



DIGITAL AGRICULTURE (PHASE I & II)

Digital Agriculture for Accelerated and Inclusive Post COVID-19 Economic Recovery in Laikipia County, and Sustainable, Climate-Adapted, and Digitally Enabled Agriculture for Enhanced Food Security in Kenya: (Digital Services in Agriculture I&II).

IMPACT EVALUATION OF THE DIGITAL SERVICES IN AGRICULTURE PHASE I & II PROJECTS

EXECUTIVE SUMMARY

Prepared By:

The African Centre for Women, Information and Communications Technology (ACWICT)

December 2023



TABLE OF CONTENTS

1.0 Project Context	03
2.0 Methodology	04
3.0 Summary of Key Findings	05
4.0 Sustainability	11
5.0 Conclusion	11
6.0 Challenges and Adaptations	11
7.0 Lessons Learned	11
8.0 Recommendations	11
9.0 Contact Information	12



01. PROJECT CONTEXT

In 2019, ACWICT conducted a study to identify barriers to accessing locally relevant digital agricultural content. It aimed to understand user needs, success factors, models and opportunities for enhancing access to digital content for smallholder farmers, focusing on the challenges faced by women and youth in Laikipia county, Kenya.

The Findings: Digital Content Usage

ONLY 1% of farmers use digital content as their primary source of agricultural information

THE MAJORITY 99% relied on face-to-face, print, and electronic media

Major barriers to accessing digital content included:

- Lack of awareness and digital literacy skills.
- High internet costs and poor coverage.
- Gender disparities, with men having better access to the internet than women.
- Limited access to digital platforms for procuring inputs and market information.

Project Implementation (2020 - 2021):

In December 2020, ACWICT received funding from the UK Digital Access Programme to implement the "Digital Agriculture for Accelerated and Inclusive Post COVID-19 Economic Recovery" project. The project aimed to enhance access to relevant digital agricultural content and insights for farmers.

Project Goals

- Increase access and utilization of digital agricultural content for community development.
- Enhance digital skills and resource utilization for sustainable agriculture.
- Provide digital content aligned with farmers' priority information needs.
- Raise awareness of agricultural digital platforms and promote a digital content-seeking culture.
- Establish agricultural information resource centers closer to farmers.
- Strengthen partnerships to achieve project objectives.

PROJECT PHASES

1

Phase one aimed at promoting sustainable agriculture and food security through digital enablement, thus contributing to Laikipia County's priorities for Agriculture and the overall country vision for 2030.

2

Phase two aimed at enhancing access and utilization of digital agricultural content among smallholder farmers in Laikipia County, thereby improving agricultural productivity and income.



Despite its potential, progress towards Digital for Agriculture (D4Ag) has been slow, especially for smallholders who **contribute 80% of Africa's agricultural output.**

The project recognized digitization as crucial for agricultural transformation in Africa, with potential benefits:



Increased productivity and profitability



Enhanced resilience to climate change



Improved livelihoods for smallholder farmers and pastoralists.



Greater engagement from women and youth in agriculture.

Evaluation Process:

As the project neared completion, ACWICT planned to conduct an evaluation as part of its Monitoring, Evaluation, Research, and Learning (MERL) process. The evaluation aimed to assess:

- Effectiveness
- Efficiency
- Relevance
- Sustainability of project interventions

The goal was to provide stakeholders with evidence-based insights into the project's achievements, challenges, and lessons learned, ensuring that claims of meeting project objectives are substantiated with rigorous data. An external evaluation would enhance the reliability of the findings and their generalizability to a larger population.

2.0 METHODOLOGY

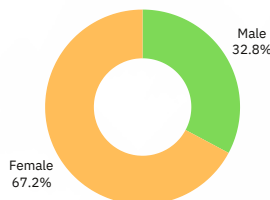
The evaluation followed a baseline assessment at the project's start and a mid-term evaluation three months in. Conducted in December 2023, it utilized various primary and secondary data collection methods to gather quantitative and qualitative data. A cross-sectional survey, including farmer surveys, focus group discussions, project records, testimonials, and case studies, was used to support field observations.



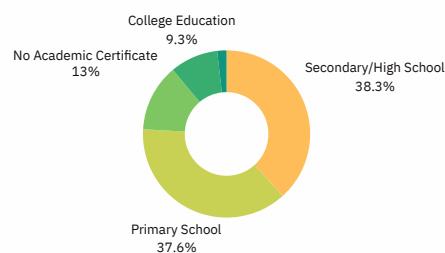
2.1 SAMPLE PROFILE

The study on farmers in Laikipia revealed 80% were over the age of 35. Several key demographic and socio-economic insights. These results indicate a strong self-employment trend, highlighting an entrepreneurial spirit among the farmers.

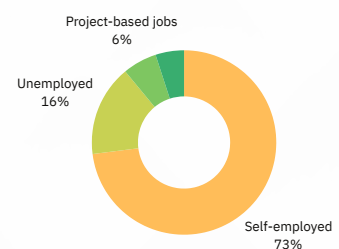
Gender Distribution



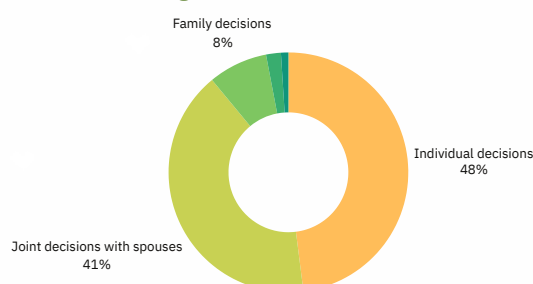
Education Levels



Socio-Economic Status:



Decision-Making Patterns



The findings emphasize the need for digital agricultural interventions to be accessible and tailored to accommodate varying education levels and address the socio-economic realities of self-employed farmers. Understanding the decision-making dynamics provides insight into how to engage this population in agricultural practices and initiatives effectively.

3.0 SUMMARY OF KEY FINDINGS

3.1 Relevance

Enhanced Skills and Content Access



Farmers reported improved ability to access and utilise digital agricultural content, particularly in areas supported by training and localised content.

Increased Digital Platform Usage



Although overall usage of digital platforms remained moderate, engagement with platforms related to weather information and market access increased significantly.

Impact on Agricultural Productivity



Over 72% of farmers directly reported improvements in productivity and income from applying knowledge gained from digital content.

Sustainability and Scaling Potential



The project established a solid foundation for scaling the digital services models to other regions, supported by strong local partnerships and positive farmer feedback.

Recommendations

- Focus on enhancing mobile device and online work skills.
- Adopt a holistic approach to digital literacy training to address multiple skills concurrently for better outcomes.

These insights emphasize the critical role of digital literacy training in improving livelihoods for smallholder farmers in Laikipia County.

3.2 Effectiveness

This captures the project's impact on enhancing digital skills in agriculture, highlighting the training accomplishments, engagement with content providers, and the benefits of accessibility for farmers.

The project aimed to enhance the digital skills of farmers in agriculture, achieving significant milestones in training, engagement with digital content, and accessibility. Below are the key highlights and accomplishments:

46%

Increased capacity of farmers to access and use relevant digital content in their agricultural activities

Training and Digital Literacy

711 Trainers of Trainers (TOTs)

38,026

Farmers trained on digital literacy and the use of agricultural digital platforms.

Content Localisation

21

Agricultural value chains translated into Kiswahili, Kikuyu, and Maasai.

Outreach and Awareness

PHASE I

22,872

Reached directly through TOTs

123,000

Reached via radio broadcasts

Improved Livelihoods

From **\$80** To **\$134**

Partnerships



PHASE II

72,700

Reached directly through TOTs

1,578,142

Reached via radio broadcasts

Developments

Content Development Feasibility Study was conducted to enhance content provision.

New Priority Value Chains Developed

- Sorghum
- Mango
- Pig Farming



Educational Videos Completed: Six value chains

- Pig Farming
- Indigenous Chicken
- Cabbage Farming
- Irish Potatoes
- French Beans Farming
- Climate-smart Agricultural Technologies (drip irrigation)



Content Translation

Languages include Kiswahili, Kikuyu, and Maasai.

Total Developed and Translated Content

21 value chains.

Bundled Service Platform:

Accessible at <https://digi4farmers.org> providing links to various platforms, content developers (like KALRO and CABI), and app downloads.

Benefits of Bundling

- Ease of Access: Simplified content retrieval.
- Cost Efficiency: Reduced costs for accessing diverse agricultural content in one place.



3.2.1 Summary of Hypotheses Test results of tailored digital content effect on interaction with the digital ecosystem

Study Hypotheses	p	Results
H1: Quality Tailored Digital Content has a positive and significant influence on the interaction with the digital eco-system by smallholder farmers,	0.000	Accept H1
H2: Access to Digital Content has a positive and significant influence on the interaction with the digital eco-system by smallholder farmers and	0.000	Accept H2
H3: The ability to Create/Add Digital content has a positive and significant influence on the interaction with the digital ecosystem by smallholder farmers.	0.000	Accept H3



3.2.2 MODEL TESTING RESULTS

Training of Trainers (TOT) Model

The ToT model operated on a cascading approach, where a core group of trainers - often composed of local agricultural extension officers and community digital champions, citizens, especially women with a diploma and above digital skills education - were intensively trained on specific competencies, digital literacy.

Evaluation Findings

- There are strong relationships between training results and predictor variables.
- Predictor variables include Behaviour (strongest impactful) followed by Learning and Reaction.
- All three predictor variables demonstrate significant contributions to the results of the training of TOTs.



Bundled Digital Content Access Model

The model evaluation aimed at understanding the factors influencing the "Long-Term Adoption" of Digital Services in Agriculture (DSA) content. The seven (7) predictor variables were: Value Proposition, Integration and Compatibility, Customization, User Experience, Efficiency and Productivity, Intention to Use, and Actual Usage.

Evaluation Findings

- Actual usage is the most critical factor for long-term adoption.
- Efficiency, user experience, and intention to use significantly enhance sustained engagement.
- Value proposition and customization have moderate impacts.
- Integration and compatibility are not significant predictors.
- These insights emphasize the need for strategies that foster user engagement and positive experiences for successful long-term adoption of DSA content.



Awareness Creation Model

Employs the AIDAR framework (Awareness, Interest, Desire, Action, Retention) to enhance farmer engagement with digital agriculture.

Evaluation Findings

- Skills and awareness emerge are the most influential factors
- There is critical need to initiate initiatives that boost digital literacy and awareness.
- Infrastructure and Relevant Content and Services significantly contribute to the models success
- Robust connectivity and quality digital offerings; and affordability, while important, shows a weaker and non-significant direct effect.

Affordable Internet Access Model

This model focuses on leveraging underutilized television frequencies and other innovative technologies to provide reliable and cost-effective internet access to smallholder farmers, thereby facilitating their inclusion in digital agriculture initiatives.

Evaluation Findings

- Skills and awareness are the most influential factors in model evaluation.
- Initiatives that boost digital literacy and awareness are critical.
- Infrastructure significantly contributes to affordable internet access.
- Relevant content and services are important for quality digital offerings.
- Robust connectivity is essential for effective digital access.
- Affordability shows a weaker and non-significant direct effect.

3.2.3 PARTNERSHIPS AND COLLABORATIONS



Laikipia Demographics

Total population : 518,560
 Male: 259,440
 Females: 259,102
 Population Density: 54 people per square kilometre



Phase I & II

seven (7) out of the 10 expected new collaborations were established with private sector players to enhance access of relevant digital content.

Partnership agreements were established with internet service providers to enhance internet accessibility and affordability for underserved farmers.

Signed MOUs with four (4) out of the targeted six (6) partners, achieving a 67% collaboration rate

Agricultural value chain partnerships with agricultural content providers, internet service providers, governmental organisations, and private sector

The ISPs continued to provide affordable and reliable internet services to farmers, especially in the rural underserved areas in the target counties.

CABI ; bio-pesticides & disease management
 Digital Green;
 educational videos
 KALRO; Weather & good agricultural practices .



Digital Green



3.2.3 MONITORING AND EVALUATION

A robust monitoring and evaluation framework was established early on, incorporating regular monitoring and adaptive management. The project team tracked progress, conducted baseline and mid-term evaluations for informed decision-making, and ensured transparency. The end-term evaluation offers independent evidence of the project's impact, validating achievements and assessing the sustainability of outcomes post-project.

3.3 INCREASED INCOMES

The project fostered economic recovery and food security, with smartphone usage and digital skills training being pivotal to enhancing farmers' earnings.

The project significantly impacted the livelihoods of beneficiaries, particularly smallholder farmers, through various interventions.

- The positive influence of project interventions on earnings.
- Smartphone users benefited slightly more due to enhanced access to resources and knowledge.
- There are significant differences in average earnings before and after the project. Smartphone usage correlates with better financial outcomes.



SUCCESS STORY

Farmer Jane Wanjiku attended a training on digital marketing, learning to promote her poultry products via social media.

Her efforts led to direct orders, increasing her income by 50% in six months. Inspired by her success, other farmers formed a cooperative, enhanced their online presence, and collectively achieved a 45% income increase, exceeding project goals.

4.0 SUSTAINABILITY

The project has laid a strong foundation for scalability and sustainability by partnering with government agencies, private sectors, and ISPs for ongoing support. Its alignment with Kenya's Vision 2030 and focus on climate-smart practices ensure relevance and impact on national development goals.

6.0 CHALLENGES AND ADAPTATIONS

The project encountered challenges in internet accessibility and digital literacy, compounded by uneven access to digital platforms. To address these issues, we implemented stronger training programmes and partnered with local ISPs and community networks like Mawingu to enhance connectivity. Additionally, adapting digital content to be inclusive and context-specific helped overcome cultural and linguistic barriers, boosting user engagement and effectiveness.

8.0 RECOMMENDATIONS

Enhance Digital Literacy

Expand training for smallholder farmers, focusing on hands-on skills and continuous learning about new digital tools in agriculture.



Improve Platform Accessibility

Work with providers to create user-friendly digital platforms and translate content into local languages for better understanding.



Strengthen Partnerships

Collaborate with local ISPs, agribusinesses, and tech companies to enhance internet access and integrate comprehensive services on digital platforms.



Expand Content Scope

Develop diverse digital content covering various agricultural value chains and provide real-time data like market trends and weather forecasts.



Promote Inclusivity

Target underrepresented groups, such as women and youth, and leverage Community Digital Champions to boost trust and adoption of digital tools.



Ensure Sustainability

Explore sustainable business models for financial independence and engage with government and donors for support.



Optimize Monitoring

Enhance feedback systems for real-time insights and conduct regular impact assessments to refine interventions.



Integrate Technology

Collaborate on adopting emerging technologies like AI, blockchain, and drones to enhance agricultural practices and platform offerings.



5.0 CONCLUSION

The project has successfully impacted the agricultural community by empowering over 38,026 farmers through enhanced digital literacy. Utilizing digital technology and platforms like the Laikipia Agricultural Observatory, along with localized content in Kiswahili and Indigenous languages, has transformed farmers' access to agricultural knowledge, resulting in improved productivity and sustainable practices.

7.0 LESSONS LEARNED

- Inclusivity:** Ensure digital access for diverse groups, including women and marginalized communities, to promote broad adoption.
- Local Content:** Localizing digital content is essential for relevance and effectiveness in agricultural services.
- Collaboration:** Strong networks and partnerships enhance the reach and impact of digital solutions.
- Adaptability:** Adapting strategies based on challenges and feedback is crucial for success and future projects.



UK International
Development

Partnership | Progress | Prosperity



THANK YOU

FOR YOUR CONTINUED SUPPORT IN

OUR PROGRAMMES

Email: admin@acwict.org

Website: <https://www.acwict.org>

Tel: (254) 746 506518 / (254) 755 889889

Insights : <https://research.acwict.org/>