Bridging the digital divide: Unlocking growth for grain and agro-processing businesses in Tanzania

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Introduction

Digital inclusion is a paradigm that has been widely applied across various sectors to enhance overall efficiency, particularly at both higher and lower levels of operation. In sectors such as health, education, and finance, digital inclusion has enabled improved access to services, streamlined operations, and better data-driven decision-making (Reisdorf & Rhinesmith, 2020; Alamelu, 2013).

In the agricultural sector particularly in Tanzania digital inclusion has recently become a major focus. It is increasingly recognized as a key driver of performance and growth within the sector. Over the past few years, stakeholders have acknowledged that embracing digital tools and services can significantly improve access to markets, financial services, weather and pricing information, and input supply systems (Mushi et al., 2022).

Several studies have highlighted the substantial contribution of digital solutions in transforming various sectors, underscoring their potential to address inefficiencies and unlock opportunities, especially for underserved or rural communities (Rickards et al., 2025). According to Gumbi et al. (2023), digital agriculture has emerged as a viable solution to address the contextual challenges faced by smallholder farmers and agribusinesses, with many digital solutions already developed to serve them. However, many smallholder farmers remain beyond the reach of these digital solutions due to underdeveloped or nonexistent digital ecosystems.

In 2024, the Tanzanian government, in collaboration with the UN, launched the Data for Digital Agricultural Transformation joint programme. This initiative aims to harness digital technologies to improve productivity, market access, and resilience for rural communities, with a focus on empowering women and youthful farmers and entrepreneurs.

KEY TAKEAWAYS

- Digital tools increased trader efficiency and market connectivity
- Pilot programs raised awareness and improved digital adoption
- Collaboration boosted tailored solutions for agro-business challenges

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Grain traders and processors play a vital role in agricultural value chains, working closely with farmers to create reliable markets for their produce. In addition to linking farmers to markets, they often serve as sources of agricultural inputs and sometimes provide financial support, such as input credits and other forms of financial assistance to contracted farmers (Mwakatwila et al., 2024). They also contribute to agricultural infrastructure, such as establishing village collection centers for aggregating grains from farmers that can be digitally managed to reduce operation costs. Given these relationships, traders interact with many farmers, which makes managing information and operations a significant challenge. For example, Kibaigwa Flour Supplies is working with 7,850 farmers, of whom 3,400 are under contract farming arrangements, receiving input credit and selling produce at harvest (Mwakatwila et al., 2024).

Although many digital tools and platforms are available for sharing market information and conducting financial transactions, most traders still rely on traditional methods such as face-to-face interactions and paper-based records (Steinke et al., 2024). Key obstacles to adopting digital solutions include low digital literacy, limited internet access, and a lack of trust in digital platforms. A report by USAID and DAI (2023) highlighted that, despite the availability of digital tools, many traders continue to use conventional channels due to low awareness, perceived high costs, and poor infrastructure. Similarly, the Akrout and Paz (2021) noted that throughout sub-Saharan Africa, many actors in the agricultural value chain, including grain traders, off-takers and processors continue to rely on traditional practices. This persistence is largely because digital tools often do not align with their specific needs and are hindered by infrastructure challenges and limited digital skills. Thus, to promote the sustainable adoption of digital solutions, it is essential to strengthen business-to-business (B2B) linkages, particularly between digital service providers and key stakeholders like grain traders and agro-processors.

Unlocking the Potential of Digital Solutions for Traders: Opportunities, Benefits, and Barriers to Adoption

In recent years, numerous digital tools and services have been introduced by digital inclusion service providers in Tanzania to enhance efficiency across sectors, including agricultural businesses particularly for crops such as common beans, groundnuts, and sorghum. The Accelerated Variety Turnover for Open-Pollinated Crops (ACCELERATE) project (https://alliancebioversityciat.org/projects/accelerate), implemented by the Alliance of Bioversity International and CIAT through the Pan-Africa Bean Research Alliance (PABRA), in collaboration with the Tanzania Agricultural Research Institute (TARI), the Tanzania Official Seed Certification Institute (TOSCI), and the International Maize and Wheat Improvement Center (CIMMYT), primarily focuses on accelerating varietal turnover. It also places emphasis on enhancing traders' business efficiency and strengthening linkages across the seed business ecosystem using digital platforms and applications.

ACCELERATE Stakeholders after a meeting in Dodoma in April 2025

To support this goal, the ACCELERATE project organized a stakeholder meeting on 14th April 2025 in Dodoma, bringing together digital service providers and traders in common beans, groundnuts, and sorghum. The meeting aimed to create a platform for discussing how digital tools could improve business efficiency and information exchange. It also provided an opportunity for digital service providers to present their solutions and engage directly with traders to understand their needs and challenges. The meeting was attended by four digital service providers—eProd (https://www.eprod-solutions.com/language/en/), PESIRA Limited (https://www.pesira.io/en), Digital Mobile Africa (https://www.digitalmobile.africa/), and Mkulima Hub (https://www.rotai.co.tz/)—as well as 33 traders from various regions in Tanzania involved in the trade of common beans, sorghum, and groundnuts.

Leveraging digital platforms and e-commerce solutions to connect traders with farmers, markets, buyers, and other value chain actors ultimately improves business efficiency, facilitates information sharing, and generates positive business outcomes. In addition to benefits for grain traders and processors, smallholder farmers also stand to gain by overcoming traditional market barriers and expanding their business opportunities beyond the farm.

Mr. Festo Tulo, Head of Information Communication Technology Unit from TARI HQ (top picture), and Dr. Justus Ochieng, ACCELERATE Project Coordinator (below picture), giving opening remarks to traders and digital inclusion service providers during the meeting held on 14th April 2025 at Nashera Hotel, Dodoma, Tanzania.

Through this engagement, traders were exposed to various digital tools offered by digital inclusion service providers. They gained awareness of existing digital solutions, learned about the importance of digital inclusion, and how such tools can enhance their business operations (Figure 1). Some of the potential benefits identified by traders included increased efficiency, reduced transaction costs, farmer profiling, improved access to market and pricing information, enhanced record-keeping and transparency, strengthened trust and traceability across the value chain, and greater potential for financial inclusion.

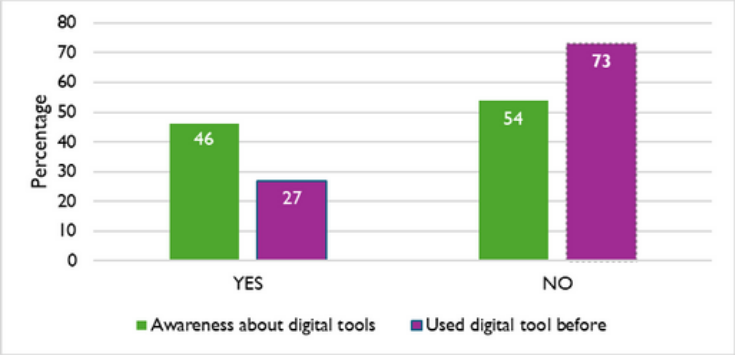

Figure 1: Traders' awareness on digital tools and adoption

Despite these acknowledged benefits, traders also expressed concerns regarding barriers to adoption. Key challenges included high initial and operational costs of digital tools, limited digital literacy among traders, a shortage of human resource capacity in grain and agro-processing businesses, the need for initial training, a lack of technical expertise to operate systems, and poor internet connectivity in operational areas (Figure 2). As noted by Rickards et al. (2025), low device ownership, limited digital literacy, and low awareness of available tools remain significant hurdles. Understanding these variations in digital engagement is crucial to designing inclusive digital transformation strategies that truly bridge the digital divide and ensure all actors benefit from digital innovations.

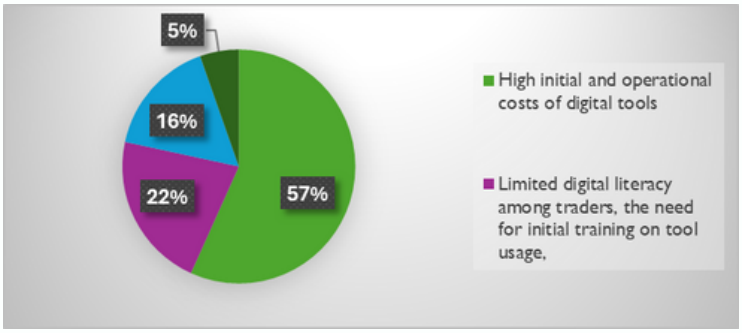

Figure 2: Barriers to adoption of digital inclusion tools/services

Traders empowered through digital inclusion: Voice from the field

Traders also had the opportunity to hear testimony from Mr. Lazaro Mwakipesile of Raphael Group Limited (RGL), who shared their experience using digital tools in their business. Their journey with eProd served as a practical example of how digital solutions can enhance business efficiency. The platform offers tools for data capture, inventory tracking, farmer registration, and training designed for low-bandwidth environments making it suitable for Tanzania's varied connectivity conditions. By digitizing previous manual processes, RGL streamlined farmer engagement, improved real-time decision-making, and reduced errors in aggregation and procurement. Despite the significant upfront investment, RGL emphasized that the benefits particularly in efficiency, data clarity, and operational control far outweighed the cost. The system brought transparency across their operations, from procurement tracking to farmer performance, enabling better planning and more confident market engagement.

"Digitization is achievable. While the initial adoption and onboarding phase presented challenges, the positive impact has far outweighed them. With the right partners and strong commitment, digital transformation is not only possible, but also essential for scaling agricultural businesses in today's modern landscape," said Mr. Mwakipesile.

Mwakipesile, RGL General Manager, explaining the experience with digitized systems

Strategies to Enhance the Adoption of Digital Tools Among Grain Traders and Agro-processors

To bridge the digital gap and increase adoption of digital tools among agricultural grain traders and agro-processors in Tanzania, a one-size-fits-all approach is unlikely to succeed. Different contexts require a bundle of effective strategies tailored to address specific barriers and create an enabling environment for digital inclusion.
Capacity-building efforts should focus on equipping traders with practical skills to navigate and utilize digital tools. Training should be delivered in simple language and in formats relevant to their business operations. Peer learning, mentorship, and localized demonstrations can also strengthen digital confidence. Digital service providers should clearly communicate both initial and ongoing cost structures, using real business examples and success stories to help traders weigh costs against potential returns.

Facilitated follow-up sessions between traders and digital service providers can address specific concerns, foster trust, and allow for tool customization based on the needs and scale of each business. Meanwhile, government and development partners should promote an enabling policy environment that supports digital agricultural ecosystems, ensures fair data governance, and protects users. Coordinated efforts among public, private, and research institutions can amplify impact.

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Conclusion

Digital solutions offer a transformative opportunity to boost efficiency, transparency, steady grain supply and profitability in grain and agro-processing businesses and sharing information about improved varieties for enhanced productivity. However, adoption remains slow particularly among small medium enterprises (SMEs) such as grain traders and processors operating in semi-formal or informal markets. While awareness is growing, persistent barriers such as high costs, limited digital literacy, and inadequate infrastructure continue to impede progress. Initiatives like the ACCELERATE Project are instrumental in bringing this gap by fostering interaction between digital inclusion service providers and grain traders and agro-processors, raising awareness, and strengthening business to business (B2B) linkages within the common bean, sorghum and groundnuts industry.

Realizing the full potential of digital inclusion will require coordinated and deliberate collaborative action. Digital service providers must prioritize user-centered designs and invest in building trust with grain traders and agro-processors. In turn, these businesses are encouraged to engage proactively with digital solutions starting with small-scale pilots and gradually scaling up to full integration across their operations and engagement with farmers.

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