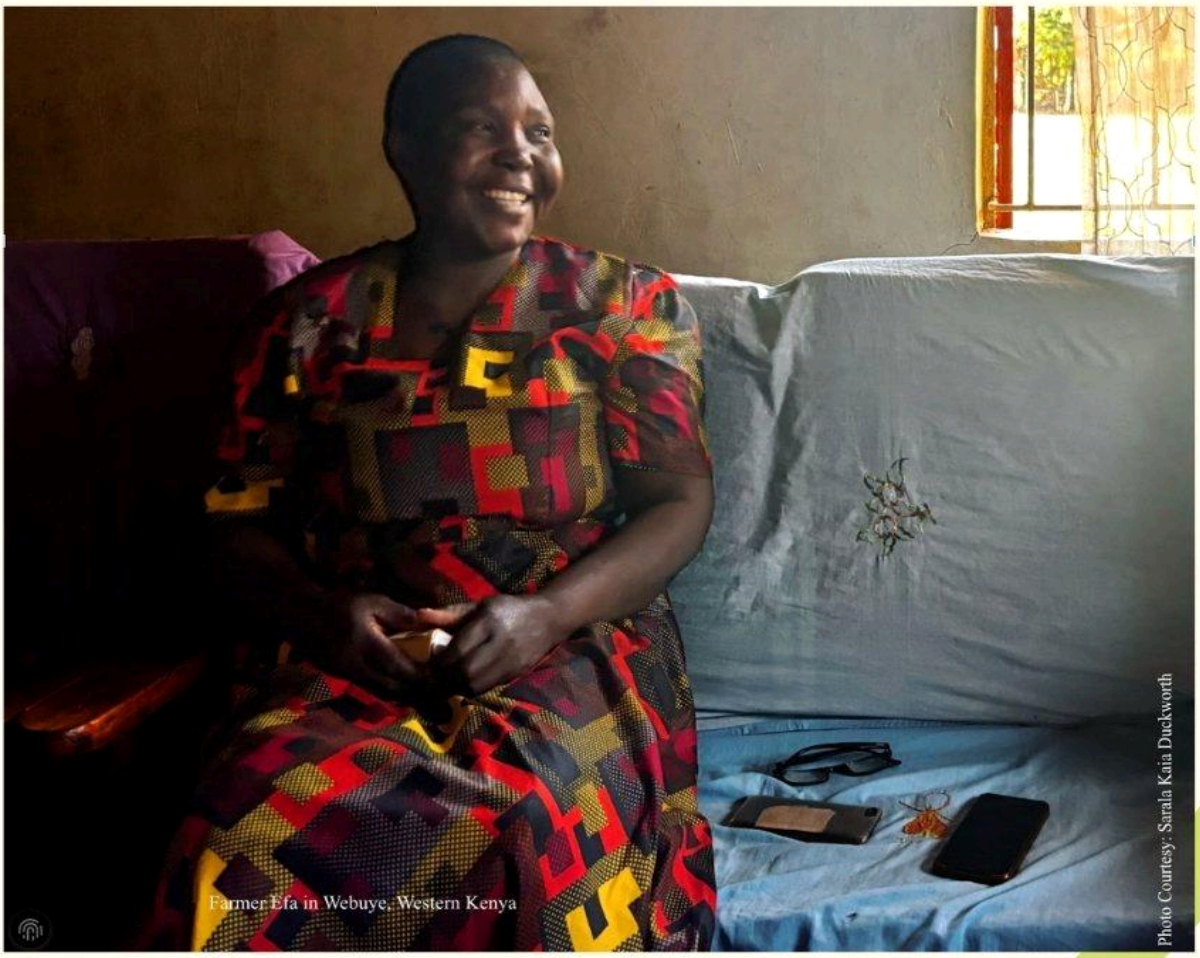
Mobile Learning, Lasting Impact: From Digital Upskilling to Economic Empowerment for Rural Women in Kenya

A Case Study of One Acre Fund



2024 - 2025: Final Report

Context: The title page photograph was taken on field by a SIPA team member in Kakamega while conducting primary research. This is Efa, a female farmer, who is associated with One Acre Fund and had undertaken the Learn.Ink digital training.

This report is the final output of one of the 2025 Columbia SIPA Economic and Political Development (EPD) Capstone Workshops, produced by Maria Paula Perdomo Garcia, Sarala Kaia Duckworth, Rishika Todi, Jana ElShabrawishi, Ruth Tekleab Mekbib, and Freddy Hasiholan Sitorus, in partnership with One Acre Fund and the Gates Foundation.

Acknowledgements

This report is the culmination of several months of collaborative effort, and we would like to express our deepest gratitude to all those who made this project possible.

First and foremost, we would like to thank One Acre Fund and the Gates Foundation for the opportunity to work on such a meaningful project. The insights gained from this experience have been invaluable, and we are especially grateful to Wafa Khan, Babajide Fateru, Felix Wesonga and Phoebe Midigo from the OAF team in Kenya for their support and openness throughout the fieldwork process. We would also like to thank Laura Litaba for supporting us with the translations of the recordings from Swahili to English.

To the field officers and farmers who generously shared their time, experiences, and perspectives—thank you. Your voices are at the heart of this report, and it was a privilege to learn from you.

We are also immensely thankful to our capstone advisor, Savita Bailur, for her continuous guidance and encouragement. Additionally, we would like to thank IGP Distinguished Fellow, Stacey Abrams, for her insights and involvement throughout the journey of this project.

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Glossary

Acronym	Context
OAF	One Acre Fund
Tupande by One Acre Fund	The Kenyan branch of OAF, rebranded to offer smallholder farmers year-round access to quality inputs, flexible payment options, digital tools, and agroforestry support to improve productivity and sustainability.
Fieldsmart	An internal mobile application developed by One Acre Fund to support the field force in managing farmer interactions, tracking training attendance, conducting inspections, and ensuring compliance with agricultural standards.
WS1	Workstream 1
WS2	Workstream 2
Field Farmer	Female farmers associated with One Acre Fund and undertaking the Learn.Ink training.
Field Force	Refers to the Tupande Agents working on ground with farmers.
Learn.Ink	A mobile-first microlearning platform used by One Acre Fund to deliver interactive, gamified training to field agents and farmers, enabling accessible, self-paced learning with digital certification via mobile devices.
WEE	Women's Economic Empowerment. We refer to the WEE grant as the grant from the Gates Foundation.
TA	Tupande Agents - Individuals associated with the Tupande program acting as intermediaries between the initiative and local farmers.
Duka	One Acre Fund's retail storefronts where farmers can access a variety of products and services. These dukas are strategically located to bring farm inputs, livestock, and lifestyle goods closer to rural farming communities.

Executive Summary

One Acre Fund (OAF) is undergoing a strategic transformation: digitizing its female field force and enabling rural women farmers to launch and grow microbusinesses. In partnership with the Gates Foundation, OAF seeks to integrate gender-sensitive digital tools through the Learn.Ink platform to digitize its female field force and enable women farmers to diversify their incomes through viable microenterprises. This shift is rooted in the recognition that while agriculture remains essential, it is often insufficient to support women's long-term economic resilience due to unpredictable income, climate risks, and limited upward mobility. Supporting alternative livelihoods allows women to pursue higher-value activities, build savings, and reduce financial dependency within households.

This report draws from fieldwork conducted in March 2025 across three rural regions in Kenya: Webuye, Nambilima, and Koteku, where our team conducted 1 focus group discussion and 16 semi-structured in-depth interviews with female field officers and farmers. Sites were selected to reflect geographic and operational diversity within OAF's programming areas.

The research is structured around two workstreams. *Workstream 1*, focused on digitizing the female field force, is grounded in the theory of change that improving digital engagement among staff will enhance efficiency and productivity and spill over into women's economic agency. The findings reveal that while adoption and initial satisfaction with digital tools were high, consistent engagement was hindered by time poverty, unpredictable training schedules, data affordability, and connectivity constraints. *Workstream 2*, which focuses on supporting female farmers to launch or expand microbusinesses, is based on the assumption that practical, relatable training can help rural women turn digital learning into viable business strategies that diversify and stabilize household income. However, women from both workstreams faced constraints such as limited access to smartphones, unreliable electricity, high data costs, low confidence navigating digital tools, and low engagement and completion rates of the trainings.

Across both workstreams, the evidence points to a shared insight: digital tools hold significant potential for advancing women's economic empowerment, but only when tailored to women's lived realities and supported by enabling structures. We recommend modular, offline-friendly training content; behaviorally informed nudges such as SMS or WhatsApp reminders to maintain engagement; consistent data stipends to alleviate financial barriers; and localized content using relatable stories of successful women entrepreneurs. We also recommend fostering peer-supported communal learning models, introducing basic digital literacy and safety modules aligned with women's routines, and piloting hybrid training models that combine digital tools with periodic in-person sessions to enhance adoption and understanding. Creating a network of trusted community-based digital champions to reinforce learning and building partnerships with mobile network operators and fintech providers will be key to scaling impact by addressing

systemic issues like data costs and device access. Together, these approaches will ensure that digital tools are not just adopted but become meaningful drivers of inclusion and empowerment.

Finally, while the findings offer deep qualitative insights, they are constrained by limited time in the field, a small sample size, and the exclusion of male perspectives and broader community engagement. Future work should include these stakeholders and explore how wider community dynamics shape outcomes. Despite these limitations, this report offers detailed insights regarding OAF's scale-up strategy with the Gates Foundation, and which can be transferable to similar women's economic empowerment-focused interventions globally.

Figure 1: Tea Farmer in WeBuye County
Photo Credit: Ruth Tekleab Mekbib

Introduction

Case Context: One Acre Fund's Dual Strategy for Women's Economic Empowerment

Rural women in Kenya face a paradox: growing access to mobile devices has not translated into widespread use of digital tools for productivity or empowerment. Meanwhile, One Acre Fund (OAF) is broadening its focus on agricultural support to also include women's economic empowerment (WEE). Despite growing mobile phone ownership, persistent barriers such as limited data affordability, low digital literacy, and entrenched gender norms continue to restrict meaningful digital engagement. Many women residing in rural areas of Kenya lack access to smartphones or must borrow devices, and often perceive digital tools as irrelevant or difficult to use without training. Additionally, access to electricity is a barrier to many who have smartphones but need to go long distances to charge their devices.

> OAF's programs on access to finance, training and field force align with Kenya's broader digital-focused model to empower women by connecting rural women to scalable tech solutions that can enhance their livelihoods through gender-smart interventions. This is particularly relevant to enable the digitalization of women's income generating activities including rural retail, and overall increasing their market access, as well as products to help women diversify their incomes, including by starting or expanding business.

Empowering rural women to utilize relevant, accessible, and affordable digital tools not only constitutes an asset to enhance productivity, helping to diversify their income streams and achieve long-term economic resilience, but it is also aligned with the programmatic shift of OAF in the country. In Kenya, where OAF has served nearly one million farmers, 67% of whom are women, there is great potential to develop and scale different programs.[1] In 2023 alone, OAF generated $113.8 million in new income impact for rural families.[2] Scaling digital engagement is essential to sustaining and growing the impact of improving the livelihoods of women in Kenya.

This report includes an overview of OAF dual strategy for women's economic empowerment, their strategic objectives and theory of change, followed by a section on existing evidence on pathways and barriers to women's economic empowerment. The report will then outline the research methods, key findings of our research, recommendations, and lastly, provide recommendations on the way forward to contribute to OAF's strategic goals.

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[1] OAF Internal Document, *June 2024 High Level Meeting with Gates*, Our Reach and Impact. Spotlight: Kenya. https://docs.google.com/presentation/d/1pVWiprPkI_yQJTM9Zlk83MdlkwcY790M/edit#slide=id.p6

[2] OAF Internal Document, *June 2024 High Level Meeting with Gates*, How Women Benefit. https://docs.google.com/presentation/d/1pVWiprPkI_yQJTM9Zlk83MdlkwcY790M/edit#slide=id.p6 See also OAF's *2024 Annual Report*.

One Acre Fund's Strategic Objectives

As part of a partnership with the Gates Foundation's WEE initiative, OAF is repositioning itself from supporting women solely as farmers to enabling them as entrepreneurs and income earners. This strategic pivot seeks to integrate gender-sensitive design into digital platforms, support alternative livelihoods beyond agriculture, and help women build economic autonomy through mobile tools.

To achieve this, addressing critical barriers identified through initial expert interviews with internal teams is essential. Field staff and farmers frequently encounter significant time poverty, driven by multiple competing priorities, such as household and caregiving responsibilities, sales targets, and administrative tasks, limiting their availability and attention to training. Interviews highlighted that woman faced low confidence and comfort in navigating digital platforms, despite being enthusiastic early adopters once engaged. This confidence gap underscores the need for tailored, gender-sensitive approaches in training design and delivery, emphasizing simplicity, accessibility, and culturally relevant content.

Furthermore, still drawing from the findings stressed in the expert interviews, substantial operational issues emerged around device ownership and digital access. Limited smartphone availability within households, restricts women's ability to freely engage with digital tools, creating a fundamental barrier to economic empowerment.

High mobile data costs and connectivity challenges further exacerbate the problem, limiting meaningful participation, particularly among rural women. Operational hurdles also include insufficient onboarding processes,

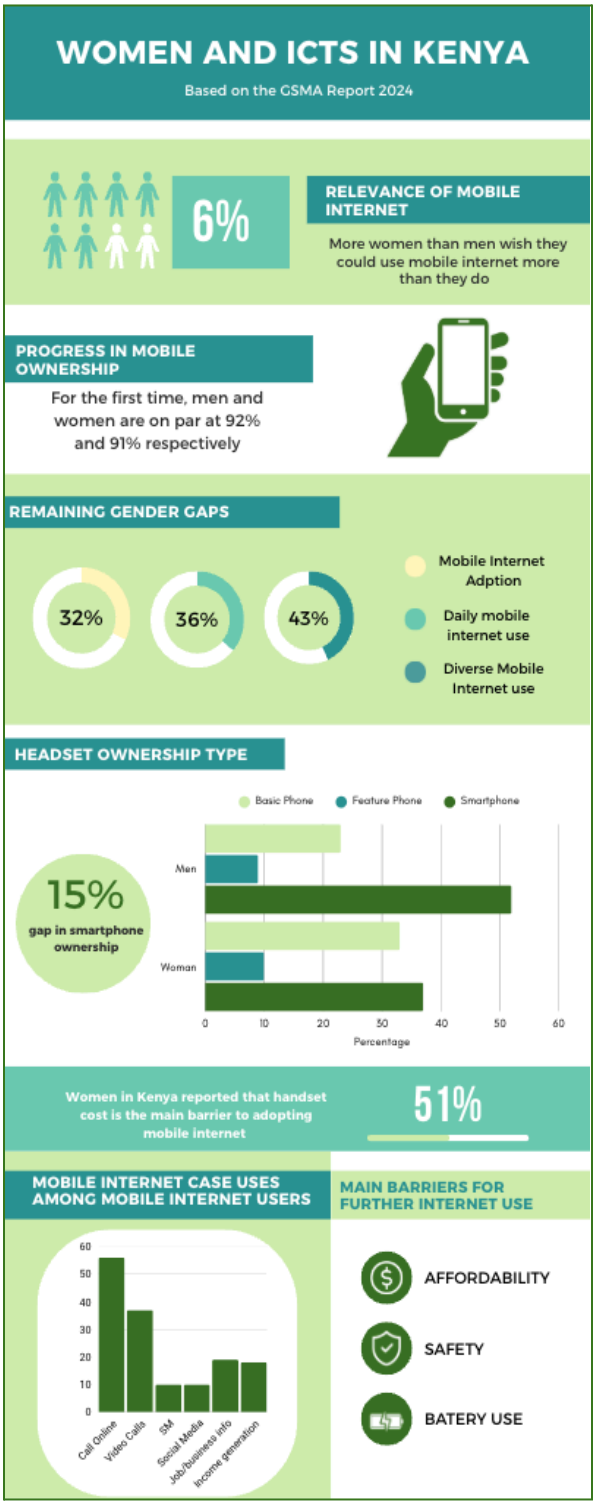

Figure 2: Women and ICTs in Kenya

Based on 2023 GSMA Report "Understanding women micro-entrepreneurs' use of mobile phones for business"

inadequate technical support from field agents, and training delivery methods previously hindered by language barriers, complexity, and one-way communication styles, which have historically limited training effectiveness.

Leveraging the Strategic Partnership with the Gates Foundation

The Gates Foundation is deeply committed to advancing Women's Economic Empowerment (WEE) as a cornerstone of their global development strategy, the grounds for a fruitful partnership with OAF to this end. It recognizes that empowering women economically has subsequent broader social benefits. Hence they support initiatives that enhance women's access to resources, decision-making power, and economic opportunities. The Foundation has a three-pronged approach to WEE: 1. Policy Support, 2. Research and Data, 3. Digital Financial Services (DFS)[3]. Under these three approaches, they have collaborated with governments to develop and implement policies promoting gender equality and economic inclusion, invested in research to gain further understanding of barriers to women's economic participation and promote access to financial tools to increase women's financial inclusion and autonomy. In September 2024, the Foundation partnered with UN Women in Kenya and committed over $1.1 million to assist the Government of Kenya in developing national and county-level WEE policies[4]. Research supported by the Gates Foundation shows that access to digital financial services can significantly enhance women's economic empowerment.[5] These tools increase women's bargaining power in households, enable independent financial decision-making, and support transitions into more productive employment.[6] They also help women strengthen social networks and build resilience to financial shocks.

The working theory grounding this work follows the Gates Foundation Women's Economic Empowerment (WEE) vision, as outlined above. A strong body of evidence outlined below supports that WEE may enhance women's sense of self, their perception of their financial contribution to the family, and their fallback position. This may lead to increased autonomy–or at least greater bargaining power–on financial and household decisions, thereby challenging traditional power dynamics. In the context of the digital transformation of our societies, the Gates Foundation has promoted innovative approaches focused on digital financial tools to achieve economic empowerment, enabling women to overcome digital connectivity barriers such as low affordability, low relevance of digital tools as well as gender stereotypes and negative social norms.

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[3]Gates Foundation. (2021). The impacts of digital financial services on women's economic empowerment. Bill & Melinda Gates Foundation. https://www.gatesfoundation.org/ideas/media-center/press-releases/2021/03/impacts-of-digital-financial-services-on-womens-economic-empowerment

[4]Bill & Melinda Gates Foundation. (2024, September). *UN Women* [Committed Grants]. Bill & Melinda Gates Foundation. https://www.gatesfoundation.org/about/committed-grants

[5] Ibid

[6] Ibid

To that end, this research will help OAF and the Gates Foundation to learn more about the specific needs of the TAs and the female farmers to increase their income and control over income through gender-sensitive digital tools. To that end, the learning questions that we will explore in this report are:

- **For Female Fieldstaff (WS1):** How does equipping the female field force with digital literacy skills benefit them outside of their 'day-jobs'? What wider impacts can be realized? How can we increase the salience of digital tools for women?
- **For Female Farmers (WS2):** To what extent does OAF digital training impact female farmers' current planning and future aspirations related to their lives and livelihoods?

Ultimately, under this framework the goal is to connect women to capital and to markets through these tools to increase women's income and control over income, thereby paving the way for overcoming monetary and time poverty. Convinced that digital tool development is a "super enabler"[7] for its female field force and clients, OAF has partnered with the Gates Foundation under a grant project that leverages digital upskilling programs to overcome the above-mentioned barriers and promote the economic empowerment of their TAs and female clients. To that end, OAF, in partnership with the Gates Foundation, has launched a two-pronged digital strategy which is outlined below.

[7] One Acre Fund. (n.d.). *Internal strategic brief on digital empowerment*.

What does Women's Economic Empowerment mean for One Acre Fund's Programs?

Digitizing the Female Field Force (Workstream 1)

For this Workstream, the operating theory of change is that through digital and financial literacy training and improved access to digital tools, OAF's female field staff will enhance their self-sufficiency, increase income through improved productivity and potential new sources of income, resulting in the ultimate outcomes of higher earning potential, economic independence, and additional spillover effects. Figure 3 explains this theory of change and underlines the key assumptions embedded therein.

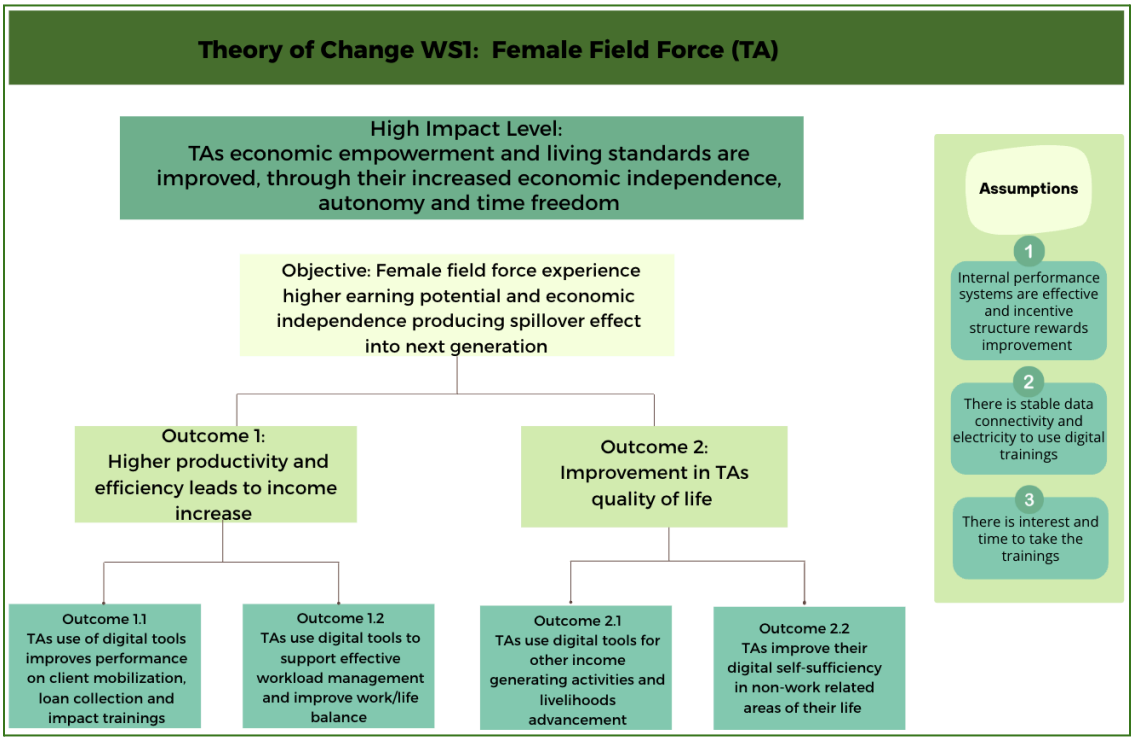

Figure 3: Workstream 1 Theory of Change
Source: Developed by the authors

Diversifying Rural Women's Incomes (Workstream 2)

To empower female farmers in Kenya, One Acre Fund has leveraged digital learning tools to foster their financial literacy and confidence to pursue their personal and business aspirations and diversify their incomes. The higher-level outcome of their programs, in a similar manner that for

WS1, focuses on increasing their economic independence, agency and autonomy to pursue their aspirations, as well as in their ability to spend their time in what is most meaningful to them.

Even though the goal to achieve economic empowerment is the same, the pathways to get there are different for this workstream. The theory of change points that through the digital financial literacy trainings provided by OAF, women micro entrepreneurs understand good business management and practices, and improve their digital and financial literacy skills, leading to higher business efficiency, income generation and diversification which contributes to their empowerment. The operating theory of change for Workstream 2 is outlined in Figure 4, which contains the higher-level outcomes as well as the assumptions that require further attention.

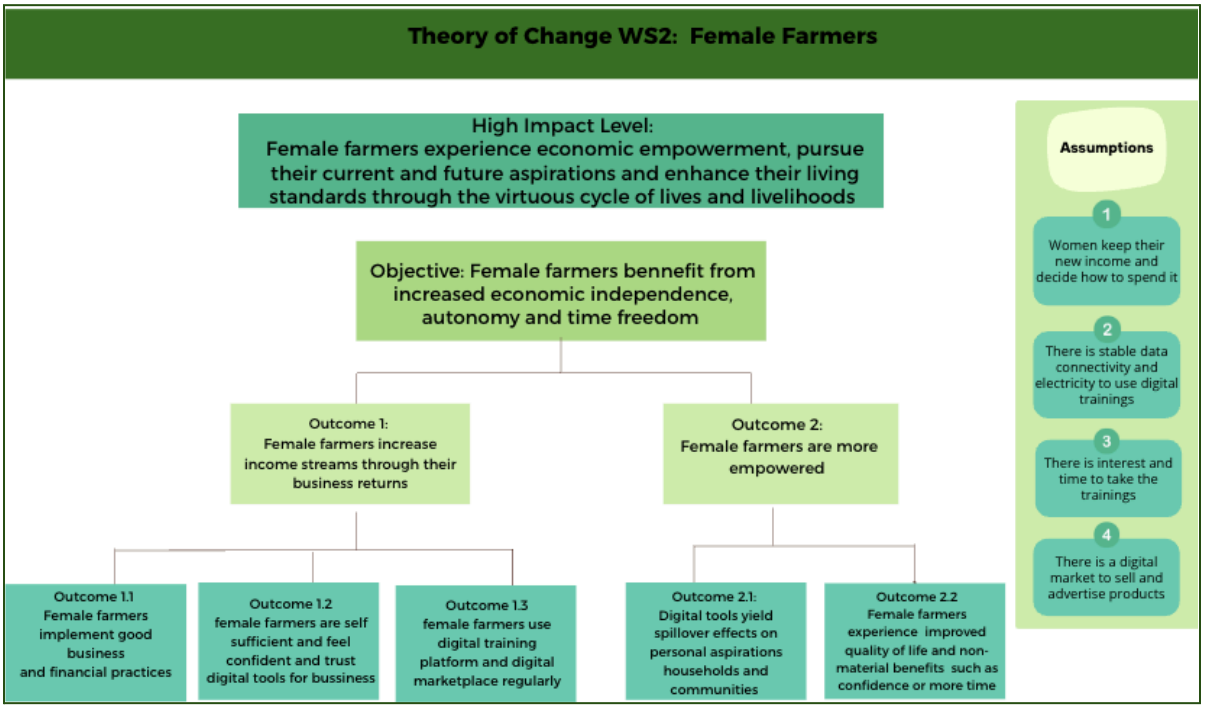

Figure 4: Workstream 2 Theory of Change

Source: Adapted by the authors based on OAF's theory of change

Unlocking Potential: Existing Evidence on Digital Pathways to Women's Economic Empowerment and Persistent Barriers

The working theory of change that links digital upskilling with Women's Economic Empowerment is strongly supported by a vast array of literature. With regards to financial inclusion, this framework positions access to financial services –such as credit, savings, mobile

banking, and insurance –as a critical but insufficient condition for empowerment unless accompanied by efforts to address the social and structural barriers women face[8].

From user-design insights on how digital tools can be made relevant to women's personal and business use, to how they can increase their confidence and sense of agency, digital tools can be an accelerator that paired with other complementary interventions can have a high impact in improving the economic and social status of women. Below is a compilation of literature showcasing supportive frameworks and best practices of digital upskilling tools geared towards empowering women. A list of the relevant literature can be found at the end of this report.

Uses and Gratification Theory: Rahman et al[9] utilized a triangulation mixed research design to explore the impact of mobile phone usage among women in rural Bangladesh on developing agricultural farm enterprises. They identified that rural women felt motivated to use mobile phones for their enterprises as it reduced transportation costs, timesaving, and made it easier to contact customers, and frequent contact and exposure to other entrepreneurs. They argue that the essential role of mobile phones as a productive tool for rural development is mainly because it enables access to valuable information for trading, such as the most recent pricing, or accessing different types of inputs for their business. Three categories of gratification[10] provide insights on women's phone use preferences:

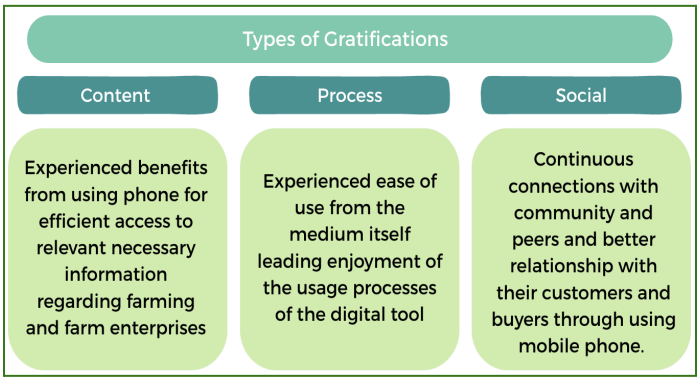

Figure 5: Types of Gratifications
Developed by the authors based on Stafford et al report "Determining uses and gratifications for the Internet."

Based on the gratification theory, Rahman et al build on this framework to specify seven factors that drive mobile phone usage specifically for business: 1) membership in an organization, 2) distance of residence from the nearest market, 3) training received on mobile phone usage, 4) skill in using mobile phones, 5) attitude towards mobile phones, 6) amount of money spent, and 7) perceived ease of use had a significant positive contribution. Out of the five, the factor that led to more positive responses was perceived ease of use.

[8] Benería, L., Berik, G., & Floro, M. S. (2016). *Gender, development and globalization: Economics as if all people mattered* (2nd ed., p. 112). Routledge.
[9] Rahman, M. S., Haque, M. E., Afrad, M. S. I., Hasan, S. S., & Rahman, M. A. (2024). Usage of the mobile phone on agricultural farm enterprise development by women in rural Bangladesh. *Cogent Social Sciences, 10*(1), 2383393. https://doi.org/10.1080/23311886.2024.2383393
[10] Stafford, T. F., Stafford, M. R., & Schkade, L. L. (2004). Determining uses and gratifications for the Internet. *Decision Sciences, 35*(2), 259–288. https://doi.org/10.1111/j.0011-7315.2004.02524.x

However, it is important to flag that while users use a phone when it is perceived as useful or derive gratification from use, the opposite is correct too: they will use a phone less if they derive unpleasant interactions from it. GSMA's report[11] has insightful information about how such perceived value may apply to business cases. In the case of Kenya, it outlines that while 40% of surveyed men report that they could not run a business without their phone (perceived value of phone for business use), 33% of women reported the same. This shows an internal insight in terms of the gender disparity regarding women's low perceived value of a phone for business use, which is something that can be further improved through increased awareness on the actual benefits of this use case to challenge these perceptions. For example, embedding learning content in localized narratives, can enhance digital relevance and help women visualize concrete, achievable next steps, particularly in contexts where aspirational role models are admired but pathways to emulate them are unclear.

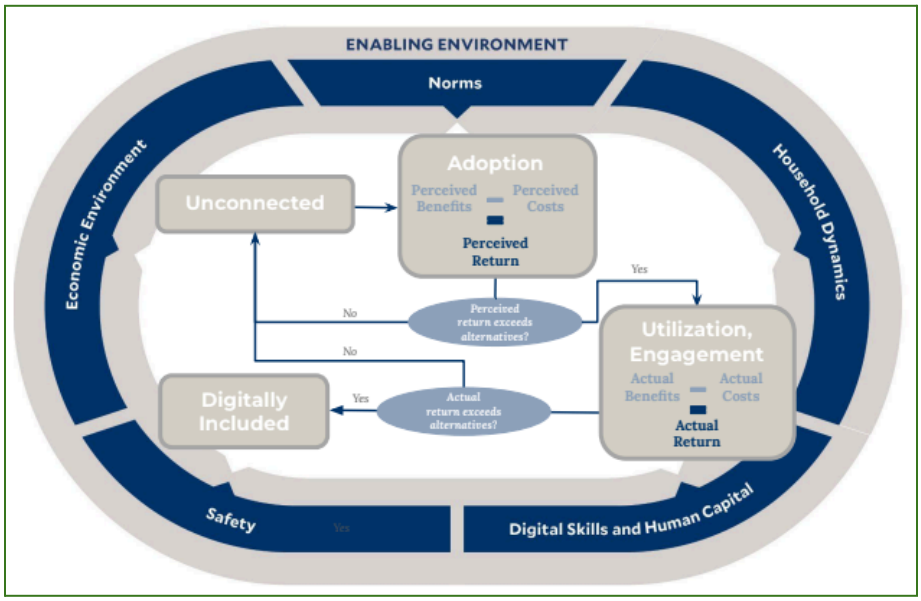

Figure 6: Framework for Women's Digital Engagement

Taken from Nelima et al, 2024, pp.10

Enabling Environment: Even though perceived positive value of mobile phones may be enhanced by tapping into the types of gratification mentioned above, it is important to note that such perceived value is embedded in broader structural and contextual barriers that women face. These can be mitigated through an enabling environment,[12] which includes digital skills and human capital, household dynamics, safety, economic factors, and social norms.

[11] GSMA. (2022). *The mobile gender gap report 2022* (p. 50). GSM Association. https://www.gsma.com/r/gender-gap/

[12] Nelima, L., Jorgensen, E., Pande, R., & Schaner, S. (2024, July 22). Foundational Evidence and a Framework for Identifying Innovations to Accelerate Women's Access to Digital Technology in Sub-Saharan Africa, M-KOPA - Yale Inclusion Economics Phase I Report.

Figure 6 outlines a useful framework for analyzing women's digital engagement through this broader context. Exposure to digital products, particularly with control and capacity building, can yield positive benefits. The cost-benefit decisions women make around mobile use, balancing financial cost, effort, and social norms, are shaped not only by technical access but by whether these tools feel empowering and supportive. Incorporating group-based learning into training may help by offering emotional and practical reinforcement from peers. Importantly, our field research and studies by Kaimathiri[13] and other narrative-based scholars show that many women look to community figures for inspiration but lack a clear bridge from aspiration to action, suggesting that building peer learning into digital environments may make them more usable and stickier.

What have we learned from similar contexts to leverage digital tools for women's business needs?

In a 2023 report, GSMA recognized that while "business drive is the most important determinant of whether surveyed micro entrepreneurs will use a mobile for business, women micro-entrepreneurs face more constraints to realizing that drive gendered social norms and structural inequalities limit women's access and use of mobile phones, but also their freedom and opportunities as micro-entrepreneurs more generally."[14] The report outlines, in the same line that the use and gratification literature, that women will use their phones more for business to the extent that they perceive its use positively. GSMA outlines that women use phones for business for the following reasons: communicating with customers and suppliers; marketing or promoting products or services; learning new skills or finding inspiration; and using digital financial services, particularly making, and receiving payments and storing or saving money.

Similarly, Natchev [15] provides interesting insights outlined in Figure 7 showcasing the different services associated with some of the use cases of digital tools for business, and innovative digital tools that have helped smallholder farmers to support their businesses. This aligns with findings from Wafula et al. and UNESCO's Lifelong Learning Institute,[16] which emphasize the power of peer-based and participatory learning. When digital training is framed as a shared journey –"let's

[13] Kaimathiri, P. N. (2021). *A narrative inquiry into the daily challenges to the business growth of women's microenterprises in rural Kenya* (Doctoral dissertation, Walden University). Walden Dissertations and Doctoral Studies. https://scholarworks.waldenu.edu/dissertations/10510/

[14]GSMA. (2023). *The Mobile Gender Gap Report 2023*. GSM Association. https://www.gsma.com/r/wp-content/uploads/2023/07/The-Mobile-Gender-Gap-Report-2023.pdf

[15] Natchev, V. (2024, May 12). Harnessing AI to Empower Smallholder Farmers: Bridging the Digital Divide for Sustainable Growth. Harvard ALI Social Impact Review. https://www.sir.advancedleadership.harvard.edu/articles/harnessing-ai-empower-smallholder-farmers-bridging-digital-divide-sustainable-growth

[16] UNESCO Institute for Lifelong Learning. (n.d.). *Promoting participatory learning in communities*. UNESCO. https://uil.unesco.org/lifelong-learning/learning-cities/promoting-participatory-learning-communities

learn and succeed together" – rather than a solitary task, women are more likely to stay engaged and support one another's learning. Fieldwork affirms that collective models improve retention and motivation by reinforcing communal values and reducing dropout.

Figure 7: Summary of Digital Interventions for Smallholder Farmers

Developed by the authors to capture Vesselin Natchev's article "Harnessing AI to Empower Smallholder Farmers: Bridging the Digital Divide for Sustainable Growth."

DIGITAL INTERVENTIONS FOR SMALLHOLDER FARMERS (NATCHEV, 2024)			
SERVICE	**DESCRIPTION**	**PRODUCT**	**FEATURES**
ADVISORY SERVICES	Value chain-specific, agronomist-created farming training and connections to experts for questions	Farmer.chat	tailored agricultural guidance allowing for conversational questions in their local language using voice, text, or images
FINANCIAL ACCESS	Access to finance solutions enables improved access to capital at lower costs and business plan creation	Amini	collects environmental data, provides insights to farmers via Whatsapp or companies engaging with farmers via dashboards to asses loan risk
MARKET ACCESS	Updated commodity price information to improve bargaining power and expand the buyer pool	Bolbha	provide smallholders with real-time price information through mobile technology

It is important to stress that advancing digital skills for women is only the starting point, and successful interventions and programs have proven to integrate digital tools with broader livelihood strategies, prioritizing underserved women, and evaluating scalable, bundled models that work beyond one-off interventions. Caribou Digital has gathered evidence from literature and early insights from the WEE portfolio. Key findings emphasize that bundling upskilling with other forms of support[17] (digital financial services, networking, business development) increase take up. Furthermore, favorable responses to digital upskilling are more likely to occur when paired with mentoring human touch points[18]. This is particularly relevant for low-income females. Insights from Gate's partners also show that incentives and reminders improve completion rates for learners, and that social commerce and informal online commerce[19] may be leveraged by low-income women to promote income generation.

[17]Kubuga, K. K., Abu, F. I., & Asiedu, D. (2024). Bridging the digital gender gap: Assessing the digital maturity of women-led MSMEs in Ghana. *International Journal of Social Science Management and Economics Research, 2*(3). https://doi.org/10.61421/IJSSMER.2024.2301

[18] Germann, D. (2023). Harnessing AI to empower smallholder farmers: Bridging the digital divide for sustainable growth. Harvard University Social Impact Review. https://www.sir.advancedleadership.harvard.edu/articles/harnessing-ai-empower-smallholder-farmers-bridging-digital-divide-sustainable-growth

[19]Roest, J. (2021). *Women, e-commerce, and financial inclusion: Findings from India, Kenya, Mexico, and Nigeria*. Caribou Digital. https://www.cariboudigital.net/wp-content/uploads/2021/11/Women-Ecommerce-and-Financial-Inclusion.pdf

Quick Female Farmer Insights At a Glance

Figures 8 and 9 provide a snapshot of the diverse income sources of the female farmers we spoke to during primary research and the key challenges they face in selling their products. These insights underscore the need for targeted interventions that improve both income generation and markets.

Figure 8: Main Income Sources of Female Farmers
Developed by the authors

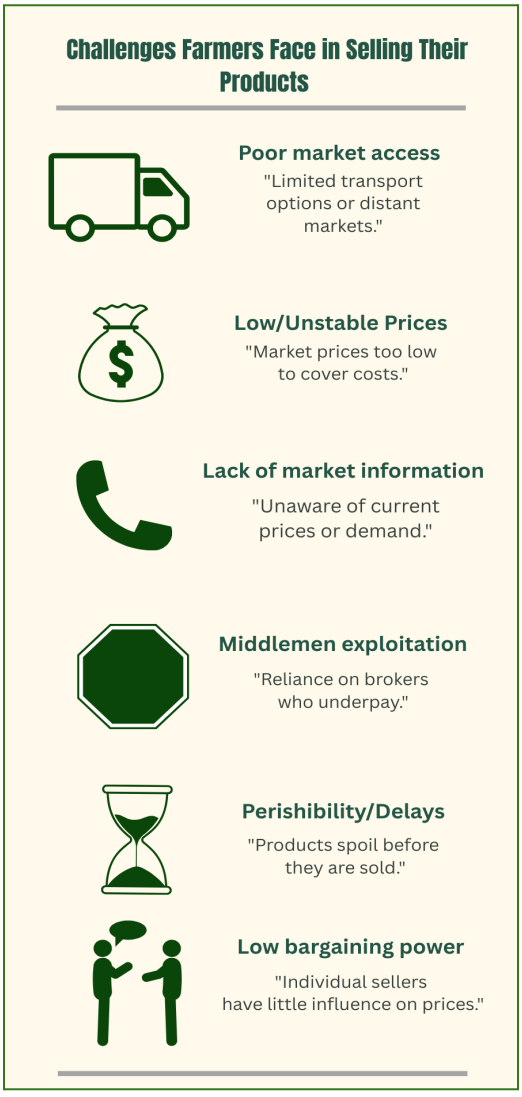

Figure 9: Main Challenges Faced by Female Farmers
Developed by the authors

Two Workstreams, One Goal: Insights

Methods

Guided by the learning questions referred above, we linked the higher-level outcomes from the theory of change to targeted research questions that were the basis for our interview materials and coding frameworks. The questions are as follows:

Workstream 1: To what extent do OAF training and tools impact on the lives and livelihoods of OAF's female field force?

- To answer this question, we focused on gathering insights on how digital tools enhance productivity, efficiency, tangible and intangible benefits such as confidence and autonomy, and overall improvements in quality of life for female field staff in terms of intergenerational spillover effects or to their communities.

Workstream 2: To what extent does OAF digital training impact female farmers' current planning and future aspirations related to their lives and livelihoods?

- To answer this question, we tried to understand female farmers' context by examining their digital skills, access to devices and tools, and awareness of digital opportunities for business growth and new income streams. We also assessed intangible benefits of digital training, such as increased confidence and more free time.

Furthermore, our outlined methodology aims to test key assumptions underlying the theory of change, particularly structural constraints affecting women's use and adoption of digital tools on both workstreams—such as connectivity, access to data and electricity, and their ability to generate and control income. To capture a holistic understanding of women's engagement with digital tools, we employed a mixed-methods qualitative approach tailored to the distinct realities of both female field staff and female farmers. The exercises were structured to be interactive, reflective, and grounded in women's lived experiences with digital tools. The interview guides for all exercises, interviews and focus groups can be found in the appendix.

NOTE: *Consent to take pictures, use the first names and record (voice and video) were always taken during the interviews and focus group discussions for both workstreams.*

Workstream 1: For OAF Agents, we conducted 4 individual interviews and 1 focus group discussion aimed at unpacking productivity challenges, perceived efficiency gains, and the broader spillover effects of digital training—both in their work and personal lives.

Figure 10: Focus Group Discussion with OAF Field Agents

Figure 10 is from the focus group with the female field staff, where the discussion was led by the SIPA team with facilitation help from the OAF staff. Similarly, the individual interviews were also led by the SIPA team with some prompting from the OAF staff. We visited the WeBuye Zone *duka*; every Monday the field officers have their mandatory weekly meetings with their manager where they discuss their progress, plans for the week, etc. Our questionnaires for the focus group discussion and interviews are available in the Appendix.

Workstream 2: For female farmers we designed two interactive interview designs with slightly different objectives to capture all aspects of the research questions fully. In total we interviewed 12 female farmers, 6 for each interview guide. We would like to acknowledge here OAF staff members who helped us identify the farmers and coordinated with their schedules so we could have seamless interviews.

We must note that all 6 women who were interviewed under the Digital Day Exercise had either interacted with or completed the training. However, for the Ranking Exercise only 3 out of the 6

women had completed all trainings while the other 2 had done some of the modules. Therefore, for this group of women we had to adapt our questionnaire on the spot to make it more aspirational and about what trainings would these women want to undertake or what would be helpful to them. The questionnaires for the interviews are available in the Appendix.

We also understand that our sample size is small and that there might be a risk of generalizing to the overall OAF female farmer base. However, we appreciate the effort made by the OAF team to identify farmers who had interacted with the trainings over different regions of the country, so we were able to make an as accurate assessment as possible.

Figure 11: Ranking Tool Used for Visual Identification of Trainings

Female Farmers Interview Guide 1 - Ranking Exercise:

- Determine which of the trainings provided to them were most useful to them
- Identify spillover impact of the skills acquired
- Identify assess the value add of digital training/tools for future aspirations

Figure 11 above displays the ranking tool used to help farmers visually identify and relate to the training modules: Understanding Money and Savings, Understanding Cash Flow, Money management for family and business, Starting and managing a micro-business. During the exercise, farmers were asked to rank the training from most to least helpful or desired.

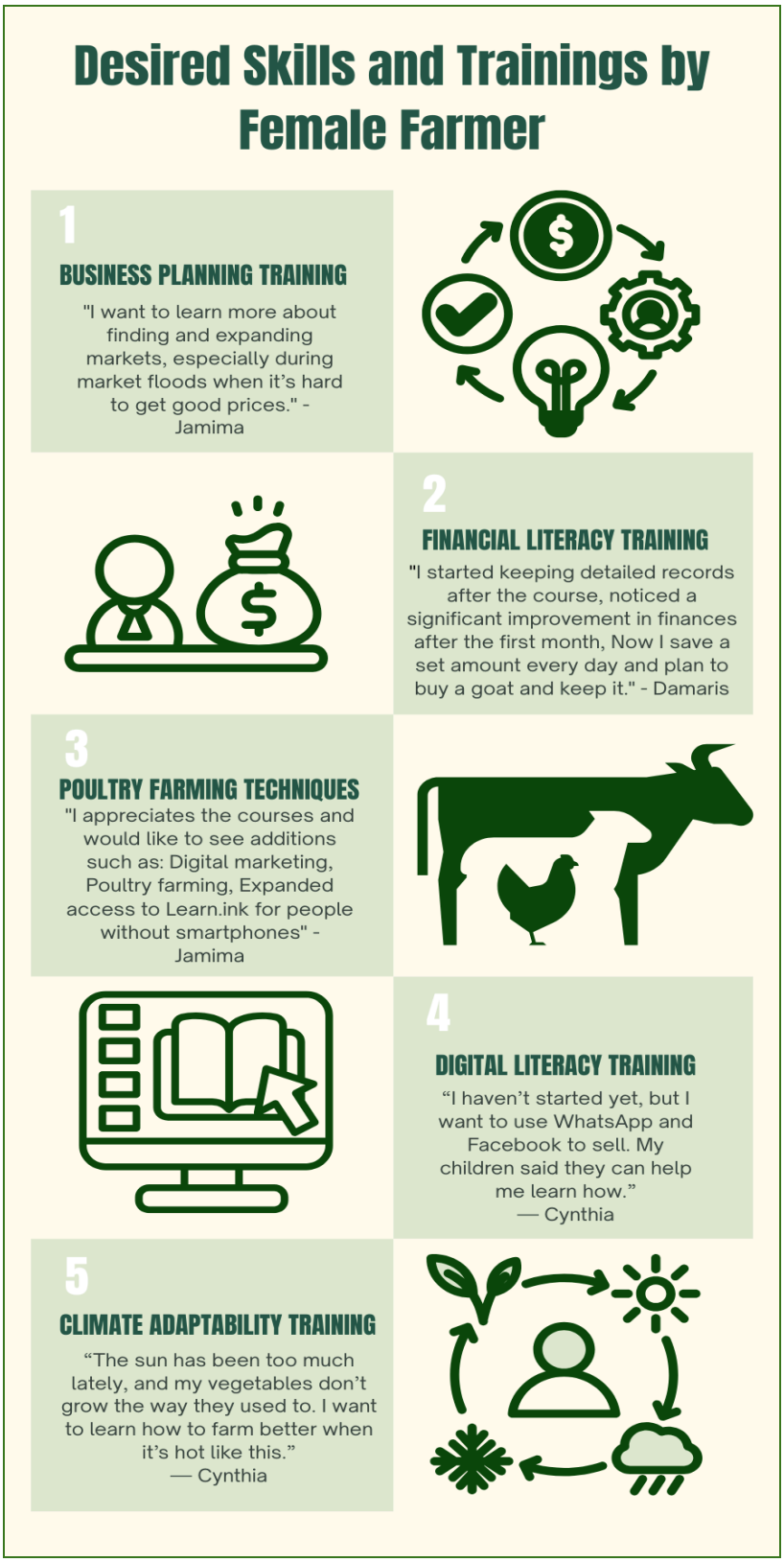

Figure 12: Skills and Trainings Desired by Female Farmers

Source: Developed by Authors

The rest of the questionnaire tried to gather information and insights on the daily lives of farmers, their use of digital tools, household gender dynamics and other spillover effects of using digital tools and completing the OAF trainings in daily life.

The interviews were primarily conducted by OAF staff: one team member facilitated the discussion using our interview guide, while another translated in real time for the SIPA team, who took notes. All conversations were also voice recorded. After which they were transcribed, coded and processed systematically to give us detailed insights and quotes for every interview.

Figure 12 summarizes ranking trends across the interviews, offering insight into which topics women found most relevant and actionable. **Figures 13 and 14** highlight the most desired skills and training areas identified by female farmers, with a focus on business planning, financial literacy, poultry farming techniques, and digital literacy. The ranking activity on the right shows how farmers prioritized existing training modules, with "Starting a Business" and "Money & Savings" consistently rated highest.

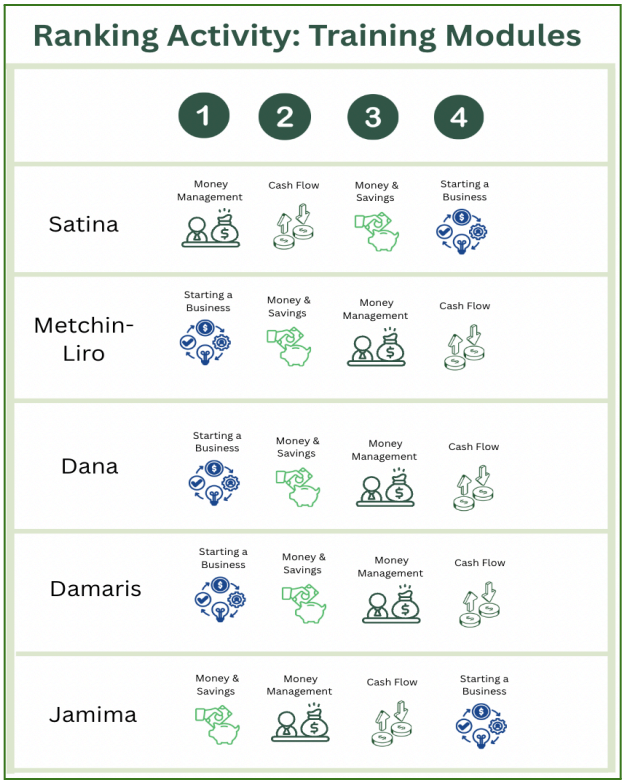

Figure 13: Ranking of Learn.ink Modules According to Interest

Developed by Authors

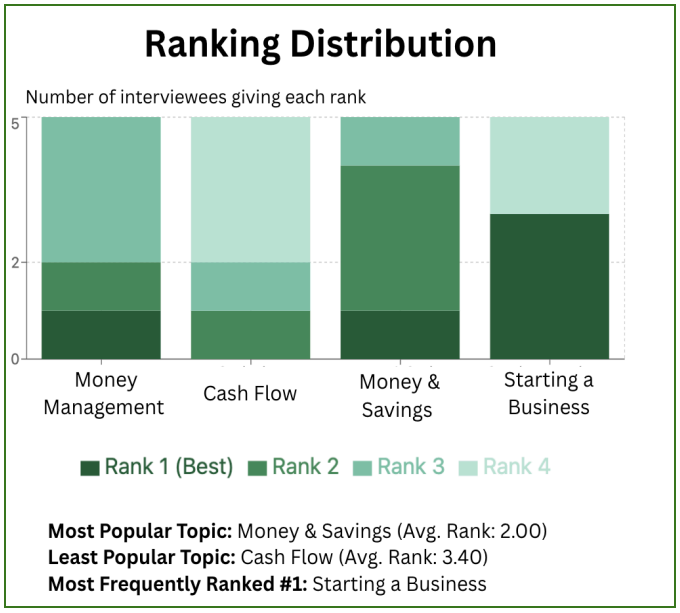

Figure 14: Rank Distribution of Modules

Developed by Authors

Female Farmers Interview Guide 2 - Digital Day Exercise:

- Identify the salience of digital tools: Salience refers to how relevant and useful digital tools are to women's daily lives and business needs. In Workstream 2, it shows up when farmers apply training to real tasks—like saving, budgeting, or marketing.
- Main constraints and use of digital tools
- Assess potential intergenerational impact of digital tools.

Figure 15 illustrates how we captured insights during the Digital Day exercise, a participatory activity designed to map women's daily routines alongside their digital engagement. Farmers were asked to walk us through a typical day—from the moment they wake up to when they go to sleep—highlighting when, how, and why they use digital tools. This included details on the types of devices accessed, the specific apps used (such as WhatsApp, Facebook, and Learn.ink), and the purpose behind each interaction, whether for business, communication, training, or household tasks. The exercise offered a nuanced understanding of when digital tools are most relevant and how they fit within the broader context of women's time use and responsibilities.

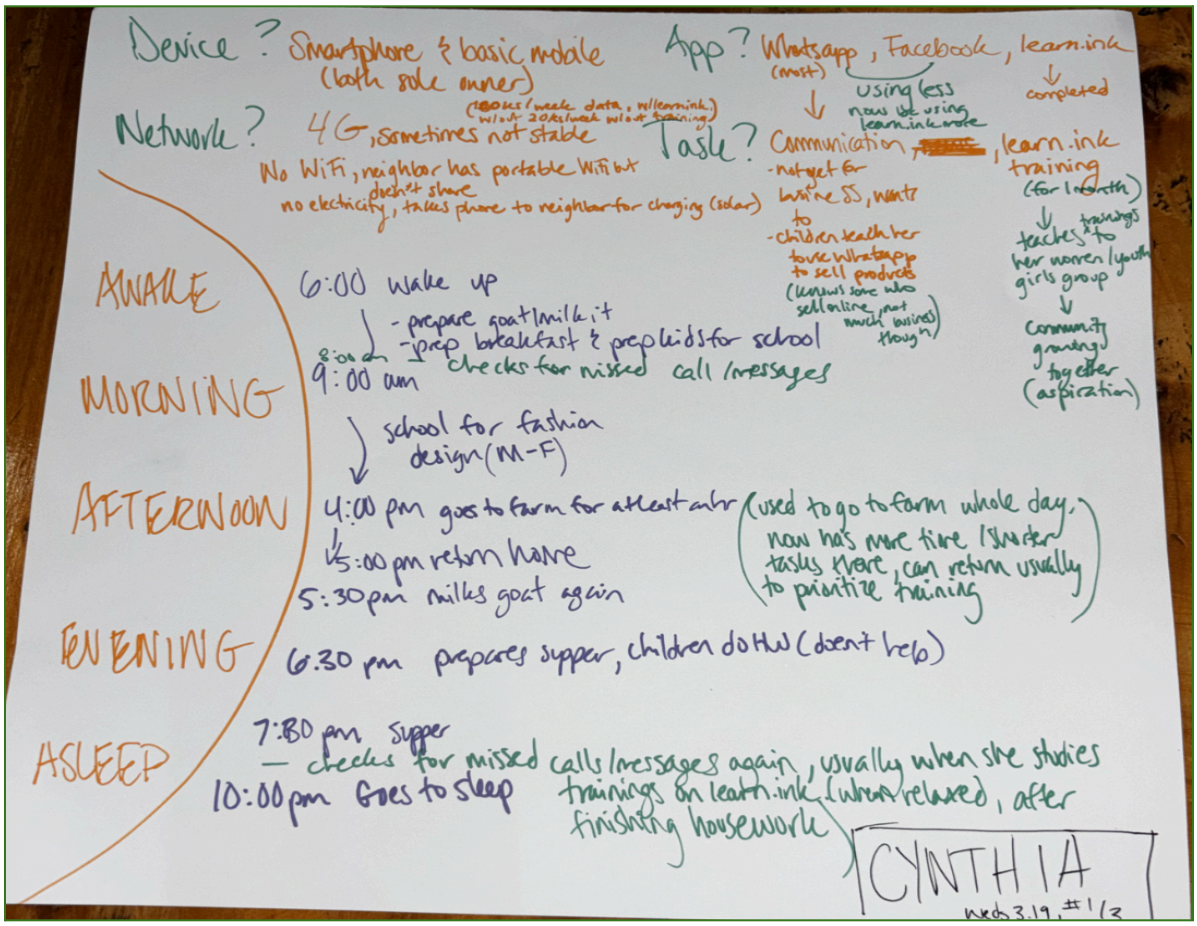

Figure 15: Capturing Digital Day Exercise Insights

The Digital Day interviews focused on how farmers interact with digital tools in real-time, exploring usage patterns, access challenges, and support needs. These sessions aimed to capture the salience of digital tools in daily routines, including business management and household planning. As with the ranking interviews, OAF staff facilitated the conversations, with one member leading the discussion and another translating for the SIPA team. All sessions were voice recorded and supplemented by live notetaking.

Figure 16 below presents an aggregate view of the six Digital Day exercises we conducted. It captures the various digital tools farmers use throughout the day and the purposes behind each use. Most farmers reported using their phones primarily in the evening, with WhatsApp, Learn.ink, and Facebook emerging as the most frequently used apps. These tools are mainly used for communication, engaging with Learn.ink trainings, and supporting business activities.

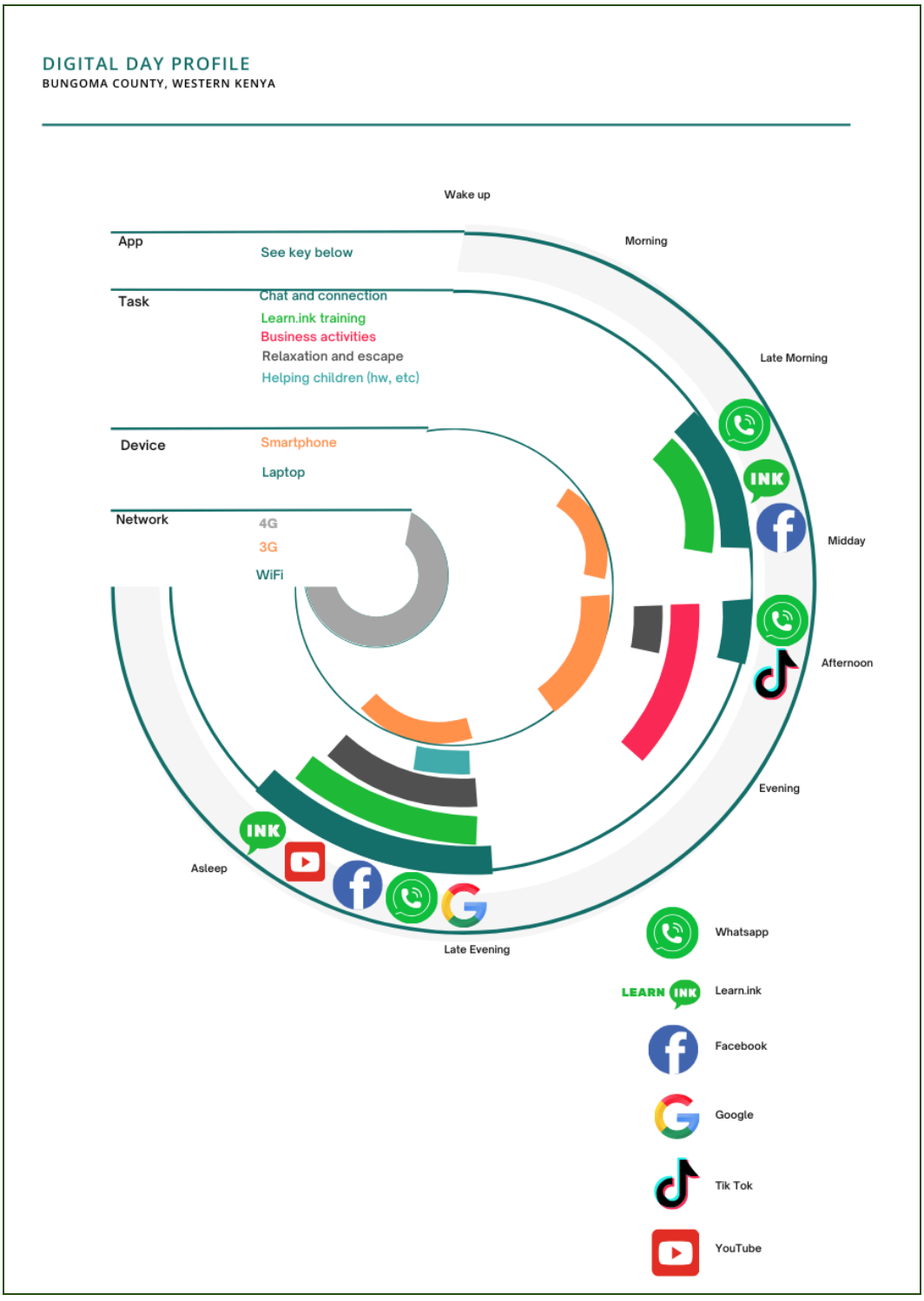

Figure 16: Aggregate View of Six Digital Day Exercises

Developed by Authors

Note: This Digital Day Profile was created from a small sample size of 6 female farmers who were phone owners. "It is important to note that 1) findings may be different for shared phone users and 2) these insights were self-reported rather than based on data trails.

Figure 18 summarizes key insights from the Digital Day exercises, highlighting how women allocate their time across income-generating work, unpaid labor, and digital engagement. It also shows common smartphone usage patterns, average time spent on Learn.ink, preferred apps, and typical data costs—offering a snapshot of how digital tools fit into women's daily routines and constraints.

Insights

As outlined before, the goal of both workstreams is to contribute towards a shared vision of increasing economic empowerment and agency for women in rural Kenya through digital tools which have been tailored to their roles as either field staff or small-scale entrepreneurs and farmers. For the female OAF Agents (field staff) in WS1, we tracked their engagement with digital training to improve productivity, job satisfaction, and upward mobility. Similarly, for the female micro entrepreneurs (farmers) in WS2, we were interested in gauging their capacity to use digital tools to help them diversify their income beyond subsistence farming.

Figure 17: Female Farmer Interview with OAF Team

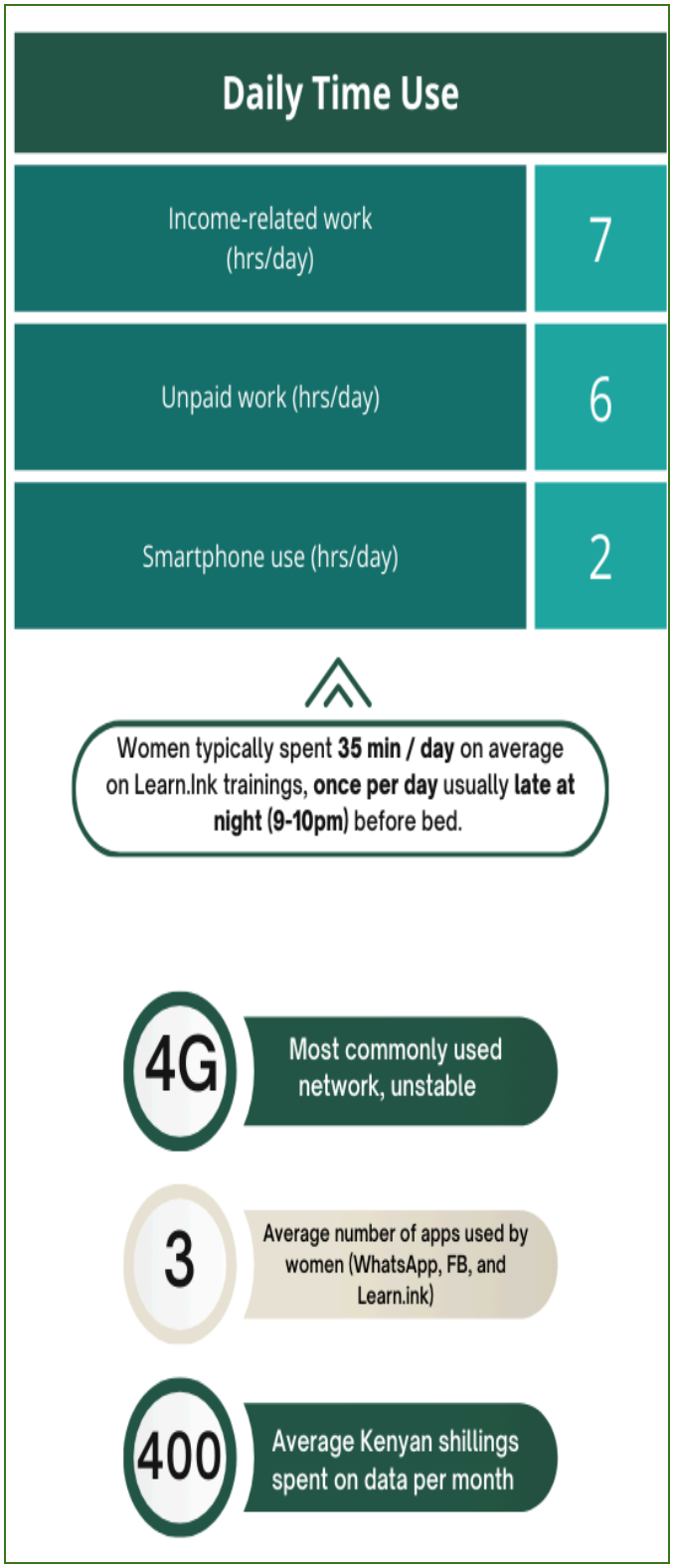

Figure 18: Women and ICTs in Kenya
Based on 2024 GSMA Report

The following **Tables 1 and 2** summarize key insights gathered across Workstream 1 and Workstream 2. Drawing from interviews, focus groups, digital day exercises, and ranking activities, these insights capture both the opportunities and barriers women face when engaging with digital training tools. Each table organizes findings around the main research questions for each workstream, highlighting where digital interventions supported women's economic empowerment, where assumptions did not fully hold, and where additional support or adaptation is needed. Together, these insights informed the recommendations outlined in this report.

Table 1: Workstream 1 insights

Workstream 1: Digitally enable OAF's female field force to drive increased productivity and income for rural women
1.1 Female field staff engage with digital training and tools

a. **Salience:** TAs are more likely to engage with digital tools when they directly support daily work including planning for the week. They use training modules to "refresh" specific tasks, but find it inconvenient to search long videos for specific topics, especially debt repayment methods.

   Quote: *"Sometimes I need to go back and refresh on how to do repayment follow-up… but the training is long, and I don't know exactly where to find that part." (Judith - Field Officer)*

b. **Training Format & Timing:** Trainings are perceived as too long and rolled out without prior warning, disrupting workflows. TAs want more predictability and modular formats.

   Quote: *"Sometimes you just get told to start a training the same day… but you already planned your week. It messes things up." (Judith - Field Officer)*

c. **Micro-Incentives:** Small incentives (like bonuses for completion or role-based gamification) improve engagement.

d. **Tech Constraints:** Data affordability is a recurring barrier; many TAs exceed their monthly data or call allowances and spend personal funds—ranging from Ksh 150 to 500 monthly—especially on SMS, calling, and digital training downloads. Activities like repayment follow-ups and training videos are particularly data intensive. Field officers sometimes shift to personal phones when tablets don't support texting or lose connectivity, increasing their financial burden.

   Quote: *"I use about 20 shillings a day to call clients, and that's from my own pocket… plus maybe 150 for bundles, especially when trainings are long." (Masinde - Field Officer)*

e. **Motivation via Design:** Features like relatable personas and visuals—such as "Mama Lucy the Cow"—help field staff contextualize training content and stay engaged. Participants respond well to familiar, community-rooted archetypes and formats like short videos or WhatsApp-style narratives.

f. **Professional Identity:** Some TAs view digital engagement i.e. completing training or using the FieldPro app, as a marker of professionalism and appreciate tools that make their job more efficient and respected.

1.2 Female field staff experience improvement in productivity and income

Helpful Productivity and Efficiency Case Uses:

a. **Task Management & Organization:** The Field Pro app helps field staff stay organized by offering structured inputs (e.g., dropdowns for logging training or follow-ups) and real-time tracking, which replaces error-prone paper records. Staff say it reduces their mental load and improves reporting. Paired with digital calendars for weekly planning, the app supports clearer workflows and better time management.

   Quote: *"I use my tablet calendar to plan my week — like a smart work plan. I know when I'll do training, when I'll do repayment, and I follow it." (Brenda - Field Officer)*

b. **Confidence & Client Handling:** Training—especially around repayment and client engagement—have helped staff build confidence and handle difficult conversations more effectively. One TA noted that protocols learned during training helped her support group leaders in managing repayment pushback. Others adapt communication strategies based on training, such as using personal numbers to maintain client trust.

   Quote: *"We have the protocols during repayment follow-up… the GL [Group Leader] interacts directly with the client, and I support when the GL is not able to push for repayment." (Judith - Field Officer)*

c. **Knowledge as a "Memory Refresher":** TAs use the training to revisit content they already know but need a prompt to recall.

Spillover Effects:

a. Digital tools designed for work are also used at home. One TA applied financial literacy training to plan a future hotel business using the "four pockets" method. These skills are improving both income planning and family support.

b. Digital financial literacy content improved budgeting and planning at home. For example, TAs used the "four pockets" method—covering savings for emergencies, growth, domestic needs, and development—to better manage household finances and plan small businesses.

c. Some TAs now Google information to help with children's schoolwork or improve home decision-making.

Aspirations vs Constraints: While many women aspire to grow businesses or take on more work, they face persistent constraints like time, capital, and caregiving responsibilities. Digital skills are clearly empowering; they are necessary but not sufficient. Broader enablers such as access to finance, supportive infrastructure, and family support are equally critical for meaningful economic advancement in the digital age.

Income Linkage: Digital upskilling through OAF has helped some TAs apply financial literacy to their own ventures, diversifying household income sources.

Table 2: Workstream 2 insights

Workstream 2: Research, develop & test new micro-enterprise opportunities specifically tailored to address the constraints, needs, & preferences of rural women (farmers)
2.1 Female micro-entrepreneurs enroll in pilot
a. **Behavioral Patterns:** Women involved in microbusinesses tend to engage more actively with digital training, applying lessons on budgeting, savings, and even basic digital marketing (e.g., WhatsApp sales). Those not yet in business engage more cautiously, often using the training to plan for future ventures. For example, one woman uses WhatsApp to promote her clothing business and applies lessons on borrowing and budgeting, while another uses Learn.ink primarily to prepare for launching a vegetable stall. b. **Training + Human Support:** Women appreciated that field officers introduced and explained Learn.ink—one vendor said she trusted it more than Facebook because a field officer showed her how to use it. This personal support boosted both trust and uptake. **Quote:** *"When the field officer showed me how to use it, I understood… otherwise I wouldn't have tried"(Meitri - Female Farmer, Kakamega)* c. **Design & Accessibility:** Voice-based, multilingual, and offline-first formats enhanced inclusivity. Women also appreciated visuals and personas that helped contextualize the training, e.g: Mama Lucy the cow in Learn.ink training.
Barriers to Use: a. **Device Access:** Most women manage phones independently, especially when husbands work away. Limited electricity and data—rather than spousal phone sharing—are the bigger constraints. Women typically use phones at night for training, and some restrict children's use to preserve access for learning or business tasks. **Quote:** *"I have to charge it at my neighbor's… sometimes she's not around, so I wait. I use it mostly at night after chores." (Violet - Female Farmer, Kakamega)* b. **Design Gaps:** Participants want more interaction, like the ability to ask questions during training. c. **Trust Concerns:** Women generally trusted OAF-supported tools like Learn.ink, especially when introduced by field officers. Their concerns were mostly about other digital platforms—like Facebook, WhatsApp, and Jumia—which they feared might host scams, misinformation, or inappropriate content. d. **Digital Literacy:** While many women embraced digital learning, those with lower skills required more hands-on support to get started. Without this, there's a risk of deepening the digital divide—especially if agents lean toward working with faster adopters or more tech-confident users.
2.2 Female micro-entrepreneurs utilize the training and tools to build/expand businesses

a. **Motivation + Relevance:** Engagement with digital training often reflects where a woman is on her business journey. Current entrepreneurs apply content immediately—like using savings or borrowing lessons to grow their business—while those still planning use it aspirationally, building knowledge for future ventures.

b. **Use Cases of Digital Tools:**
   For Business:
   - Some women are already using WhatsApp to market their products—one vendor began posting photos of secondhand clothes on her status to reach more customers. This low-cost strategy aligns well with planned social media marketing efforts and shows strong potential for scale.
   - Women showed interest in buying through apps like Jumia but haven't used them to sell. Trust issues and lack of delivery infrastructure limit rural women's ability to market and distribute products digitally, highlighting a key gap for future interventions.

   For Personal Use:
   - Women had very similar habits, apps, and uses, mainly using their phones to connect with their family and text others.
   - Women showed different preferences for entertainment. While some used YouTube to listen to gospel music, others used TikTok or Facebook to interact with others virtually.

Needs & Aspirations:

a. **Desire for Business Growth:** Farmers want to expand their businesses but need more practical support—especially around customer outreach, pricing, and digital marketing.
b. **Relevance of Broader Marketing Reach:** For hyper-local or perishable products, women often don't see a need for broader digital marketing. But for goods with wider appeal—like secondhand clothes, hairstyling or shelf-stable ag products—expanded reach could unlock new markets, especially with added post-production support.

c. **Support Models:** Given cost concerns, scalable options could include peer-to-peer support, trained digital ambassadors, or WhatsApp-based help lines. Many women said they only adopted Learn.ink after hands-on help from a field officer, suggesting that light-touch human support—even virtual—can be critical for initial uptake.

Spillovers:

a. **Household Planning & Decision-Making:** Training on financial literacy has enabled farmers to take a more structured approach to household budgeting and savings. Many reported initiating families planning discussions or becoming more vocal in decision-making processes.

   Quote: *"I now separate what to save and what to spend… before I would just use it all." (Cynthia - Female farmer, Kakamega)*

b. **Agency and Sharing:** Digital training appear to strengthen women's confidence to discuss financial topics with others—some shared Learn.ink lessons with children or neighbors. While we didn't see formal peer learning sessions, the training acted as a catalyst for informal sharing, especially when women felt ownership over the content.

c. **Shift in Mindset & Confidence:** Farmers reported feeling more respected and confident after

applying digital skills in everyday life, which translated into taking leadership in households and group savings initiatives.

d. **Intergenerational Benefits:** While most women share digital skills with their children, there are cases where children reinforce or explain concepts—especially when school content overlaps with training modules. One woman said her child connected Learn.ink's record keeping lessons to what they were studying in class, creating a shared learning moment.

   Quote: *"Yesterday, as I was going through my Learn.ink, I told my children that we should be keeping our records… One child told me it is even a coincidence that they are learning business at school about record keeping again." (Violet - Female farmer, Kakamega)*

e. **Community Engagement:** Farmers expressed a strong desire to support other women in their villages, especially those without access to smartphones, by sharing what they have learned—indicating a grassroots multiplier effect.

Some shared insights revealed across both workstreams are that women engage with most digital tools when the content is practical, relevant, and reinforced by peer support. Relatable visuals and community champions help in building trust and confidence, although barriers like data costs, shared devices, and poor connectivity remain a large problem. Despite these challenges, women are eager to apply digital skills beyond training and are using them for household planning, children's education, community mentorship and expanding their micro-businesses. This highlights the broader impact of inclusive, well-designed digital tools and interventions.

Hence, we can conclude that both workstreams have different needs but similar aspirations. While the field staff tend to seek tools that will help improve their professionalism and field efficiency, farmers were more driven to formalize their business and reach broader markets. Time and capital were major constraints for both groups, but the desire to grow, lead and improve their livelihoods was evident and strong.

Pictures from Field

Figure 19: SIPA and OAF teams conducting Female Farmer Interviews

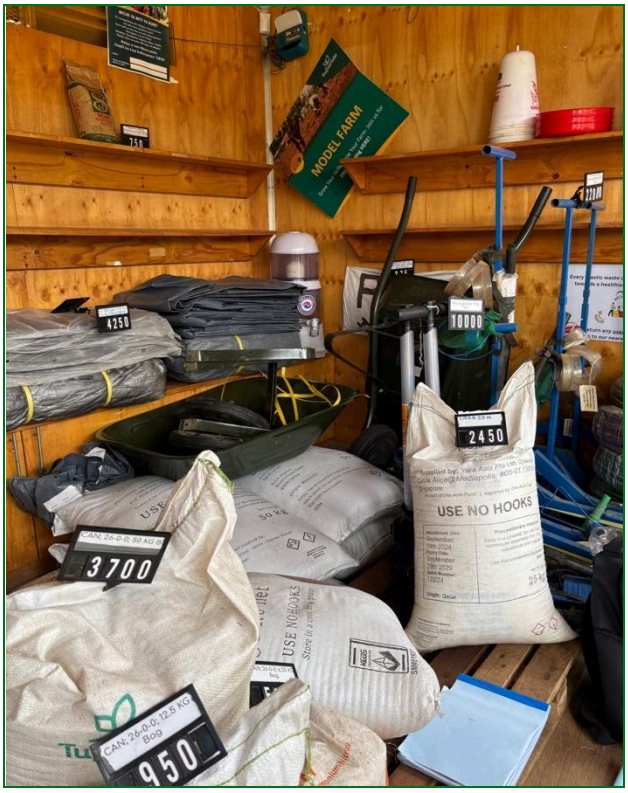

Figure 20: Products sold at an OAF *duka*

Figure 21: Conducting an interview with farmer Edith

Recommendations

Figure 22: Overview of Recommendations
Developed by Authors

This section is the result of our analysis of OAF's strategic goals and the working theories of change for both workstreams, connected to what we have learned through supportive literature, and the insights collected in the field to understand the lived experiences of the women who should be the ultimate beneficiaries of our work. The recommendations outlined below are framed under the learning questions that the partnership between the Gates Foundation and One Acre Fund seek to explore. With that, our aim is to assist OAF in answering these questions through human-centered, gender-sensitive, accessible, and affordable solutions to ensure FF and TA's digital upskilling, and overall improve their economic empowerment.

Near Term (3-6 months)

1. Pilot behaviorally informed nudge campaigns to promote Learn.ink engagement (WS 1 & 2)

Short, behaviorally informed messaging, such as reminders, social proof,[20] or framing around aspiration and family benefit, can increase sustained Learn.ink use. Beyond structural challenges like time poverty and limited data access, both female field staff and farmers cited inconsistent motivation and lack of incentives as the main barriers to engaging with digital learning. Nudge campaigns can be an effective tool to increase the salience and motivation to engage with digital training as they will be accompanied with positive images or videos of women using digital tools to run their businesses and the benefits of doing so, distributed via WhatsApp or SMS. These can help address low or inconsistent motivation by normalizing training and reinforcing its everyday relevance, particularly if timed around women's known mobile phone usage patterns (morning and late evening).

Campaigns can also be tailored to engage new enrollees in the WS 2 pilot program as it expands and increases awareness of positive trajectories, and to amplify spillover impacts through modeling sharing of digital training information with children and communities. For female field staff, highlighting how staff have successfully applied training to improve both their work performance and personal life, for instance applying composting training intended for sharing with farmers to begin composting themselves at home, can also help strengthen spillover effects.

[20]The Decision Lab. (n.d.). *Social proof*. The Decision Lab. Retrieved April 28, 2025, from https://thedecisionlab.com/reference-guide/psychology/social-proof

2. **Launch basic digital literacy "day-in-the-life" and online safety micro-modules to build confidence and everyday phone use (WS 2)**

To increase uptake of Learn.ink and broader phone use and bridge gender divides, OAF can develop short, relatable digital literacy micro-trainings that show how smartphones can support daily routines. These modules can be framed around a typical rural women's day, demonstrating how to check the weather before farming, find market prices before heading to sell goods, use Google or other apps to help children with homework, or connect with other women and groups via social media. Furthermore, with online trust and safety emerging as a real concern that limits the attractiveness of digital tools for business purposes, training in online safety will build confidence and minimize online risk. These modules can include sections on understanding digital threats, protecting personal information, safe browsing, or managing online interactions with other users. Delivered in bite-sized, low-data formats (e.g. short audio, visuals), this Foundational training can reduce anxiety around phone use, encourage a broader range of uses and apps, build trust, and pave the way for engagement with more complex business and financial tools.

3. **Test hybrid and digital-first training models to boost Learn.ink uptake and retention, while exploring how TAs can play a stronger role as local digital enablers (WS 1 & 2)**

Even among the very small number of female farmers who own smartphones, some face persistent challenges when using Learn.ink, such as difficulty downloading and navigating the app, cost of data, limited smartphone familiarity, and the inability to ask real-time questions. Additionally, both female farmers and field staff have expressed preference for a hybrid training model that combines the convenience of digital content with the clarity, accountability, and community support of in-person learning. In light of this, OAF can evaluate two distinct implementation models to improve access, engagement, and learning outcomes:

Blended in-person and digital training model: Under this approach, core Learn.ink modules would be reinforced through scheduled in-person group training, ideally aligned with key business stages or seasonal needs. These sessions would help contextualize digital content, allow space for discussion and clarification, and create accountability for continued learning.

Digital content could be assigned before or after group sessions, while printed summaries can supplement learning for low-literacy users. Space could be created within this designated in-person training for Learn.ink troubleshooting questions and content specific clarifications, in order to not add any additional tasks to TAs who already face many demands on their time. This blended approach supports sustained engagement while addressing the connectivity and confidence gaps that many farmers face, providing a pathway to extend future pilots to women

who share their smartphones with family members or face other access constraints. It also aligns with the habits and routines of OAF's existing training model, making implementation smoother across regions.

Digital-first model with enhanced tech and TA-enabled support: For regions or cohorts where in-person facilitation is less feasible or preferable, OAF can prioritize a streamlined digital learning experience, supported by scalable tech and light-touch TA involvement. This includes investing in tools like WhatsApp-based chatbots, embedded troubleshooting guides, or on-demand SMS tips to help female farmers navigate Learn.ink content more independently.

TAs, in this model, would receive basic digital troubleshooting training to act as first-line support only when needed, such as during routine visits or monthly check-ins. Their role would be to guide farmers toward using self-help tools or escalate persistent issues to the Operations team and Learn.ink team. This model limits the burden on TAs while still providing farmers with a trusted fallback for common tech issues and reinforces OAF's broader digital empowerment goals. This option also provides possible benefits of encouraging TAs to upskill their overall digital literacy, with potential spillover impacts on their lives, as well as increase their ability to extend support to farmers and enhance human capital and organizational capabilities for future digital programming.

4. **Adapt core modules with user-friendly features, including short summaries and relatable formats (WS 1)**

To bridge connectivity gaps and facilitate quick access to job-related knowledge when working in remote areas, female field staff (WS1) emphasized the need for offline-accessible short summaries, glossaries, and quick-reference visuals at the start of each module. These summaries would help staff refresh key lessons for immediate application without redoing entire modules. This adaptation also supports low-literacy users by improving clarity and recall.

Though the need is more acute for WS 1, WS 2 farmers also reported challenges with connectivity and data use when accessing digital training, as well as difficulty locating specific content and understanding more technical modules. Based on insights for WS 2, OAF can assess and confirm whether the initial design of the pilot, particularly the length, complexity, and content of modules, was appropriate for farmers, or whether shorter summaries and other light-touch adaptations might better support sustained use.

Across both workstreams, women consistently responded well to character-driven stories (e.g., Mama Lucy), visual explanations, and scenarios tied to real-life challenges, indicating these formats are especially effective for comprehension and motivation. These elements can be

considered standard in future content development, particularly for WS2 pilot expansion for instance to spotlight successful stories of female business owners.

5. **Provide a consistent data stipend from onset as part of digital business training expansion, particularly for first time or low-literacy users (WS 2)**

Field staff and women farmers both noted that limited data was a critical barrier to completing training. While field staff receive a data stipend, previously 1,000 KES/month but recently reduced to 800 KES/month, staff reported this was often exceeded when completing training in addition to other data-intensive work tasks, particularly those related to repayment.

For farmers, the absence of a data stipend in the Learn.ink pilot program was a significant barrier to access and raised concerns about sustainability and continued engagement beyond the pilot. While one-time business stipends (~1,000 KES) tied to specific learning or program milestones are being explored, we recommend providing a regular, modest data stipend from the onset of digital training to support successful participation, especially for low-income farmers.

To mitigate risks of stipends being used for non-program purposes, many organizations restrict usage through mobile wallets, offer disbursement only after verified training progress, or bundle the data allowance directly with mobile network partners. Providing data-specific stipends are increasingly considered best practice in digital skilling initiatives, particularly when targeting first-time or low-literacy users.[21] A regular stipend would also allow testing of engagement rates when the data burden is removed, informing decisions around longer-term scale and sustainability.

Scale-Up Strategy (12–24 months)

6. **Build out a network of digital champions in each program region (WS 2)**

Both TAs and early adopter farmers already informally coach others on using Learn.ink and digital tools. A formalized network of “digital champions” - either respected local peers or top-performers in the pilot program who model, support, and mentor others in digital adoption - can help overcome tech hesitancy, particularly in conservative or digitally underserved areas like Koteku. Having local successful role models can help women feel supported and inspired to follow a similar path, as well as recognize the tangible benefits of the use of digital tools to run their businesses. These champions and their support can also be built into the existing Impact training schedule for farmers and help OAF gather local feedback for iterative design improvements.

[21] Dayanand, Raja and Khan, Zeryab and Kalwar, Marvee and Kumar, Ashok, Digital Literacy for Rural Women's Empowerment and Socioeconomic Participation: A Comprehensive Study (November 26, 2024). Available at SSRN: https://ssrn.com/abstract=5093591 or http://dx.doi.org/10.2139/ssrn.5093591

For future scoping, it would be useful to test how digital champions are selected (such as through peer nominations or based on Learn.ink usage data), how their role is communicated to others (e.g., via announcements in Impact meetings, social media, or WhatsApp-forwardable profile flyers), and what incentives sustain engagement. This could include testing permanent versus rotating champion roles to widen participation and prevent burnout, and offering low-cost rewards like data top-ups, branded items, or early access to new training.

7. Tailor future Learn.ink business content to female farmers' business interests and different stages of the entrepreneurial journey (WS 2)

Women farmers are at varying stages of entrepreneurship. Some are just beginning to explore non-agriculture business ideas, while others are actively managing and seeking to expand existing ventures. Learn.ink content should reflect this diversity by offering tiered modules aligned with the business lifecycle: aspiration and ideation, startup basics, and growth strategies. For example, early-stage users may benefit from foundation al topics like "starting a business" and "record keeping," while more advanced users are eager to learn about pricing, digital marketing, and supply sourcing.

Structuring and delivering content in a tiered way can increase engagement, ensure relevance, and strengthen the platform's role in supporting long-term economic empowerment. Opening periodic feedback cycles will help OAF keep digital tools relevant as women's business needs evolve, including challenges like stock management or climate resilience.

8. Introduce a built-in reward and recognition system to reinforce learning and platform engagement (WS 1)

To sustain long-term engagement with digital tools, OAF should pilot a tiered reward system that goes beyond certificates to recognize effort, consistency, and peer learning. Both field staff and women farmers responded well to recognition and reported motivation from social encouragement and practical outcomes. A points-based or badge system could track module completion, knowledge sharing, and new skill applications. This could be complemented with achievement badges and progress indicators on specific training modules to enhance TA's sense of progression and personal accomplishment. TAs also reported positive responses to group learning and to this end, promoting intentional spaces where TAs can learn together, such as group-based competitions, would help to internalize content in a more interactive setting.

Points accumulated through these activities can be redeemable for non-cash incentives like data bundles, airtime, or public recognition within community groups or WhatsApp forums. This

would create positive reinforcement loops, boost perceived value of the platform, and foster a culture of collective learning, especially in contexts where group validation carries weight.

Enabling Ecosystem

9. Leverage Gates grantee networks to share tools and evidence through regular semi-formal channels, and explore a learning partnership of grantees working in East Africa on agriculture, digital skilling, and gender (WS 1 & 2)

Many of the tools and strategies developed by OAF with Learn.ink, such as training modules, theory of change, and engagement frameworks, could be highly valuable for other Gates grantees working on women's economic empowerment. A shared learning mechanism or working group for regular exchange across grantees would amplify impact, reduce duplication, and align standards for digital training quality.

Promising peer connections include Caribou Digital as a learning partner for OAF's WEE strategy, Arifu for e-learning content design, and M-KOPA for lessons on digital incentives and agent network mobilization. M-KOPA also uses Learn.ink, offering an opportunity to coordinate training insights. Sauti may offer valuable perspectives on delivering agricultural information through accessible channels, while international examples like Shomvob (Bangladesh) and Circle (Pakistan) could provide inspiration on creative digital awareness-raising for women, even if contexts differ. OAF could also explore collaboration with Turn.io, particularly around their "WhatsApp Chat for Impact" sub-grants (e.g., Frontier Markets, TechHerAfrica), which focus on reaching women through conversational interfaces and lightweight, accessible content delivery. Such cross-grantee exchange would not only support stronger design and scale strategies for OAF but also contribute to a broader ecosystem of evidence-based, gender-sensitive digital innovation.

10. Build on prior market assessment with iterative market ecosystem scans to inform content design and program strategy (WS 2)

Digital market building for rural women presents a barrier to transformative long term impact and remains an open question that must be addressed in tandem with digital training and business development. Building on OAF's initial market assessment for the digital business training pilot, regular lightweight ecosystem scans can help ensure Learn.ink content and broader WEE strategies stay aligned with real market dynamics. These scans should identify shifts in customer demand, supply chains, and informal procurement systems that affect rural women's business decisions, particularly as they move toward more market-facing enterprises.

Of particular importance is understanding how women are navigating urban-rural market linkages, such as supplying city markets through family members or group arrangements. Interviews revealed women selling products via family members (typically husbands, sons), suggesting alternative models of market access that may be overlooked. Capturing these patterns can inform more tailored training modules on pricing, sourcing, and logistics, while also spotlighting local success stories through relatable formats. Iterative assessments that draw insights from field staff, digital champions, and early adopter farmers can support ongoing content refinement, surface scalable innovations, and strengthen OAF's role in connecting rural women to viable market opportunities.

11. **Explore group entrepreneurship models and partner with local communities, including churches or local non-profits, to create supportive networks and other informal information sharing mechanisms. (WS 2)**

Some female farmers reported that they regularly shared training knowledge on savings and agriculture with other women through informal groups or community settings (e.g., WhatsApp groups, church-organized financial literacy sessions). Furthermore, they reported a strong sense of belonging to their communities, and desires to improve them.

To foster community and create peer support chains, there may be value in exploring group entrepreneurship models, where several women at similar stages of business development come together to apply for training and marketing support loans. Such group-based mechanisms, drawing on OAF's own experience with group input loans, can foster accountability, peer reinforcement, and shared problem-solving, while also building community around digital learning.

Additionally, by strategically partnering with trusted local institutions such as churches, community centers, and local NGOs to promote women's economic empowerment, One Acre Fund can effectively leverage and strengthen these existing informal channels while helping to address underlying negative social norms that may hinder their aspirations. This approach will facilitate greater information dissemination, enhance women's confidence in utilizing new business strategies, and build resilience by fostering peer-to-peer mentorship and collective problem-solving. Ultimately, such community-based partnerships align with the existing behavior patterns observed among female farmers and help bridge gaps in digital literacy and market access, reinforcing a supportive ecosystem for women's economic empowerment.

Conclusion: Towards Inclusive Digital Integration

One Acre Fund's strategic pivot from an agricultural focus to a broader goal of WEE agenda reflects a timely and relevant shift in response to persistent digital, financial, and gender-based barriers faced by rural women in Kenya. While mobile phone ownership has grown, many women still face barriers such as low digital literacy, high data costs, limited access to reliable electricity, and deeply rooted social norms. In partnership with the Gates Foundation's WEE initiative, OAF is working to dismantle these barriers by offering accessible digital training to equip women with core business, financial, and agricultural skills via mobile applications such as Learn.ink.

To support this strategy, OAF launched two distinct but complementary workstreams. WS1 focused on digitizing its female field force, who make up nearly half of OAF's team in Kenya, while WS2 piloted digital business training for female farmers aimed at supporting their transition from subsistence farming to income-generating microenterprises.

Across both workstreams, digital tools demonstrated strong potential to boost productivity, confidence, and income diversification—especially when the training aligned closely with women's everyday tasks and aspirations. In WS1, applications like FieldPro and Learn.ink were praised for improving task management and client communication, and many field staff reported spillover benefits in their home lives—from better budgeting to starting side businesses. However, barriers such as long and unpredictable training formats, high data costs, and weak connectivity challenged consistent engagement. These findings suggest that while digital skills are empowering, they are not sufficient on their own. Supportive systems including offline access, modular content, and small incentives are needed to sustain adoption.

In WS2, training modules like "Starting a Business" and "Money and Savings" were seen as highly relevant and actionable. Women engaged more when tools supported their immediate needs – such as checking the weather, tracking sales, or helping children with schoolwork. Yet challenges around device access, digital confidence, and time poverty persisted. Most importantly, training uptake and retention were higher when digital tools were introduced through a trusted local support and reinforced by real-world examples, such as women successfully applying financial literacy lessons to household budgeting or business growth. Even among pre-business owner users, there was a sense of excitement about applying these training methods in the future to open their own micro-businesses or simply manage household finances better. Some women flagged that since taking the training they have experienced

improved confidence, financial planning, and even spillover effects within households – such as applying savings strategies at home or sharing training content with their children.

However, several of our key assumptions embedded in the theory of change for workstreams did not consistently hold in practice:

- **Stable connectivity and electricity:** While assumed as a baseline for digital learning, many women and staff operated in areas with weak signals, no power at home, or limited ability to charge devices. Phone use was largely confined to evenings (often between 9–10 PM), after long days of income and unpaid labor, and was frequently interrupted by battery and data constraints.
- **Time and interest to engage:** Time poverty was a universal theme—women juggled multiple roles and only engaged with digital tools when it was clearly beneficial and could be slotted into their routines. Motivation was inconsistent, especially when training was long, unfamiliar, or delivered without context.
- **Control over income or device use:** Particularly in WS2, women's ability to act on training was sometimes limited by household dynamics. Though not always explicit, several interviews hinted at men as barriers, with some women using phones quietly or restricting children's access to preserve limited data and device life.

These gaps tell that digital skills are necessary but not sufficient for the transformation. Training is more effective when introduced through trusted intermediaries, structured to align with the farmers existing routines, and supported by additional scaffolding such as offline access, small social incentives, and real-life success stories that reflect the challenges and aspirations of rural women.

Importantly, both workstreams revealed that human interaction remains critical. Whether it was a field officer helping a TA troubleshoot the app, or a woman farmer learning how to use WhatsApp from her child, learning was social—and support networks mattered. Digital champions, peer sharing, and community-based reinforcements emerged as powerful tools for deepening engagement and creating a sense of motivation and legitimacy.

Looking ahead, OAF is well-positioned to scale and adapt this early momentum. The recommendations proposed—ranging from behaviorally-informed nudges and hybrid learning models, to micro-module development and digital champion networks—speak directly to what farmers and field staff themselves said they need: simple, relatable, supportive digital tools that fit into the contours of their lives. By continuing to tailor content to the realities of rural women's time, resources, and aspirations—and by acknowledging the ecosystem of support they need—OAF can continue building toward its vision of inclusive, gender-equitable digital and economic transformation.

Reflections and Lessons Learned

This experience deepened our understanding that development is not just about introducing tools, but about investing in people–especially women–who face barriers to financial independence. We learned that meaningful, inclusive progress requires both empathy and structural change, and that digital innovation must go hand-in hand with a grounded understanding of local context. Our visits to female farmers homes highlighted the need to address fundamental infrastructure gaps such as access to electricity to these farmers. While the trainings were beneficial, it is access to capital that ultimately determines whether those skills can translate into real economic opportunity–and that is still out of reach for many of the women we met.

It was also interesting to see that there is potential and desire among women for digital tools to act as force multipliers for women's economic empowerment even though many barriers remain. It is difficult for any single organization or program to attempt to build digital markets in rural areas, which remains an open question that will require more of an ecosystem approach that relies on new partnerships.

Future Research

It is important to note that one of the limitations of this study is not conducting the research with men and the wider community as they may be gatekeepers and play a role in the barrier that female field staff or female farmers face when using and accessing digital tools. Alternatively, they could be enablers supporting their wives with work so that they could have more time to take the trainings since time limitation was raised as a concern in our study.

Exploring partnerships with mobile network operators (MNOs) to zero-rate Learn.Ink access and data use to mitigate data cost constraints associated with training and will help reduce the risk that stipends are misused. Moreover, exploring co-financing models and partnerships with ag-tech or fin-tech providers for WS2 to sustain women's digital engagement will be helpful. OAF has already attempted to engage with financial partners such as CityBank Kenya and Equity Bank, but these efforts faced challenges including lack of strategic alignment and financial non-viability of the farmer demography. Joint programming can be designed that includes bundling training with access to mobile loans, e-commerce platforms, or supply chain tools, can align incentives and increase long-term sustainability.

Furthermore, regarding the digital champions that raise awareness on the benefits of digital training for business use, it's worth exploring how these champions would be selected, how others can be informed about them, what the role of digital campaigns would be and what the benefits or incentives are for being a champion of digital training.

Finally, in the future, it would be helpful to look at other grantees of the Gates Foundation that focus on similar work of empowering women with digital tools and identify joint priorities and shared insights, potential areas of collaboration and see if there are any overlaps with the work OAF is currently doing.

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