

Chapter 41

Using ICT to Overcome Constraints in the Agriculture Value Chain: Emerging Trends in Ghana

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ABSTRACT

Development partner efforts and private sector initiatives on ICT applications in agriculture have brought new opportunities for farmers and traders to reduce transaction costs and increase incomes. The applications are primarily used for linking actors in the agricultural value chain, accessing real time information on prices, buyers and sellers, transport and haulage, and other relevant information services in the agricultural value chain. Limited evidence from Ghana and elsewhere show that cell phone applications have resulted in increased incomes but the impacts and sustainability of other ICT applications have proven elusive. The role of ICT in overcoming the key constraints in the agricultural value chain and for making evidence-based decisions will be greatly enhanced if farmers, aggregators, and other stakeholders in the value chain pay attention to their business scope and schedule planning, executing, monitoring and control, procurement, risk planning, and stakeholder communications in a “project management” context. When this is done, ICT applications will facilitate supply chain management through sharing of timely and pertinent information on producers, buyers and other services, thereby helping to promote industry competitiveness. The major challenges to the widespread use and sustainability of ICT remain access to the appropriate ICT tool, poor road and storage infrastructure (particularly in the farming communities) and illiteracy on the part of the majority of smallholder farmers.

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INTRODUCTION

Globalization is indeed providing new opportunities for smallholder farmers to increase their share of domestic, regional and international markets. By becoming participants in the global economy, smallholder farmers will be able to raise their incomes and achieve food security for their families and rural populations in the long run. But to become competitive in today's global marketplace, farmers need to be integrated into the production chain - from the farm to the final consumer's plate. However, lack of adequate and affordable inputs, inefficient farming practices, poor product quality, inefficient transport, lack of access to information on pricing for buyers and sellers and several other factors are hindering farmers' efforts to become competitive in the global marketplace. The high penetration of mobile telephony in developing countries however offers practical options to farmers and other actors in the value chain to access real-time market, price and other pertinent information, enabling them to make informed and better decisions. This has huge potential for addressing key constraints that have hitherto limited productivity and agricultural competitiveness.

With more than 15 million mobile phone subscribers in Ghana, the potential market for cell phone-based services is significant (Dowuna, 2011). The recent introduction of mobile phone-based money service and the "e-zwich"¹ in Ghana reduces transaction costs of financial services for users in rural areas where financial services providers seldom exist. In the agricultural sector ICT tools² are helping address constraints in agricultural value chains and are offering new opportunities to reduce transaction costs, increase access to markets, improve productivity, provide better and frequent access to critical market information and improve communication throughout the value chain. Its use in support of market information collection and dissemination in Ghana dates back to the late 1990s when

the International Fertilizer Development Center (IFDC) created the African Fertilizer Market Information Network (AFAMIN) to link Ghana, Nigeria, Togo and Burkina Faso on a web-based platform to exchange price information on-line among participating countries. Today, due to efforts of development partners and private sector initiatives, cell phones are no longer only used as convenient tools to stay in touch with people but have evolved as "markets in the pocket" business communication tools in the agricultural sector. Notwithstanding these advances, the poor nature of the roads and unreliable transport services remain a huge challenge to competitiveness and productivity.

This chapter describes development partner efforts and private sector initiatives on ICT applications in Ghana. The ICT applications are primarily used for linking actors in the agricultural value chain, accessing real time information on prices, buyers and sellers, transport and haulage and other relevant information services in the agricultural value chain. Limited evidence from Ghana and elsewhere show that cell phone applications have resulted in increased incomes but the impacts and sustainability of other applications have proven elusive. Following the review of current ICT use in agriculture, the paper describes agricultural production from a "project management" perspective and explores the potential of ICT (e.g. the emerging *mFarms* ICT platform) to coordinate the initiation, planning, execution, monitoring and control and closure processes of the "agricultural production project." Special emphasis is put on the platform's use to improve the negotiation power of farmers, early identification of buyers and the proper timing and execution of critical activities that will result in greater and sustainable incomes for actors in the value chain through better information exchange, improved productivity and cost reductions.

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