & Paytm (India); Venmo; Zelle; Apple Pay Cash; Google Pay; Cash App; Paypal; WesternUnion; Remitly (all global); almost all developing country MNOs have mobile money platforms.[31]

APPROACH: GOVERNMENT-TO-PERSON (G2P) PAYMENTS

Description:

Government-to-person, or G2P, payments are payments made by governments to citizens. These payments may be made to distribute social benefits, pensions, and unemployment benefits. They also include government wages and tax refunds.[32] Digital payments are usually made through mobile money but may be made via cards or vouchers.[33]

How to use in agriculture

Digital payments may be used by governments to distribute benefits such as rural livelihoods or agriculture sector subsidy schemes. These initiatives may be used to connect subsidy transfers to agricultural input payments, with the aim of improving uptake of digital payments and improving access to inputs. G2P payments via mobile money can be an entry point for other digital financial services, such as crop insurance, or other digital agricultural services, such as advisory services.[34]

Link to WEE

G2P serves as an entry point for DFS for many low-income people, especially women, who are often explicitly targeted for such payments, facilitating the achievement of financial inclusion. G2P can be leveraged to support broader use of mobile money.[35] It also reduces time costs and circumvents potential mobility constraints on women.

Cost to user

Individuals may be charged a fee to withdraw funds from their account, card, or voucher.

Accessibility

G2P payments can be digitized at different levels: payments may be made via mobile money, through in-person agents using biometric ID or debit cards, or ATM. Depending on the modality, G2P can be accessible for those without access to mobile phones or Internet, but requires an adequate agent network to be in place.[36]

ILLUSTRATIVE EXAMPLES:

E-vouchers; Tanzania Productive Social Safety Net Project II (PSSNII); Bank Asia, Grameenphone and MicroSave are implementing an initiative where 500 Grameenphone agents are turned into agents of Bank Asia so they can channel government disbursements under social security (G2P); Smart Nkunganire System

APPROACH: BUSINESS-TO-PERSON (B2P)

Description:

B2P payments include payments from individuals to a business, which are sometimes called P2B (such as merchant payments), and from businesses to individuals.

How to use in agriculture

B2P payments can be used to pay farmers for their produce or for farmers to pay agribusinesses for inputs. They can be used to digitize agricultural value chains to create mobile money ecosystems and promote the wider adoption of mobile money.[37]

Link to WEE

B2P payment schemes have potential to increase women's privacy by allowing them to shift from payment in public to automated digitized transfer systems.[38] Mobile money also offers women the ability to exercise greater agency over their money, save time on transactions, and the ability to build a transaction history for credit scoring.

Cost to user

Transaction fees may be required, but these are typically less than the transaction costs associated with cash payments, e.g., time spent collecting cash, including travel time and expenses.

Accessibility

Requires a device such as a mobile phone to provide access and, in some cases, may also require Internet connectivity; basic financial and digital capabilities for the user to transact; strong agent network.[39]

ILLUSTRATIVE EXAMPLES:

SmartMoney (Tanzania and Uganda), AgroPay (Ghana); Bank Asia, Grameenphone and MicroSave are implementing an initiative where 500 Grameenphone agents are turned into agents of Bank Asia so they can process business transactions (B2P) for the market

APPROACH: E-COMMERCE PLATFORMS

Description:

USAID uses the OECD's definition of e-commerce: "the sale or purchase of goods or services, conducted over computer networks by methods specifically designed for the purpose of receiving or placing of orders."[40]

How to use in agriculture	Link to WEE	Cost to user	Accessibility
E-commerce is used to sell agricultural produce for consumers or agricultural inputs for farmers.	E-commerce can help overcome market access barriers that exist because of mobility and information constraints. Women are able to market their goods from home rather than a physical location and can compete with men on a more even playing field in a digital space.[41] E-commerce also allows women to get connected to a broader network of buyers and sellers.	Access, membership, and/or transaction fees may be required.	Requires a device such as a mobile phone to provide access and, in some cases, may also require Internet connectivity; adequate infrastructure for the transport of goods. Requires strong literacy skills. Digital-only e-commerce sites are often limited to serving wealthier farmers or selling inputs for more commercial value chains.[42]

ILLUSTRATIVE EXAMPLES:

Jinukun (Benin); e-Msika (Zambia); villagemarket (Bangladesh); Izyshop (Mozambique); FarmFresh (Africa and Asia); Get It Rwanda (Rwanda); Jangolo (Cameroon); Premium Hortus (Africa); Khula (Zambia); Herdy Fresh (Kenya); Kitchen Soko (Kenya); Alibaba (China); Tmall (China); Sooretul (Senegal)

SAVINGS

APPROACH: DIGITAL SAVINGS ACCOUNTS (BANKS)

Description:

Formal savings accounts through financial institutions via digital platforms.

How to use in agriculture	Link to WEE	Cost to user	Accessibility
Farmer income is seasonal. Saving can help farmers smooth consumption during non-harvest periods.[43]	Savings accounts provide a secure place for women to save and increase privacy and control over savings, which may otherwise be subject to competing family demands.	Potential fees include monthly maintenance fees and transaction fees. Minimum balances represent another type of cost, and may be high.	Helpful, unless using agent banking tied to a debit card, to have mobile phone and cellular, data, or Internet connection as well as literacy, digital literacy, and financial literacy. Formal bank accounts require valid proof of identification.

ILLUSTRATIVE EXAMPLES:

Increasingly, many banks offer digital savings accounts.

APPROACH: DIGITAL SAVINGS GROUP ACCOUNTS

Description:

The SEEP Network defines digital savings groups as "technologies and systems that digitize savings group records, procedures or transactions." Savings groups may store funds in formal, digital group bank accounts or informally using digital wallets. Innovative approaches include depositing savings against a line of credit to allow savings groups to issue larger loans. Digitized record keeping improves transparency, security, and accuracy of records and profit calculations.[44]

How to use in agriculture

Savings groups are prevalent in rural areas with limited access to brick-and-mortar banks. Farmers often use informal savings groups, which can use DFS tools to save money securely in a digital wallet and eventually use digital payments to connect to MFIs or banks (mobile banking).[45]

Link to WEE

Globally, women make up the majority of savings group participants. Digital savings groups can improve the security of savings, allowing greater control of resources, and help participants build a digital transaction history that can be used as the basis for determining creditworthiness.[46] Saving digitally can also save women the time and transport costs required for regular in-person meetings by reducing the number or length of meetings required, allowing for greater agency.[47] Digitized savings groups tend to save more than traditional savings groups.[48]

Cost to user

Transaction fees may be required for digital transfers. Cash-out fees are typically required, and may be substantial. These costs may be mitigated by time savings attributable to digital approaches.[49]

Accessibility

Requires a device such as a mobile phone to provide access and, in some cases, may also require Internet connectivity; basic financial and digital capabilities for the user to transact. Formal bank accounts require valid proof of identification, which may not always be easily accessible for women.

ILLUSTRATIVE EXAMPLES:

Matontine (Senegal); hiveonline serves savings groups and ag coops; CARE (Denmark) in partnership with Capital Finances; Equitel's mobile phone plans; Airtel/GSMA/Grameen Foundation partnership in Uganda; BOMA's Rural Entrepreneur Access Project (REAP). Since 2016, The Aga Khan Foundation has supported the aggressive rollout of digital savings groups, managed via the Foundation's DSG Platform, a shared software service implemented with both USSD and application interfaces that fully digitalizes savings group management.

APPROACH: DIGITAL SAVINGS ACCOUNTS (NON-BANK, MOBILE WALLETS)

Description:

Mobile money wallets can be used to securely store savings. Regulations are increasingly allowing non-bank financial institutions to offer interest-bearing mobile money accounts.[50]

How to use in agriculture	Link to WEE	Cost to user	Accessibility
Farmer income is seasonal. Saving can help farmers smooth consumption during non-harvest periods.[51]	Mobile wallets can enhance women's agency over income and increases the total amount saved. In Kenya, mobile money has been linked to supporting women to move beyond subsistence farming into other enterprises.[52]	No fees for depositing into own mobile wallet. Cash-out fees are typically required and may be high, depending on the country.	Requires a device such as a mobile phone to provide access and, in some cases, may also require Internet connectivity; basic financial and digital capabilities for the user to transact.

ILLUSTRATIVE EXAMPLES:

MTN Mobile Money (Global); Orange Money (Africa); Alipay (China); WeChat Pay(China); GCash (Phillippines); Tigo Money (Latin America); M-Pesa (Africa); GrabPay (global); sadapay (Pakistan); mercado pago (Latin America)

APPROACH: COMMITMENT SAVINGS ACCOUNTS

Description:

Commitment savings accounts offer incentives to encourage users to save for specific purposes.

How to use in agriculture

Commitment savings accounts have been successfully used to increase investment in agricultural inputs and increase agricultural profits and consumption.[53] Approaches used in agriculture include offering savings in the form of tokens that can be used for inputs (Agri-Wallet), or offering a layaway approach to purchasing inputs by allowing flexible savings deposits over time (myAgro), which has generated positive impacts on farmer yield and income.[54]

Link to WEE

Commitment savings accounts improve savings and household decision-making power for women, leading to greater amounts of resources and achievement via empowerment.[55] Commitment savings products can enable savings by preventing family members from accessing their cash, or by providing a reason for why their cash is inaccessible, allowing them more control over their personal savings, which in turn allows for greater access to one's financial resources.[56]

Cost to user

As with other savings accounts, potential costs include monthly maintenance fees, transaction fees, and minimum account balances. Some commitment savings accounts are designed at low or no cost to accommodate low-income users.

Accessibility

Requires a device such as a mobile phone to provide access and, in some cases, may also require Internet connectivity; basic financial and digital capabilities for the user to transact.

ILLUSTRATIVE EXAMPLES:

MyAgro (Mali, Senegal, Tanzania); Agri-Wallet (Kenya)

INVESTMENT

APPROACH: RETAIL INVESTMENT

Description:

Retail investment apps provide a digital platform for non-professional investors to invest in securities or funds.

How to use in agriculture

No evidence was found on how this type of product is used in agriculture.

Link to WEE

Digital investing reduces time and travel costs that may be incurred via traditional investing approaches. As with other DFS, digital investing allows women users to have private transactions.

Cost to user

Though many investment apps have no or low minimum balances, investments of a few dollars may be excessive for most women in agriculture in Feed the Future countries. Management fees are incurred at a defined percentage of assets.

Accessibility

Requires a device such as a mobile phone to provide access and Internet connectivity; basic financial and digital capabilities for the user to transact. Each platform has its own requirements, but usually they require the following information: name, date of birth, mailing address, Social Safety Net Program number, annual income and net worth, years of investing experience, investment goals, and risk tolerance. Many of these details are difficult to come by in developing countries. Investment app providers need this information to adhere to regulations and ensure the security of investments.

ILLUSTRATIVE EXAMPLES:

Sharesansar (Nepal), Mero Lagani (Nepal), Nepal Share (Nepal), Nepali Paisa (Nepal), AIB DigiTrader (Kenya), FXPesa (Kenya), Faida Investment Bank (Kenya), SBG Securities (Kenya), Scope Markets (Kenya), FarmApp (Ghana), Bamboo (Nigeria), Trove (Nigeria), Rise (Nigeria), Chaka (Nigeria), ARM Securities (Nigeria); in the developing world writ large: AvaTrade, XTB online trading, Roboforex, FP Markets, PepperStone, XM, easyMarkets

FOOTNOTES

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