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## How mobile apps are transforming smallholder agriculture: Appropriation of mobile apps for fulfilment of smallholder farmers’ interests

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### Abstract

Smallholder farmers (SHFs) in South Africa face challenges of limited access to information, inputs, and commodity markets. There is growing focus on mobile apps to improve smallholders’ access to vital agricultural information and markets, thereby tackling the key challenges faced by SHFs. Indeed, beyond South Africa, the advent of digital technologies has been welcomed as a possible panacea, pregnant with immense possibility to transform smallholder agriculture. This research critically examined the ways in which mobile apps are transforming agriculture for SHFs access to information in South Africa. The multiple case study methodology guided by the critical theory of technology and self-determination theory was used. Four mobile apps and forty-two SHFs using the apps were purposively selected. The study found that SHFs exercise their autonomy to appropriate both non-agricultural user-generated content apps and proprietary mobile apps to meet their diverse needs and aspirations. This study’s findings underscore that by leveraging non-agricultural apps such as Facebook and WhatsApp groups for agricultural purposes, SHFs assert a degree of power and autonomy in their agricultural activities and defy their traditional subservient position in information dissemination and market activities, whereby instead of relying solely on corporate-sponsored agricultural platforms, farmers create their own spaces for communication, knowledge exchange, and market transactions, thereby diminishing the influence of large corporations and promoting alternative grassroots-led avenues for agricultural development and market access. This appropriation of mobile apps enhances SHFs’ autonomy by providing them with tools to control their own agricultural activities and decision-making processes, rather than being passive recipients of information or services dictated by external actors, farmers actively shape their digital engagement to meet their specific needs and goals. However, the study also identifies that both user-generated content and proprietary mobile apps can only be appropriated to the extent the design permits, whereby the rigidity of the proprietary apps limits farmers’ ability to adapt them to suit their specific needs and contexts, making farmers passive consumers of technology rather than active participants in shaping their digital engagement.

**Keywords:** Appropriation, Facebook groups, farmers’ autonomy, mobile apps, smallholder farmers, WhatsApp groups