Are digital technologies transforming agricultural advisory services?

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This article analyses agricultural advisory services in Burkina Faso that utilise information and communication technologies. Whether they are a niche innovation or just a fad, how are these technologies helping meet agricultural advisory needs?

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▸ The data cited in this article are mainly from the following studies:
– C. Alexandre, *Émergence du numérique et transformations des services de conseil agricole au Burkina Faso*. Présentation au Symposium AgriNumA, Dakar, 28 April 2019.
– MF. Bationo, *Capitalisation des expériences de TIC appliquées à l'Agriculture au Burkina Faso*, 2018.

Information and communication technologies (ICT), and the "D4Ag" (digital for agriculture) initiative are being promoted in developing countries in order to facilitate farmers' planning, production, processing and sales activities, and to improve agricultural advisory services.

According to the Technical Centre for Agricultural Cooperation (Centre Technique de Coopération Agricole), grants from international donors for D4Ag solutions in sub-Saharan Africa amounted to $180 million in 2018 (up 67% in 4 years), compared with $47 million of investment from private companies. But the effectiveness and viability of these solutions have not yet been proven.

Uses of digital technology in agricultural advisory services. The use of ICT in Burkina Faso's agricultural sector was first promoted through the structural-adjustment programmes of the 1980s and 1990s. Those experiences focused on market information systems (MIS) designed to improve the liaison between production and the market, and to ensure a fair distribution of profits within value chains. Between 2000 and 2010, NGOs, private companies and farmers' organisations (FO) began focusing more and more on the potential of ICT for agricultural advisory services.

Information on input prices and agricultural products, weather and production techniques are the oldest and most common services. The widespread accessibility of internet access and smartphones has led to the rise of online training services, video-sharing, and decision-making tools in the form of mobile applications. FOs are more interested in solutions that make it easier to monitor members and activities, access weather information and ensure traceability for products destined for more profitable markets (organic, fair trade, etc.).

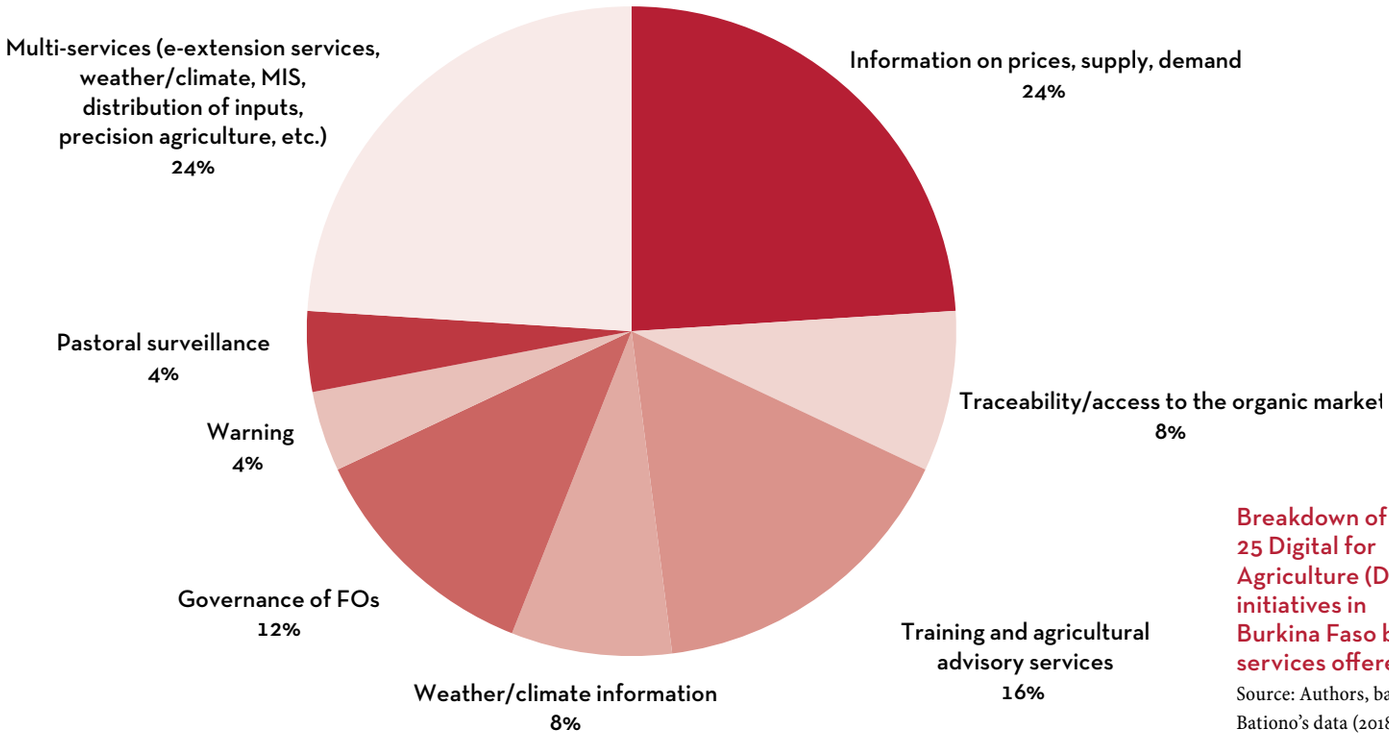
"Digital advisory services are not a profitable sector of activity"

Variety of media, services offering limited interaction, and limited coverage. Most of the services studied by Bationo are accessible using phones or connected tools allowing access to websites and bulletins. Phones are used mainly for sending text messages, but may also be used to access call centres or interactive voice response (IVR) systems. The advisory service providers who were interviewed are aware that information sent in writing rarely gets through to farmers, who have poor literacy skills. Oral formats (radio, IVR) are more accessible, but they are also more expensive to develop and are not conducive to providing personalised advice.

A study conducted in 2019 of 15 digital advisory services showed that only four were designed to allow farmers to ask questions to advisors. The Vacis platform allowed maize and soy farmers to submit their questions to researchers via an advisor's mobile phone. The Tylaynet platform enabled farmers trained in the Tylay method (based on the skills-assessment approach) to ask their questions to advisors. Those two initiatives did not last, but the following two are still active. The Cocorico call centre gives livestock farmers access to information (produced by satellite imagery) on transhumance corridors, the state of pastures and waterholes, and veterinary care. Cercle des Cuniculteurs has a WhatsApp group where its 250 members (rabbit breeders) can communicate free of charge in order to acquire inputs, diagnose diseases, adjust their feeding and reproduction practices, and sell their animals. This case illustrates farmers' social network use, which appears to be on the rise. The increase in use, however, is dependent on farmers' access to those technologies. While 80% of the Burkinabe population had a basic phone in 2016, only 11% were internet users (all sectors combined). What's more, the administrators of the WhatsApp group say it is hard work monitoring the reliability of the shared data.

Despite their disadvantages, social networks are a promising way to encourage communication between farmers, or between people with "expert" knowledge and those with "peasant farmer" knowledge. While the current trend is to make better use of farmers' knowledge, farmers are still rarely involved in the production of information. Most services are used to provide generic information, via phone or internet, developed by researchers or NGOs. Those approaches do not allow for interaction and essentially consist in the transfer of knowledge; they are therefore not well-adapted to solving complex problems.

Moving towards complex inter-organisational networks. The providers of the 25 digital advisory services studied in 2018 were research entities (36%), FOs (28%), private-sector entities (24%), and NGOs (12%). But four new types of organisation are now starting to collaborate with long-standing advisory



Breakdown of the 25 Digital for Agriculture (D4Ag) initiatives in Burkina Faso by services offered.
Source: Authors, based on Bationo's data (2018).

actors: phone operators, IT developers, software providers, and data 'aggregators' specialised in collecting, formatting and sharing information via digital tools. Complex inter-organisational networks are therefore being developed in order to bring together the financial, human and technological resources needed to develop the service. The 321 service (provided by Orange and Viamo) offers voice messages in local languages, accessible by phone, on best practices for the production of six products. It took several years for an agreement to be reached between Orange, Viamo and the NGO providing the content for dissemination. And it took over a year of work with the Ministry of Agriculture to create the informational content. The contracts between the different parties are renegotiated annually.

Unstable and unprofitable services, but promising prospects. It is expensive to design technological solutions, produce relevant content, and manage services. Most of the services are currently dependent on development aid. In all, 92% of the initiatives are either entirely funded through projects or through partnerships between the private sector and projects/NGOs/donors (Bationo). This raises questions as to the financial sustainability of the initiatives. Some, however, are looking to become more independent by diversifying their activities. FOs (such as those in the cowpea value chain in Kaya using an information system for managerial advisory services for family farms) use the profits generated through the sale of inputs, storage services or warrantage services to fund advisory services. Some businesses (such as EcoData, which manages the Cocorico call centre) offer services (market studies, surveys, etc.) to FOs and NGOs.

But all providers agree that digital advisory services are not yet a profitable sector of activity. In certain circumstances, however, the use of digital technology for advisory services may be justified. The security conditions in Burkina Faso, for example, have resulted in a lower presence of advisors in the field, rendering traditional support schemes almost inoperative. Remote advisory services would make it possible to continue to support farmers. Those tools could also be used to promote environmentally friendly practices, although the negative ecological impact of high-tech solutions should be taken into account.

Towards a more participatory approach to designing advisory tools. In order to ensure that tools are well-adapted, the way in which they are designed needs to change. Farmers are still rarely involved, but participatory approaches are becoming more and more common. Donors support the joint development of tools and services with FOs. State entities and incubators are promoting "hackathons" to support the development of socially useful applications. All providers are currently trying to develop, by trial and error, suitable solutions that are financially viable. There should be discussion of how to assist those programming enthusiasts in order to ensure that the solutions they develop are truly useful for farmers.■