Policy Brief

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Stakeholder Engagement and Support to Fan Digital Agriculture for Smallholder Farmers

By Constantine Obuya and Jimmy Macharia

Key messages

- The engagement and support of various stakeholders, such as platform providers, internet access and affordability providers, DSA benefits awareness creators, digital skills trainers, local relevant digital content creators, and bundled DSA service providers, have a positive impact on the access and quality of local digital content in digital agriculture services for smallholder farmers and excluded or underserved communities.
- Digital Agriculture Services (DSA) have the potential to significantly benefit smallholder farmers and underserved communities, provided there is comprehensive access to digital content.
- The agro-food sector is facing both significant challenges–such as global food insecurity, climate change and resource scarcity–as well as significant opportunities, in particular, growing local and global food demand, a digital ecosystem that has the potential to transform smallholder farmers' livelihood and agricultural practices,
- A significant policy shift towards sustainable and data-driven long-term strategic investment decisions is critical to meeting these challenges and opportunities, particularly for smallholder farmers.
- Digital Agricultural policy must be coherent with economy-wide policies to create an enabling environment conducive to achieving multiple goals, including poverty eradication, climate change resilience, digital equity, and agricultural sector transformation.

This policy brief outlines strategies for local stakeholder engagement and support to ensure widespread digital content access and quality in the agricultural sector for smallholder digital transformation. This will guarantee sustainable farming practices that will ultimately increase smallholder agricultural productivity. Consequently, this phenomenon will improve food security, livelihoods, wealth, and jobs on the farm and digital ecosystem, particularly for women.

1. What is the Issue

The issue is the limited access and quality of local digital content in digital agriculture services for smallholder farmers and excluded or underserved communities. This issue arises due to the lack of engagement and support from various stakeholders, leading to disparities in access to digital agricultural resources and services. In other words, this issue has an underlying force: digital exclusion and the digital divide that hampers smallholder farmers and underserved communities' access to and utilisation of digital agriculture services. The lack of internet access, digital skills, awareness, and a shortage of locally relevant digital content pose significant barriers. Addressing these challenges is crucial for fostering inclusive agricultural development and leveraging the benefits of digital technologies. Just imagine if this problem is left unattended, the millions of smallholder farmers, the majority (67%) of whom are women, will be left condemned to unsustainable agriculture, vulnerable to climate risks, meagre livelihoods and abject poverty, food insecure, excluded from reaping the benefits of the digital economy and eco-system. Of course, if you take it further from there and ask yourself what will happen to their children? Will they afford school costs, etc? You will only have one answer. This policy brief is now a call for action by all stakeholders.

2. Why is this important

The importance of bringing stakeholders together and focusing them on reading from one script to transform the plight of smallholder farmers' livelihoods lies in the potential digital technologies and digital agriculture services to enhance the livelihoods of smallholder farmers and underserved communities. The thesis of this policy brief is that one of the most promising interventions required to address the smallholder

challenge is providing them access to digital agricultural services. Unfortunately, this is a multidimensional issue, and neither government nor a single stakeholder can satisfactorily solve it. By ensuring the engagement and support of stakeholders, it is possible to bridge the digital divide and empower these communities with valuable resources and knowledge of sustainable agricultural practices. This engagement and support of stakeholders will foster equitable access, quality of local digital content, access to affordable internet, user-friendly agricultural platforms, bundled services, provision of a one-stop shop, and inclusive agricultural development. Platform provider's collaborative engagement provides user-friendly interfaces and offline functionalities and enhances access. On the other hand, Internet Access Providers will ensure that affordable and reliable Internet access reaches rural, remote, and underserved areas. Further, awareness creators Engage stakeholders in awareness campaigns to ensure that the creation of high-quality, locally relevant digital content is available to smallholder farmers. Digital Skills Trainers will also empower farmers with digital skills, improving their ability to effectively access and utilise digital content. Local Relevant Digital Content Creators: Prioritizing the involvement of content creators ensures that information is tailored to local contexts, promoting sustainable practices and Inclusive Agricultural Development. Finally, Bundled DSA Service Providers Collaborative engagement leads to comprehensive services catering to smallholder farmers' unique needs. Moreover, Let us remember success in digital agricultural services will not only redeem the plight of millions of women (67%) smallholder farmers but the nation of Kenya at large: improved food security, resilience to climate change risks, digital equity, increased inclusion into the digital economy and eco-system

3. What should policymakers do

Policymakers should prioritise initiatives that promote stakeholder engagement and support in digital agriculture, particularly for smallholder farmers. As emphasised in responsible research and innovation studies, this can be achieved by developing frameworks to analyse and facilitate the inclusion of farmers in innovation processes. (Hackfort, 2021). Additionally, they should be able to track and measure the impact on livelihoods and the economy.

3.1. Policy on Developing and Implementing Priorities for DSA Platform Providers

Policy on establishing common information platforms based on stakeholder networks can benefit all parties involved and facilitate the exchange of information. (Qin et al., 2022). The policy should establish a collaborative framework with DSA platform providers to prioritise the development of user-friendly interfaces that enhance access to digital content for smallholder farmers. Additionally, the policy should advocate for integrating offline functionalities within DSA platforms to accommodate areas with limited internet connectivity. Additionally, the policy should Implement measures to regularly evaluate and enhance the usefulness of DSA platforms for smallholder farmers, ensuring seamless access to digital content and providing technical support to DSA platform providers in optimising their platforms for diverse devices and connectivity scenarios.

3.2 . Policy on Developing and Implementing Priorities for Internet Access and Affordability Providers

The involvement of Internet access and affordability providers collaborate to develop tailored packages that prioritise affordable and reliable Internet access for rural and underserved areas. Consequently, the policy should advocate for incentivising the expansion of internet infrastructure in agricultural regions, addressing connectivity gaps. Additionally, this category of stakeholders' engagement and support for Access to Digital Content establishes subsidy programs or grants to reduce the cost of internet access for smallholder farmers and underserved communities, ensuring affordability. The policy should encourage partnerships between DSA stakeholders and internet providers to facilitate data-free access to essential agricultural content.

3.3. Policy on Developing and Implementing Priorities for Digital Skills Literacy Trainers

The involvement of digital skills literacy trainers engages with educational institutions, local digital skills trainers, and NGOs to train digital skills literacy trainers who can empower smallholder farmers with the necessary skills to access and utilise digital content. ii. Promote the integration of digital literacy training into existing agricultural extension services. Additionally, this policy should provide resources and incentives for developing digital skills literacy programs tailored to the agricultural sector's specific needs and establish community-based digital training centres to ensure widespread access to digital skills education for farmers. Thus, policymakers should focus on enhancing digital literacy and skills among smallholder farmers and underserved communities, as gaining digital skills has enabled individuals to optimise the benefits of internet use (Livingstone et al., 2023).

3.4. Policy on Developing and Implementing Priorities for DSA Awareness Creators

Engagement and support of digital services in agriculture awareness creators collaborate to develop campaigns highlighting the importance of digital content in improving agricultural practices and, ultimately, the livelihoods of smallholder farmers. Thus, this policy should encourage creating content that addresses the unique needs and challenges of smallholder farmers and underserved communities. Additionally, this policy should advocate allocating resources for disseminating awareness campaigns through various channels, including radio, community events, and social media, to reach diverse audiences. Awareness creators should thus collaborate with DSA stakeholders to ensure that awareness campaigns include practical guidance on accessing and utilising digital content.

3.5. Policy on Developing and Implementing Priorities for DSA Local Relevant Digital Content Creators

Policymakers should promote stakeholder collaboration among local content creators and actively involve local content creators, including agricultural experts, educators, and community leaders, in developing digital content. The policy should establish collaborative partnerships to ensure content aligns with the target communities' cultural, linguistic, and contextual nuances. Further, policymakers should prioritise developing and implementing strategies to ensure equitable access to local digital content in digital agriculture services for smallholder farmers and excluded or underserved communities. This can be achieved by leveraging the insights from various studies and initiatives focused on bridging the digital divide and promoting inclusive digital agricultural development. Chang et al. (2004) Can inform the development of targeted strategies to ensure the equitable distribution of digital agricultural content. Moreover, it is essential to consider the characteristics of agricultural digital content accessed by smallholder farmers. Kirui et al., (2022) and the transformation of the service sector as part of agribusiness digitalisation (Marinchenko, 2022). Additionally, this policy should foster partnerships with local content creators to ensure locally relevant and culturally sensitive digital content creation. Policymakers should facilitate collaborations between content creators and agricultural research institutions to ensure content accuracy. Policymakers should integrate insights from diverse studies and initiatives to develop and implement priorities for local digital content in digital agriculture services, ensuring equitable access and sustainable development for smallholder farmers and excluded or underserved communities.

3.6. Policy on Developing and Implementing Priorities for Bundled DSA Service Providers

This policy should focus on developing and implementing priorities to optimise the impact of bundled DSA services on agricultural communities. Policymakers should establish incentive programs, such as grants or subsidies, to encourage bundled DSA service providers to offer comprehensive solutions that address the diverse needs of smallholder farmers. This could include integrated crop management packages, market access, and financial services. There should be robust monitoring and evaluation frameworks to assess the impact of bundled services on target smallholder farmers. The policy should Encourage bundled DSA service providers to tailor their offerings to their communities' specific needs, languages, and cultural contexts. Policymakers should promote the development of localised content and services that resonate with the target audience. Additionally, policymakers should prioritise community engagement by involving local stakeholders in designing and implementing bundled services. This ensures that the solutions are contextually relevant and sensitive to the unique characteristics of each farming region. By implementing these priorities, policymakers can create an enabling environment that empowers bundled DSA service providers to deliver impactful and tailored solutions to smallholder farmers, contributing to the sustainable development of agriculture in diverse communities.

3.7. Policy on Developing and Implementing Priorities guided by the Theory of Change

Policymakers should prioritise developing and implementing strategies that align with the theory of change to address the challenges faced by smallholder farmers and excluded or underserved communities in the context of digital agriculture. This policy should be informed by insights from various studies and initiatives that shed light on smallholder farmers' vulnerabilities, adaptation needs, and engagement factors in the digital agriculture landscape. To support this policy, insights from (Harvey et al., 2014). Vardanyan et al., (2022). It can be leveraged to understand the extreme vulnerability of smallholder farmers to agricultural risks, climate change, and the potential technological breakthroughs that can achieve productivity growth of digital farm enterprises. Additionally, the study by Abdulai (2022) Provides valuable insights into the factors influencing the likelihood of rural farmer participation in digital agricultural services, emphasising the importance of strategies sensitive to the drivers of engagement, including strengthening farmer associations/groups, increasing access to extension services, building digital skills, and scaling access to digital tools. Furthermore, the study by Nyanga et al. (2011) Sheds light on smallholder farmers' perceptions of climate

change and conservation agriculture, emphasising the need to consider farmers' perceptions and adaptation strategies. Additionally, the literature review by Mushi et al. (2022) Offers suggestions for improvements for smallholder farmers, including developing a digital platform that addresses their challenges in a complete farming cycle and achieving sustainable agriculture by adopting cutting-edge digital technology. Moreover, insights (Quayson et al., 2020) Can inform the policy by drawing on lessons learned in developed and developing countries to propose critical digital transformation for building resilient and sustainable post-COVID-19 supply chains for smallholder farmers operating in global value chains. Additionally, the study by Coggins et al. highlights the importance of accounting for smallholder farmers actively creating and adjusting agricultural innovations to align with their existing priorities and capabilities, which should be considered in the theory of change. In conclusion, policymakers should integrate insights from diverse studies to develop and implement priorities following the theory of change, ensuring that the policy addresses the unique needs and challenges of smallholder farmers and excluded or underserved communities in the digital agriculture landscape.

This policy brief emphasises the critical role of local stakeholder engagement and support in ensuring equitable access to digital content in digital agriculture services. By prioritising collaboration with DSA platform providers, internet access and affordability providers, digital skills literacy trainers, and DSA awareness creators, we can bridge the digital divide, empower smallholder farmers, and uplift underserved communities through enhanced access to valuable agricultural information and resources. In conclusion, by actively engaging and supporting these key stakeholders, policymakers can create an enabling environment for smallholder farmers and underserved communities to harness the full potential of digital agriculture services, fostering sustainable and inclusive agricultural development.

Stakeholders Lookahead

In the validation stakeholder workshop, the stakeholders upheld the thesis of this policy brief and the urgency to have it implemented. Further, they voiced forward these actions that may not be in the policy per se but part of sector-wide development initiatives:

a. They acknowledged the significant role the government of Kenya plays in leadership and support of this sector. In particular, they singled out the ongoing provision of free Wi-Fi to citizens and digital hubs as an excellent initiative. Additionally, they proposed that the government should have other support areas such as digital agricultural content development, awareness creation, platform development, and digital literacy skills training.

b. While several farmers' associations exist, they proposed a need for a stakeholder forum where stakeholders can exchange ideas and innovations in digital agriculture.

c. ACWICT and the ministry were encouraged to take up the mantle and establish an annual event where researchers, innovators, and stakeholders can come together in a conference or workshop to present the novelty and case studies in impacting the livelihoods of farming communities, particularly the smallholder farmers and underserved communities.

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