



Food and Agriculture  
Organization of the  
United Nations

# e-Agriculture Case Study

## E-KOKARI

E = electronic  
KOKARI = perseverance

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## Key Facts

- **Location:** Niger
- **ICT used:** Interactive Voice Response Platform
- **Area of work:** Agriculture, Livestock, Market Information
- **Target group:** farmers, breeders and buyers
- **Stakeholders:** CIPMEN Incubator, World Bank Niger, Ministry of Agriculture, Niger ICT High Commissary, NOVATECH, AgriBusiness consulting, Sahel Bio
- **Timeframe:** Since 2017

## Providing information to farmers in Niger through an Interactive Voice Response Platform

E-KOKARI is an Interactive Voice Response (IVR) platform, developed in Niger, which enables farmers, breeders and buyers to access information, advice, warnings and market prices in the field of agriculture and livestock. When a user dials a short number from his phone he can access a voice menu in the main local languages (French, Hausa and Zarma) of the country, which guides him/her according to his/her needs.

A prototype was developed and tested during a period of 10 months in the course of 2017, but the practice still needs to be implemented and evaluated in the field.



Most farmers in Niger now own or have access to a mobile phone, but not necessarily to the information they need.

## Context and problem addressed by ICTs

In Niger, more than 80% of the population lives in rural areas and has poor access to accurate and timely information to improve their agricultural practices. In addition, according to UNICEF, about 70% of the adult population is illiterate, which means that they cannot read and often do not even speak French, which is the official language of the country. However, currently the information available for farmers is mostly written and in French, which results in limited use by farmers and breeders. Up till now, most of Niger's farmers and breeders remain without access to the necessary information to improve their production.

On the other hand, the use of mobile phones and the number of mobile phones in Niger has been increasing every year. More and more farmers now own or have access to a mobile phone. In 2015, on a total population of about 20 million inhabitants, 7 184 270 mobile phones were in use. In 2016, this number increased to 7 719 981 mobile phones.

In this context, and to bring answers to the cited problems, E-KOKARI was developed to help farmers, breeders and buyers to get access to information, advices, alerts and market prices in their own local language by using a mobile phone (smartphone and normal mobile phone). All the data available on the platform are also voice recorded in the local languages and the users can get access to the information by dialing a short code on their phone and navigate through a simple menu to obtain the information they need.

Author: Daouda Hamadou -NOVATECH

## Stakeholders

Several actors have been involved in the process of the development of of E-KOKARI and it's testing. NOVATECH is a small startup in Niger that developed the E-KOKARI platform with the financial support of the World Bank, the Ministry of Agriculture and the Niger ICT High Commissary. The Ministry was also the provider of the official content used for the platform. CIPMEN Incubator provided support for NOVATECHs business development and its search for investors and partners.

## The development of the ICT used: IVR Platform

The different steps in the process of introducing and using E-KOKARI were the following:

- Consultations with the farmers and breeders
- Development of the system: Open source Software Asterisk was used. NOVATECH has written the code and the configuration lines are hosted by a local server test.
- Collection, verification and uploading of the information: the information is collected from the official website of the Agricultural Chambers Network ([www.reca-niger.org](http://www.reca-niger.org)) with the support of the Ministry of Agriculture. After that, the information was recorder to get the necessary audio files and they were uploaded on the platform. The information is regularly updated in collaboration with partners such as RECA and the National Agricultural Agency
- Training of the end-users
- Use of the platform by farmers and breeders



An important aspect of the development of the IVR platform was the interviews and discussion groups with farmers and breeders to ensure the platform meets their needs.

E-KOKARI works as follows for the end-user:

**Step 1:** Farmers, breeders and buyers dial a short code on their phone

**Step 2:** They get access to the IVR platform and the system invites them to choose their own language (French, Zarma or Hausa)

**Step 3:** Depending on the choice of language, the IVR system guides them to the desired field of information being agriculture, breeding or buying

**Step 4:** After choosing the field, the system invites them to choose a specific topic that is of interest to them like: protection of plants, alerts, plant attacks, , food prices, after which detailed information is provided. The system is completely automated. All the information has been recorded, uploaded and updated on the servers.

**Step 5:** There is an option that allows the user to enter directly in contact with a specialist in case he/she does not find all the information he/she needs. This option allows farmers, breeders or buyers to directly talk with an extension specialist in the chosen language.

## Impact

Currently there is no evidence of impact of the practice on the livelihoods of the farmers. The practice has been developed recently and after thorough testing it will now be implemented in the field. The practice aims at improved agricultural and breeding practices and a better market access for the farmers and breeders.

## Innovation and success factors

E-KOKARI is an innovation for the country as it is the first platform of this kind that has been developed in Niger. The innovation provided by the E-KOKARI platform is based on the use of any type of mobile phone (smartphone or normal mobile phone) and a voice system that makes information available in local languages to farmers who cannot necessarily read or speak French. The local languages Houssa and Zarma are essentially spoken languages and little documents exist in those languages. Producers can now easily use their phone to access voice recorder information in their own language, which will facilitate the uptake of improved agricultural techniques. The farmers trust the information provided by the platform, as it was certified and validated by the Ministry of Agriculture in Niger.

Even though the E-KOKARI platform has not been implemented in the field, it was already recognized as the winner of the NigerAppChallenge ([www.nigerappchallenge.com](http://www.nigerappchallenge.com)), a competition organized by the World Bank in Niger and the CIPMEN Incubator ([www.cipmen.org](http://www.cipmen.org)). Also, the World Bank's Climate Smart Agriculture project (<http://projects.worldbank.org/P153420?lang=en>) is interested in supporting the roll out of E-KOKARI in 60 villages in Niger to reach about 8,000 producers. The roll out of the project in the villages will be done based on the outcomes of a survey from the National Agriculture Agency.



## Constraints

The challenges faced are mostly related to training farmers on how to use the platform. Since this is a new way of accessing information for most users, there is a need to foresee enough time for capacity development. Most mobile phone owners and users, use the phones merely to make calls. To ensure that the capacity development aspect of the implementation of E-KOKARI runs smoothly, collaboration with the Ministry is foreseen.

Technically, the use of mobile phones does not seem to be a constraint anymore for the farmers and the breeders as the use of mobile phones in Niger has increased tremendously, also in rural areas. The rural population is able to overcome challenges related to the absence of electricity to charge the phones by using solar panels.

NOVATECH does face challenges regarding the absence of sufficient equipment to scale up the prototype in collaboration with the mobile operators in Niger.

## Lessons learned

Developing a prototype of an information platform for farmers and breeders, is above all listening well to the target group in order to understand their problems and their needs. Farmers were interviewed in the field and discussion groups were organized. There was also a close collaboration with the specialists in the department of Agricultural Vulgarization of the Ministry of Agriculture. Interviews and discussions were repeated until sufficient information was available to develop an appropriate service for the farmers.

## Sustainability

E-KOKARI aims at becoming socially, economically and environmentally sustainable. The platform meets the real need of producers and buyers to access information to improve their production and agro-business. The business model is based on the cost of phone calls, meaning that phone calls will be billed at a very affordable price for farmers, breeders and buyers to ensure the sustainability of the platform. The cost of a call is around 0,09 US dollar. The farmers will pay per call.

To roll out the project in the field, discussions are ongoing with the Ministry of Agriculture, the West Agriculture Production Project Niger (WAPP-Niger), the World Bank Climate Smart Agriculture Project in Niger, the CIPMEN Incubator and the National Agency of Information Society.

## Replicability and upscaling

The IVR E-KOKARI platform can be replicated wherever the problem of literacy and language is a real problem for farmers, breeders and buyers that want to access information, especially in Sub-Saharan Africa. Also, with the increased number of the mobile phones among farmers, this is a solution that can also be used in remote rural areas.

Further rollout of the platform in Niger is needed to be able to evaluate the impact and the success of the platform before the practice can be recommended for replication in other countries. It is now already clear that in order to have a successful similar platform, it is necessary to consider the true needs of farmers and to take into account the link between the use of the mobile phone and the barriers of the language.

### Farmer's story

During our field trips, the E-KOKARI team met a livestock breeder who talked about the difficulties he encountered in accessing information on vaccinations for livestock. He told the team that the current information is mouth-to-mouth information and that he always had to go through the village chief to get the information on the vaccination of the livestock. He confirmed that using the phone to access reliable and updated information about vaccination of the livestock in local language could greatly improve the health of his cattle. Many farmers and breeders expressed the need for services E-KOKARI can offer. As the project still needs to be rolled out in the field, there are no testimonies available about its impact. To be continued!



Daouda Hamadou  
NOVATECH  
Daouda.hamadou@gmail.com

## About the author

Daouda HAMADOU graduated in Industrial Computer Science from the School of Mines, Industry and Geology (EMIG) of Niamey. After 10 years of experience in the digital sector in Niger, including 6 years at AREVA Mines Niger as IT Manager, he left the AREVA group to set up his own company NOVATECH in 2014. NOVATECH is a digital service company specializing in delivering innovative services in systems and network infrastructures, development of web and mobile applications, training, consulting in digital technologies and the use of Mobile for Development (Mobile4Dev) in Health, Agriculture, Education and Environment. He was selected as a Young Leader in ICT by the International Telecommunication Union (ITU) in 2016 in Busan, South Korea and was recently selected for the Tony Elumelu Entrepreneurship Program in 2017. He is the winner of the first edition of Total Challenge Startupper of 2016 by Total Niger and the NigerAppChallenge with his project E-KOKARI. He was also selected for the first Young Leader Africa-France promotion from the Africa-France Foundation.

## Resources

- CIPMEN Incobator website: [www.cipmen.org](http://www.cipmen.org)
- World Bank Climate Smart Agriculture Support Project:  
<http://projects.worldbank.org/P153420?lang=en>

## E-AGRICULTURE CALL FOR GOOD AND PROMISING PRACTICES

This document was developed in the framework of the 2017 e-Agriculture Call for Good and Promising Practices on the use of ICTs for Agriculture and Rural Development in collaboration with the Food and Agriculture Organization of the United Nations (FAO) and the Technical Centre for Agricultural and Rural Cooperation (CTA).

e-Agriculture is always happy to review your good or promising practices! You can submit a proposal, following the sections in this document to [e-agriculture@fao.org](mailto:e-agriculture@fao.org)

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Good and Promising Practices on the use ICT for agriculture in collaboration with

