



# Leveraging ICT innovations to support farmers and farmers' organisations

# 14

CTA Policy Brief

**The data revolution is helping us make better decisions in all areas of our lives, and farmers are no exception. However, the smallholder farmer is being left behind as more data applications are developed for commercial farming. There is a need to better empower smallholder farmers to leverage information and communications technology (ICT) innovations for greater productivity and efficiency.**

## Policy action needed

- Promote enabling environments and uptake of ICT solutions that respond to the needs of smallholder farmers
- Strengthen the capacity of small-scale farmers to use ICTs
- Improve the training and ICT proficiency of national extension agents
- Use ICTs to deliver data-driven products and services and develop associated business models that drive improved productivity, profitability and resilience of farmers

## What is the problem?

Farmers can use their smartphones to remotely monitor their equipment, crops and livestock, and obtain statistics on yields during harvest using a combine harvester. However, the typical African smallholder farmer is still unable to understand, prioritise and analyse the data required for higher productivity and efficiency, and may not identify the key limitations in their production cycle. Given the African smallholder farming landscape, farmers have more pressing needs to meet in their farming operations than to make investments in ICT efforts aimed at improving the smallholder farming sector. What appears as a lack of interest in farming development may purely be a lack of resources, even where knowledge exists.

## What can be done to solve this problem?

The opportunities offered by ICT in rural economies are enormous, whether users are making phone calls for information, gaining access to new markets and buyers or obtaining expert advice. The impacts on productivity should be reflected in increased returns to farmers, achieved through changes in cropping patterns, yield increases and better prices for inputs and output (Miller et al. 2013).

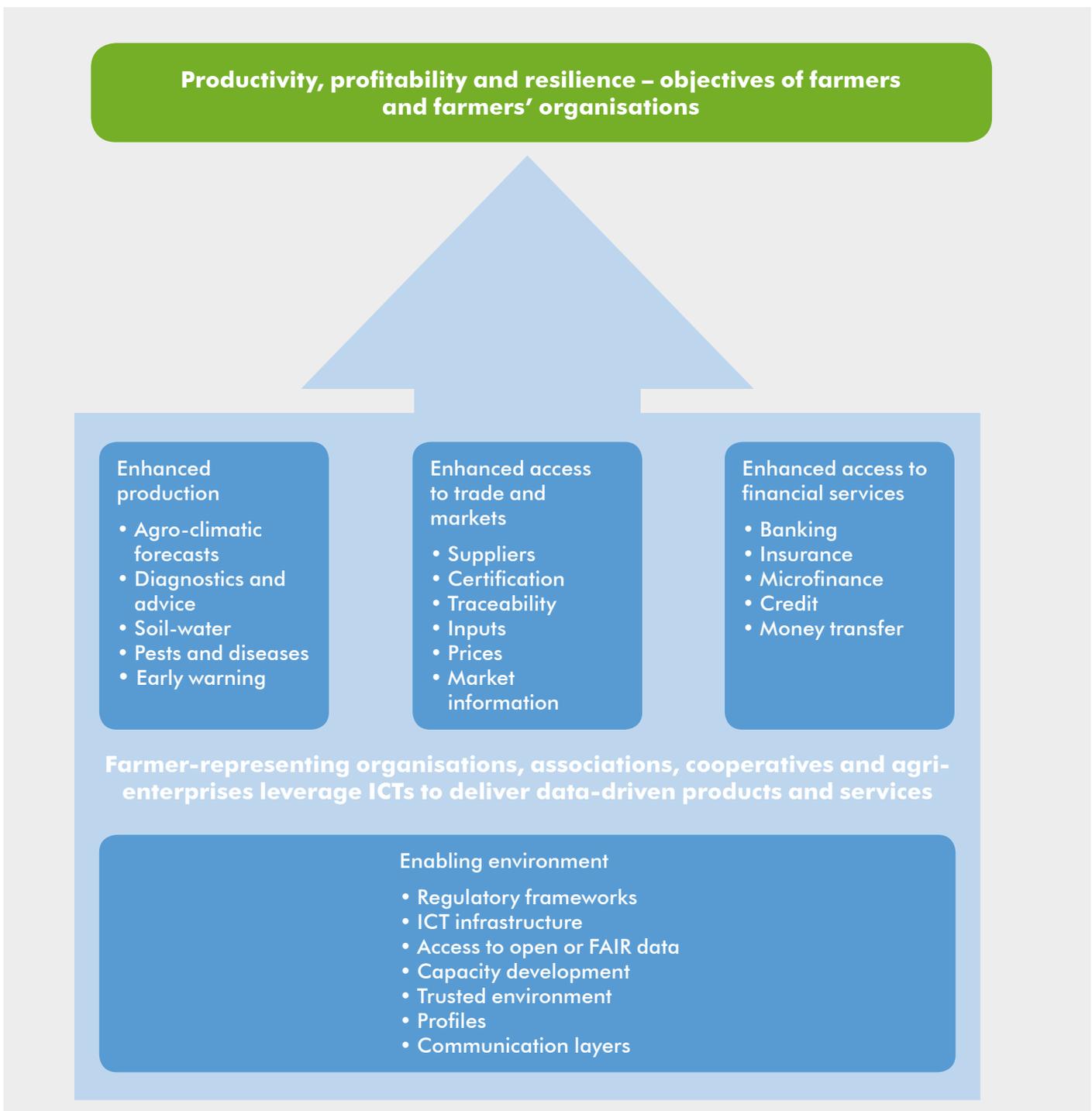
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The best use of ICT is to scale up and increase benefits to farmers beyond their primary production. The role of aggregating farmer services has never been greater, and the key question is whether smallholder farmers can be organised to capture this added revenue, or whether this will be captured by urban entrepreneurs, multinationals and large corporate players.

At the regional and national levels, there is a need to address the creation of sustainable businesses based on learning from business models that have worked. The coffee and tea sectors in East Africa, which are built on smallholder farmers, can offer a number of success stories for sub-Saharan African countries and serve as reference points from which to build and create new business models.

Figure 1: Role of ICT in supporting smallholder farmers



Source: P. Ballantyne

The figure shows the types of data-driven services that can be delivered through 'collective' farmer-representing and farmer-owned enterprises and leveraging ICT.

In the absence of functioning farmer organisations, ICT will not be able to generate the expected sustainable impact, and any benefits will entirely depend on external support to farmers with limited input from them and no value added through their efforts. If this added value is not captured by smallholder farmers, the chance of the farmers remaining poor will be greatly increased. Agricultural development, especially in Africa, needs to focus on the basics of organising farmers as business entities and positioning them to take advantage if the ICT revolution.

As stated by Miller et al. (2013), prior to the 1990s, ICT in agriculture mainly entailed the use of radio and television to pass on information to farmers in a static and standard format. Today, most actors across the developing world are able to use Short Message Services (SMS) through mobile phones to receive market prices, weather forecasts and other specific information.

In Africa, development partners have traditionally structured their support through not-for-profit farmer organisations.

The motivation for this was clear accountability for the support, while the creation of additional value or wealth was not considered a necessity. This should change if development is going to carry any sustainable impact. It is high time for approaches to be devised that reward and support entrepreneurial farmer organisations, enticing lead farmers to support their organisations not through social obligation but through financial incentive. This should be supported by the fact that in the highly liberalised economies of Africa, not-for-profit farmer organisations are not financially sustainable and seldom have the business savvy to wrestle business from urban entrepreneurs, large corporations and multinationals.

There is an urgent need to create a new business model that encompasses agribusiness and ICT, if smallholder farmers are to reduce

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rural poverty, direct business from the individual to the wider group, and thus generate inclusive growth.

### Conclusions

ICT use is generating efficiency gains for farmers across the world, leading to an information and data explosion with an associated boom in new applications, tools, actors, business models, and entire industries. Through ICT, enhanced data access and use will increase agricultural production and productivity, enhance resilience, help target interventions, predict outcomes and risks, guide decisions and strengthen representative agricultural organisations.

For this to happen in ACP countries, smallholder farmers and their representatives must be on top of their data and what it can tell them. They also need to understand and exploit the services they can leverage with it. Farmer-representing organisations, associations, cooperatives and agri-enterprises have critical roles to play in this, especially also to re-assess their own operations so data can be put to use to make their own services more relevant and value adding in support of their stakeholders.

Key action areas to move this agenda forward include:

- Having effective data policy, management and systems within an agri-enterprise is essential for its sustainability – data helps drive delivery, advocacy and legitimacy.
- Developing the overall value proposition of data-driven products and services is critical – providers need to be able to demonstrate it, sell it to investors, and use it to build trust and confidence.

- Feedback loops need to be inbuilt and are necessary to ensure data ownership and provenance, and help ensure that services are connected to the ground i.e. tailored to needs. Critical actors in these loops are the farm families and producers themselves.
- Access to markets, consumers and trade opportunities increasingly requires certification and traceability. Certification, which is often costly, needs plans covering who pays for it and how quality and integrity of the data can be assured.
- Building trust is fundamental and needs to be done by building quality relationships with farmers and their organisations and practicing ethics around the ownership of data.
- Ethical and cost-effective registration and profiles of farmers, agri-producers, customers, other value chain actors are at the core of business models.
- Capacity development at all levels is key to ensure that there is greater uptake of data-driven services.

### Further reading

CTA (2017). *ICT Update*, a current awareness bulletin for ACP agriculture. CTA, Wageningen, Netherlands. <http://ictupdate.cta.int>

Hussain, S.A. (2016). ICT4Agriculture: Lessons learned from developing countries. A systematic review protocol. In *Proceedings of the Eighth International Conference on Information and Communication Technologies and Development*.

Miller, C., Saroja, V.N. and Linder, C. (2013). *ICT uses for inclusive agricultural value chains*. Food and Agriculture Organization of the United Nations, Rome.

Shepherd, A. (2016). *Lessons for sustainability: Failing to scale ICT4Ag-enabled services*. CTA, Wageningen, Netherlands. <http://bit.ly/2s9cASP>

Tata, J.S. and McNamara, P.E. (2016). *Social factors that influence use of ICT in agricultural extension in Southern Africa*. *Agriculture*, 6(2):15.

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