10 tips to go digital in the grains, pulses and oilseed sector

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The supply chain of grains, pulses and oilseeds is becoming more digital, especially the larger commodity crops such as wheat, soybean and maize. Digital technology allows you to collect data, improve agricultural production and get better access to finance and markets. As a supplier, you must be selective in the technologies you want to use and take into account that knowledge and mobile connectivity are required to be successful.

Contents of this page

1. Go mobile and select your digital solution

The first step in going digital with your business is to go mobile. Mobile technology is a pre-condition for many of the available solutions. In Sub-Saharan Africa, there will be nearly 700 million smartphone connections by 2025 as affordable smartphones and financing become available (see Figure 1).

You can collect and analyse different data to e.g. improve your agricultural production or environmental footprint, get access to markets and finance or increase your efficiency and product quality.

The main digital solutions you can use when working with a mobile phone or tablet include:

- Digitally available agricultural and market data and advice to improve business decisions;
- Drone and sensor data that support precision agriculture;
- Post-harvest monitoring equipment that helps you get a better-quality product;
- Digital platforms and marketplaces where you can sell your products;
- Software solutions that help to make your organisation and business processes run more efficiently;
- A digital profile to get better access to finance and trade;
- Digital/blockchain technologies that make the supply chain more transparent.

As a supplier, it is crucial to search for practical solutions that fit the local circumstances and available materials. Nowadays, there is a lot of focus on expensive and other technology. Technology can greatly improve

productivity, but grains, pulses and oilseeds are also a competitive business, and technologies only work if they are suitable in your situation. For example, you can collect data and measure the quality of the soil, but if the right fertiliser is not available, the digital data have no added value.

Tips:

Focus on productivity instead and not only on production costs. Start with the easy wins and digital solutions that are most suitable and accessible for your business. Expand from there by selecting more advanced technologies.

Find solutions that integrate various aspects of your business, from agricultural data and advice to access to finance and markets. There are several solution providers that cover more than 1 aspect of your business, from agriculture to processing to international sales.

2. Use digital services to get data and advice that will help your decision making

More and more data and digital services in agriculture are becoming available, especially for large commodity crops such as wheat, maize, rice and soybean. Among these, you will find market data, agricultural data and accompanying advisory services.

Freely available commodity data

Production forecasts and prices are important parameters to manage your business and optimise your margin. Commodity crops are important for food security and are therefore well monitored. A good example is the Agricultural Market Information System (AMIS), where you can find production forecasts for wheat, maize, rice and soybean. Other online data sources include the Agriculture and Horticulture Development Board (AHDB), which shares the latest industry data, analysis and insights in the Cereals and Oilseeds sector, and the European Commission's statistics on world cereal prices, EU production and trade.

Satellite data

The use of satellites can provide climate information, crop monitoring, yield forecasts and biomass estimation. When satellite imaging is combined with geographical information systems (GIS), farmers can manage their crop more precisely and make their production more efficient and sustainable. A lot of data and satellite imaging has become accessible to the world, but you need knowledge and services to interpret and use the data. An increasing number of companies provide satellite data and advisory services:

The company SOWIT combines satellite data with drones and sensor technology. It aims to improve the low and unpredictable yields in Africa by offering solutions for better nitrogen fertilisation for the cultivation of wheat, rapeseed, sugarcane, barley and alfalfa. It also provides a decision tool that helps farmers decide when to harvest maize and improve silage quality.

Dynacrop provides advanced lightweight satellite products for agriculture with a pricing scheme per hectare. The company can provide data on crop growth, soil moisture and satellite prescription maps for seeding and fertilisation. It works together with Non-Governmental Organisations (NGOs) and private service providers such as Rural Farmers Hub in western Africa.

Data made available through big companies

Big agricultural supply companies such as Bayer-Monsanto, Syngenta-ChemChina, DowDuPont and BASF will

likely dominate agricultural data in the future. With the data they collect, they can provide recommendations to farmers about their products, such as advice on seed planting and chemical application. To build such a digital platform, Bayer-Monsanto has partnered with several technology suppliers to get data from agricultural sensors, drones and satellites. Through its subsidiary The Climate Corporation, it is now introducing Fieldview, a digital platform that unites all data in 1 application.

For producers of commodity crops such as corn and soybean, these big suppliers of inputs can be ideal for getting data and advice, but there are also great concerns that these giants have too much control and that this will result in a loss of bargaining power for farmers.

Microsoft is developing its own platform, Azure FarmBeats, which will provide data-driven digital agricultural solutions. The platform enables farmers to take decisions based on real-time data and analysis on the condition of their soils, water, crop growth, the threat of pests and diseases and weather changes.

Peer-to-peer platforms

When you do not want to depend fully on service providers, you can ask advice from other farmers. Platforms such as Wefarm enable farmers to share knowledge and access a marketplace of trustworthy retailers. Wefarm can be accessed online and via SMS, which makes it a suitable platform for farmers that have limited internet access.

The digital network Farmerline in Ghana bridges the illiteracy gap by providing agronomic and business tips through voice calls and talking books.

Tips:

Read AHDB's Satellites for Agriculture to learn about how satellite technology works and the current status of satellite technologies available for agricultural applications (2018).

Use a service provider that can help you analyse the data and provide advice on which actions you can take to improve your crop.

3. Make your agriculture smart with digital data

There are many parameters you can measure yourself in agricultural production. The data that you can collect and analyse will give you more control over your production and yield.

The use of smart data in agriculture will help you optimise production and make farming more sustainable. You can collect data (1) from modern farming equipment with sensors and GPS technology, (2) from remote sensing and drones with infrared cameras that show the conditions of your field or (3) from satellites or mobile applications that allow you to monitor soil and climate conditions. By using these data, you can apply agrochemicals, fertiliser or irrigation with great precision and give plants the precise treatment they need.

Smaller and medium farmers and farmer groups are starting to get access to many technologies. For example, an initiative for exploring the adoption of drones in agriculture in Benin had a positive result. Almost all rice producers considered drone services a useful technology to increase productivity, production and farmer incomes.

Figure 2: Use of drones in a sorghum field

Source: Sarah Clarry on Pixabay

Further development of precision agriculture will lead to new technologies. For example, GrainSense, a Finnish-based company, uses a hand-held scanner with near-infrared (NIR) technology to measure grain quality in the field. This scanner can track protein, moisture, oil and carbohydrate contents of wheat, barley, oats, rye, rapeseed, maize and soybeans. In a similar manner, the company AgroCares provides data solutions to measure nutrients and other key parameters in soil, feed and leaves.

However, precision agriculture is only an option if it is combined with agricultural knowledge or advice and if the proper inputs such as irrigation, improved seeds and specific fertilisers are available.

Tips:

Try to collect data from sources at different levels. Combine satellite data with drones and sensors to get a detailed analysis of your field.

Read about the benefits and application of digital technologies in the FAO publication Big Data for Agriculture and about precision agriculture and how small farmers can benefit from large farm technology on the Endeva website.

Discover agricultural publications and data on the CGIAR Platform for Big Data in Agriculture.

4. Increase quality and efficiency with post-harvest technologies

Post-harvest technology is becoming more important, to increase efficiency but also to comply with stricter product requirements. There are several digital technologies you could implement to grade, select and store your grains, pulses or oilseeds.

Sorting grains and pulses

Food safety, purity levels and quality consistency are crucial elements when supplying grains, pulses or oilseeds to the European market, especially when they are destined for human consumption. By using the digital technology of an optical sorting machine, you can avoid defects, discolouration and mycotoxins with the highest precision.

Sorting equipment, such as the grain Sortex of the Bühler Group, uses a range of technologies including cameras, lighting and machine-learning software. It removes product defects and foreign materials by colour, shape and texture. The Bolivian company Andean Valley has implemented Sortex technology to ensure a high-quality quinoa without losing production capacity. It can also separate black, red and white quinoa, which is a strict requirement for the Chinese market.

Quality analysis

To check the quality and purity of your product, you can use digital analysers. Grain and seed analysers can measure things such as moisture, purity level, weight and oil or protein content. You can also use these data for a quality report to your client. There are many analysers on the market, for example the Vibe QM3 Analyzer for rice, grain or seed or different grain and oilseed analysers by the Foss brand.

Grain monitoring

When you store your grains, you can maintain grain quality using smart monitoring. Temperature, CO2 and moisture are the most important things to continuously measure when storing grains, pulses or seeds in bulk or in silos. Modern systems allow you to monitor your stored crop real-time from your phone, such as GrainViz,

Agrolog, TeleSense and the systems of Tri-states Grain Conditioning (TSGC). Sensors will alert you when there is a risk of moulds or insects and when to sell or ventilate your crop.

Tips:

Invest in a processing line and grain storage together with a group of growers or a cooperative. This way, the investment is small and a large group of smaller farmers can benefit.

Read the World-grain.com publication 'Monitoring CO2 in stored grain' and the TSGC's publication 'The Internet of Things Revolutionizes Farming and Grain Storage' to understand how smart digital monitoring works and why it is important. (Tri-states Grain Conditioning (TSGC) is a supplier of temperature and moisture monitoring systems for grains.)

5. Link to markets through digital platforms

There are online platforms and organisations that facilitate market access for farmers. You can use them for buying inputs and selling crops, at a local level and sometimes internationally. E-commerce for business-to-business (B2B) transactions is not yet well integrated into the sector, but digital technologies will provide future opportunities, starting with commodity crops.

Online B2B trading

As a supplier, you can share your offer and potentially get requests from buyers through platforms such as Tridge, Selina Wamucii, Tradekey and Alibaba. Tridge and Selina Wamucii also provide online market information.

The options to trade your product online, including the financial transaction, documents and logistics, are still limited. E-commerce platforms like Amazon business are not specialised in trading grains, pulses and oilseeds. It is not common for grain traders to shop at Amazon.

However, in the near future, you can expect online trade to become more common for standardised products such as wheat, soybeans and corn. New digital technologies such as blockchain will make this possible. For specific and niche products, the potential for B2B e-commerce will remain limited in the short-term due to the number of services, product variations and quality and food safety checks that are involved.

The new Swiss-based platform Cerealia has digitalised the trade in mainly grains and oilseeds with blockchain technology. It is 1 of the first online marketplaces that will integrate all aspects of trade with smart contracts and non-fungible tokens (a piece of blockchain data that links ownership to the product).

Access to markets for smallholders

The development of e-commerce is also taking place at the beginning of the supply chain in producing countries, where farmers are offered digital platforms to sell their crops. These platforms include:

- Lima Links in Zambia, which provides farmers with access to live market prices and connects them to buyers;
- GreenConnect, a mobile app of the AgriSolve organisation in Ghana that claims to give smallholder farmers access to innovation, imports and training. GreenConnect allows farmers to sell crops or buy agricultural inputs;
- TruTrade Africa, which uses cloud-based mobile and online applications to provide smallholder farmers with a link to markets and fair prices for their produce. Products include oilseeds (soybeans, sesame, chia, groundnuts), cereals (sorghum, millet, rice, maize) and pulses (mung beans);

- Producers Market, which offers an online international marketplace for producers to share their product and their story via StoryBird;
- NaPanta, a free mobile application that allows farmers in rice-growing regions in the Andhra Pradesh and Telangana states in India to buy agricultural inputs, track their expenses and use the application for information about crop management, pest control, weather forecasts, crop insurance, cold storage and related agri-dealer information about the farmer location;
- Agri Marketplace, a digital B2B market solution that brings together farmers and industrial buyers. Agri Marketplace accommodates online payments between buyer and seller, product quality check options and end-to-end logistics services. It offers a platform for several grains, such as rice, corn, wheat and barley.

Tips:

Register with existing international platforms to increase your company's visibility and try to keep up to date with new e-commerce initiatives that focus on international trade.

Check if there are online marketplaces in your country and use these to expand your market.

Figure 3: Farmers studying AgriCoach

Source: AUXFIN

6. Use software applications to organise your company processes

As a supplier of grains, pulses and oilseeds, you must maintain a high level of efficiency and be prepared to meet the digital requirements of clients. Business management software such as Enterprise Resource Planning (ERP) will help you work more efficiently and eliminate human error. A basic IT infrastructure is a pre-condition to implement ERP software.

Enterprise resource planning (ERP) is a system that integrates the management of the main business processes to increase productivity and lower your costs. It often combines various software applications to collect, store, manage and interpret data from many business activities.

Digitalisation is important to connect with your clients in the future. The largest grain traders in the world have partnered with the goal of digitally transforming their supply chains. Archer Daniels Midland Company (ADM), Bunge, Cargill and Louis Dreyfus Company (LDC) are replacing their paper-based contracting, invoicing and payments with digital alternatives and making these processes more efficient and reliable.

Selecting ERP software can be difficult. For smaller exporters, the implementation costs can be a hurdle. But once functional, it will likely save your company time and prevent potential expensive mistakes. It is best to orient yourself on the software that best fits the scale of your business.

While big agricultural commodity companies may use SAP or Microsoft Dynamics as their management software, there are applications for exporters in developing countries such as eProd and Farmforce that are more suitable to support smaller businesses and the cooperation with multiple smallholder farms.

eProd is an ERP tool for companies that work with a large number of supply farms, developed in Kenya and

implemented in several countries in Africa, Central America and Afghanistan. With this tool, exporters can create farmer profiles, including their credit status, training attendance, field data, supply contracts, GPS location and photos.

Farmforce is a mobile platform for sourcing companies to engage with smallholder and medium-scale farmers. It extends the traditional ERP to farm level and provides traceability, management information and transparency. It also documents compliance with sustainability standards such as FairTrade, Rainforest Alliance and Organic certification.

Auxfin combines ERP software, a core banking platform and digital eCoaches to create eService ecosystems for smallholder farmers. The software facilitates the management of outgrower and other farmer groups. It includes basic elementary banking functions such as registration, savings, loans and payments. A suite of eCoaches have been developed to help farmers improve production, but also to help them stay healthy and educate their children. Farmer profiles are stored on the application. Auxfin is currently the most widespread digital platform in Burundi, serving 2.3 million people, and has a presence in other African countries.

The Brarudi sorghum case: building a rural ecosystem of interconnected eServices to support a smallholder value chain.

AUXFIN has created a rural ecosystem of eServices to support the local sourcing of the Brarudi brewery, a Heineken subsidiary in Burundi. Farmers can order their fertilisers and seeds online and get support from a 'Digital Coach' to produce quality sorghum. The delivery and quality check of sorghum at the collection point is digitally registered to create value chain transparency. This builds trust between the farmer and the factory. To further support the capacity and livelihoods of the farmers, additional services will be deployed such as the 'HealthCoach' and the 'NutritionCoach'

Tip:

Make sure you document your processes. If you think your company is too small to implement ERP software, at least make sure you document your processes in another way with a practical database and a decent backup system (for example, online in the cloud).

7. Create a digital profile to trade online and to get access to finance

1 of the main issues in developing countries is the lack of access to finance. But there is a growing number of mobile solutions that give smallholders a digital identity, which helps them get a credit score and trade finance. In an increasingly digitalised market, with smart contracts and digital supply chains, mobile connectivity will become crucial.

Stay attuned to the future of digital trading

Food commodity trading will likely have a digital future. For example, the Easy Trading Connect (ETC) platform was designed to digitalise and standardise commodity transactions. The technology was tailored to the complexity of the agricultural commodity sector, covering documentation flow, financing as well as the signing and processing of the sales contract.

In 2018, Louis Dreyfus Company, ING, Societe Generale and ABN AMRO completed the first agricultural commodity trade through blockchain. This trade concerned a soybean shipment transaction from the United States to China. A full set of digitalised documents, including a sales contract, a letter of credit and certificates, resulted in a significant improvement in efficiency for all participants in the supply chain.

This new digital way of commodity trading and financing can become a reality for the grain, pulses and oilseed sector. It will allow traders to use smart contracts, monitor the whole process in real time, verify data, reduce fraud and create a shorter cash cycle. The International Chamber of Commerce (ICC) Banking Commission has issued new electronic rules (eRules) to advance the digitalisation of trade finance practices, replacing paper records with electronic records. Once implemented for major commodity crops, this technology could also become available for minor crops such as quinoa, sesame seeds and different types of pulses, as long as products can be standardised.

Get access to finance by creating a digital profile

Access to finance remains 1 of the biggest challenges for small farmers and exporters. They often lack a credit score and the resources to finance agricultural inputs or trade. Digital profiles and mobile payments can contribute to a more sustainable and productive agriculture sector. For example, One Acre Fund successfully digitised loan repayments for farmers in Kenya in partnership with Citi Inclusive Finance. With greater transparency and efficiency, they were able to reduce repayment collection times by 46% and costs by 80%.

7 digital solutions are available:

Agri-wallet is an innovative fintech solution that ensures that all actors in the agri-food supply chain are well financed. Collectors of grains, pulses and oilseeds can postpone their mobile payment to farmers, while farmers are well financed through Agri-wallet and can keep buying agricultural inputs. Agri-wallet works with a virtual currency based on blockchain technology. A part of the farmers' income is paid out in blockchain tokens via their mobile phones, which they can spend with affiliated suppliers of farm inputs such as seeds and fertiliser.

AgUnity is a low-cost and safe transaction record system for smartphones based on blockchain. It provides financial inclusion for rural communities and gives farmers a digital identity. This way, it creates an efficient digital supply chain, from farmer to consumer.

Apollo Agriculture is a Kenyan FinTech startup that uses satellite data and a machine-learning model to make informed credit decisions. Farmers in remote areas can access the affordable credit they need to buy seeds, fertiliser and crop insurance and increase their yields. They can also use their phones to access voice-based training and make payments.

TruTrade is 1 of the online trading and payment platforms that enables small farmers to connect to local, regional and international buyers. It provides digital trading records and gives smallholders credentials to trade. This way, TruTrade digitalises informal agriculture value chains.

Farmerline, active in Ghana, gives farmers a digital identity, improving access to finance for agricultural inputs. It also provides training and market information.

Farmer connect allows producers to create a farmer ID, through which a farmer can connect to a digital supply chain. It gives farmers credentials and supports their access to finance and living conditions.

UMVA platform, developed by AUXFIN, is a solution that makes financial transactions possible via an eBanking platform. UMVA, or Universal Method of Value Access, facilitates transactions in the local currency, between currencies or in 'product', such as a kilo of wheat or pulses. This enables farmers to sell their produce or to get credit from a financial institution based on stock that has not yet been sold.

Tips:

Make your company bankable by improving your company's credit rating and credentials. No matter your company's size, financers will grade your credit profile. Learn what your business credit score means and how to improve it, as described by Experian, or build your credentials through new digital applications such as TruTrade.

Watch the video Easy Trading Connect using blockchain explained, which explains the enhanced Easy Trading Connect (ETC) blockchain prototype used to complete the first agricultural commodity trade.

Learn about 'smart contracts' and how they work in IBM's explanation What are smart contracts on blockchain?

Use the leading trade finance platform Trade Finance Global (TFG) as a source of information on trade finance and the digital developments taking place.

8. Join blockchain initiatives to become part of a transparent supply chain

European buyers continue to highlight traceability as 1 of their major requirements. Digital technologies such as blockchain can increase transparency and traceability in the supply chain of grains, pulses and oilseeds. Many digital platforms are already using a form of blockchain. It not only provides smart contracts, efficiency and supply chain monitoring, but can also give you the opportunity to add your story to the final product.

Starting with blockchain on your own is a huge step. It requires the cooperation of other participants in the supply chain. Some digital experts even argue that the implementation of data collection is more important than being fixated on blockchain. Blockchain should not be a goal, but rather a way for supply chain organisers to improve trade practices. In other words, farmers do not use blockchain – they use solution providers that need blockchain to make their technology future proof.

What is blockchain?
Blockchain records data in a distributed ledger. It links data or transactions (blocks) in an encrypted ledger (chain) that is stored on many computers in a peer-to-peer network. The larger the network, the more difficult it is to corrupt.

Read What is blockchain? in CBI's report Blockchain in Europe or watch the video What is blockchain by IBM Food Trust.

Join others: the Covantis case

For most grain farmers and exporters, it is easiest to join leading companies and initiatives in blockchain development. In the grain sector, the industry initiative Covantis aims to modernise global trade operations with blockchain technology. This will digitalise the core processes of grain trading. 18 major traders of grains and seeds have already joined the platform, including its founding members ADM, Bunge, Cargill, LDC, COFCO and Viterra.

Covantis focuses on the large-scale grain trade. The impact on small suppliers and special grains will be minimal, but it provides a glimpse of what the future trade of grains, pulses and oilseeds will look like. The first origin country where the platform will be implemented is Brazil, for shipments of soybeans and corn. In the future, other origins and commodities will be added. You can follow the progress via regular status updates on

the Covantis website.

Create your story with QR codes

For suppliers of grains or pulses that are not traded as large commodities and end up as consumer products, the use of QR codes can be an attractive option to add information to your product and tell your story. It facilitates traceability and provides buyers and consumers with a background of your company and the product. The generated data that are linked to QR codes can be easily integrated in blockchain traceability.

Examples of digital tools that increase traceability with QR codes and blockchain technology are Farmer connect and Storybird:

Farmer connect uses blockchain technologies from IBM Food Trust to build a bridge between farmers, consumers and everyone in between. Its mission is to make it transparent where products come from, helping to build trust in the supply chain. Consumers can scan QR codes with the mobile app 'Thank my farmer', read the story behind a product and find out where the product was made and by whom. It is currently used for the coffee supply chain, but it would be equally suitable for niche grains that are produced by smallholder farmers and sold as consumer packaged products, such as quinoa and fonio.

Producers Trust allows producers and brand owners to share their story with consumers via Storybird and Producer Stories. The organisation collects traceability data in the StoryBird app, which is designed to help brands tell real, validated stories. 1 of the connected companies is the quinoa cooperative Cooperativa Agroindustrial Machupicchu, which shares its story about the journey to Fair Trade certification.

Tip:

Get your inspiration from practical applications of blockchain technology, and their opportunities and risks, in Beyond the blockchain from Agriterra, the Wageningen University's article 'Blockchain improves transparency and sustainability' and the FAO's E-Agriculture in Action: Blockchain for Agriculture.

9. Use digitalisation to measure your environmental footprint

There is an increasing focus on farm sustainability. Digital solutions and data can contribute to more sustainable agriculture and the sustainability goals of large buyers. As a supplier, you must be open to technological cooperation and sharing relevant data.

Large buyers of grains, pulses or oilseeds are increasingly taking a pro-active stand for sustainable and social agriculture. The Round Table on Responsible Soy Association (RTRS), an initiative that combines several large buyers, food brands and retailers as members, provides several digital tools to make environmental impact more visible. It has developed a Soy Footprint Calculator to calculate how much soy is needed for food, animal feed or soy products and a zoning tool to guide the expansion of soy farming and promote ecosystem conservation. These zoning maps can be used as guides when analysing critical areas where biodiversity is at risk.

At a company level, Olam International has introduced AtSource to measure sustainability. AtSource was created to show social and environmental impact in agricultural supply chains that benefit farmers and communities. 1 of the activities that will be monitored by AtSource is the project for cutting rice's carbon footprint in Thailand. Olam has trained more than 12,000 Thai rice farmers in the principles of the Sustainable Rice Platform (SRP). An eco-calculator will allow rice brands and manufacturers to track the carbon and water

footprint of their rice from the field, through processing and transport, right up to their door.

You can also take action yourself to improve your environmental footprint. Companies with affordable crop monitoring technology such as AquaSpy or the low-cost flying sensors of FutureWater can help farmers be more efficient, save time in the fields and optimise the application of expensive or scarce resources such as nutrients and water.

Tip:

Find synergy in your efforts to implement digital solutions. When you collect data in your fields and post-harvest to improve efficiency and product quality, use these data at the same time to measure your environmental footprint. For example, measure and communicate how much less pesticides or water you are using thanks to precision agriculture.

10. Know where to look for the right digital solutions

Digital technologies can help your company become future proof and solve specific issues in the supply chain. It is important to stay up to date with developments and decide which technologies best fit your company and situation. When selecting digital solutions, it is important to be critical and get well informed. If needed, ask for help from experts or a business support office or ask about the experiences of your peers.

Use online marketplaces to find technological equipment

Via AgriExpo, you can find technological equipment for precision agriculture, measuring instruments and farm management software. There are several things on offer such as grain analysers and agricultural drones.

Read tech magazines to keep up to date with digital developments

Read online magazines to stay up to date with interesting digital technologies, such as AgriTech Tomorrow, the technology platform of Miller (World Milling and Pulses Technologies Refereed Magazine), Feed&Grain, World-Grain.com and PrecisionAg. Articles from companies and private publications can also be interesting reads, such as articles by CropOM.

Search for digital technology providers online and in frontrunning countries

The Digitalisation of African Agriculture Report, 2018-2019 of the Technical Centre for Agricultural and Rural Cooperation (CTA) provides an extensive overview of digital technology providers in Ethiopia, Ghana, Nigeria, Senegal, Kenya, Rwanda and the Sahel region. The CTA has ceased its activities, but the report is still available (June 2021).

The Digital Agri Hub will follow up the work of the CTA and will soon track digital services, innovations and solutions for the agricultural sector in low and middle-income countries.

You can also find technology providers at Africa Goes Digital, the pan-African industry association of digital operators (see the figure below).

Countries that are ahead in technological developments are logical starting points to look for solutions. For example, according to The Star, a Kenyan news medium, 25% of Africa's agri-tech startups are in Kenya.

Figure 4: Digital service providers on the African continent

Source: AfricaGoesDigital

Visit trade fairs or conferences to see the latest digital trends

New digital technologies are often presented at trade fairs and conferences. These are excellent places to see new trends and talk directly with the developers of digital solutions.

In Germany, you can visit AgriTechnica, a leading trade fair for agricultural machinery, or you can participate in virtual summits such as the Global Agriculture Technology Summit 2021 and the World Agri-Tech Innovation Summit. You can also find events in other countries, such as GrainTech India, Expo AgroFuturo in Colombia and Agritech Africa (2020) in South Africa. Or look at the events on the industry calendar of World-Grain.com.

Get local support from organisations

NGOs and private sector organisations with an active role in agricultural development will likely have a role in the digitalisation of farmers and small and medium-sized enterprise exporters.

For example:

The agri-agency Agriterra assists agricultural cooperatives in developing countries and recently started a project in digitalisation in cooperation with the International Fund for Agricultural Development (IFAD).

One Acre Fund is a non-profit social enterprise that supplies financing and training to help smallholders. Its Insights and Data Library has several white papers and resources on agricultural innovation.

The GSMA Foundation is an initiative with resources and support for GSMA Mobile for Development programmes and innovations with socio-economic impact, for example in agriculture.

Tip:

Read our Tips for Doing Business and Tips for Organising your Export, which can help you further understand how to do business with European buyers of grains, pulses and oilseeds and what it takes to become a successful exporter to Europe.

ICI Business carried out this study on behalf of CBI.

Note to the reader: the digital solutions mentioned in this report are meant as examples. CBI and the researcher do not have any special interests in specific technology providers or organisations.

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