

9 tips to go digital in the cocoa sector

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Digitalisation has great potential in the cocoa sector. Although it is a sector marked by personal relations, the growing implementation of digital solutions has been helping many companies and organisations streamline and improve their processes from the farm to the market. Whether your challenges relate to data collection, productivity, traceability or access to finance, it is important that you find the right digital tools that match these needs, and the right partners to implement them.

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1. Understand what digitalisation can do for you

The global cocoa industry is asking for more transparency and traceability along the chain. This relates to a growing need for evidence on quality, origin and sustainability claims. As a result, there is an increasing need for information from all actors along the chain, including cocoa producers and exporters.

The gathering, monitoring, and storing of information along the chain is increasingly managed digitally. There is a fast-growing range of digital solutions and tools that help gather information to guarantee sustainable sourcing, facilitate market linkages, improve productivity, competitiveness and/or help protecting the environment.

Cocoa producers increasingly benefit from the use of digital tools and access to information aimed at improving various internal processes as well as decision-making. At farm level, digital support tools may help you to apply fertilisers at the right time and can provide information on (changing) weather patterns and how to respond to them.

Digitalisation has benefits beyond the farm level. For instance, access to digital information may provide buyers with unique information on production and origin, which may encourage them to source cocoa from specific small-scale farmers.

Tools can provide producers and exporters with the opportunity to share more specific information about their products and practices. This may also increase their chances of securing access to financing and insurance.

Lastly, technology facilitates the direct linkage of small-scale producers to the entire value chain and buyers.

There are many digital tools available, all with different applications and objectives. Therefore, it is crucial to identify your needs before deciding on using or investing in any tool.

Tips:

Identify your needs before deciding on using or investing in any digital tool. Understand the purpose of specific tools, as there are many digital tools available, all with different applications and objectives. For this purpose, make an inventory of your main challenges and needs, and relate them to the different digital tools available on the market, and described in the following sections of this document.

Explore and discuss experiences with the various digital tools among your peers and network. Include your current buyers in this discussion, since they might have pre-existing solutions that also apply to you.

Find out what tools and opportunities exist in the cocoa sector to determine the best fit for your company.

Check Spurwing's article for a brief explanation on [why digital data and digital innovations can lead to increased sustainability in cocoa farming](#).

2. Use data and digital tools to improve cocoa farming practices

There are specific digital tools that help improve farm productivity and profitability. These tools guide you in processes like applying fertilisers or irrigation at the right time, or in providing accurate information on (changing) weather patterns, for instance.

All these tools are based on data input. Data collection, monitoring, and storing is increasingly done digitally, for instance through the 'Internet of Things' (IoT), drones, satellites or sensors. These technologies can gather data on temperature, crop conditions, soil moisture, and weather conditions, and therefore enable solutions such as remote crop monitoring, measurement of soil conditions and efficient irrigation management.

Many of these tools will also include digitally enabled extension support to help you achieve good farming practices, and help you respond to changing weather patterns, for instance. Although technical assistance or advice has traditionally been provided in person by extension workers or agronomists, it is increasingly common for this to happen via apps, SMS or videos. This development was sped up during the COVID pandemic.

Examples of digital tools to improve farming practices, specific for the cocoa sector are:

- [CocoaLink](#), developed by [Farmerline](#) in partnership with Hershey and World Cocoa Foundation. This is a practical educational digital tool, including articles on farm management and good agricultural practices, as well as by-the-minute weather updates and forecasts to enable farmers to plan farm activities.
- [CocoaWise™](#), developed by Cargill. Their CocoaWise ProFarm solution provides farmers with tailored farm management plans, helping farmers make informed decisions based on agronomy, up-to-date weather and market access information. This system gathers farm data, such as geolocation, crop health, household and income data, to enable tailormade communication with farmers.
- [CIC-AGRO](#) (Peru), which developed a smartphone application that focuses on optimising cocoa production, paying attention to comprehensive agronomic management plans, fertilisation plans and diagnosis of pests and diseases. In addition, CIC-AGRO launched a virtual course on fertilisation in cocoa cultivation.
- [FarmGrow](#), developed by Rainforest Alliance and Grameen Foundation. FarmGrow offers individualised multi-year farming plans, guiding farmers in implementing best practices that nurture soil health and increase climate resilience, such as pruning and re-planting. These plans can all be accessed on mobile devices and, among other things, aim to increase yields of participating cocoa farmers. The app is used by cocoa farmers in Ghana, Ivory Coast and Indonesia.

Other examples of digital tools to improve farming practices that are applicable to, but not specific to the cocoa

sector are:

- **PlantwisePlus:** an app that aims to improve the quantity and quality of farming by providing access to technical assistance and technologies. One of the focuses of the tool is to detect and respond to pest threats. For instance, PlantwisePlus provides cocoa farmers with affordable and safe pest management options, while creating effective pest monitoring systems so producers can stay one step ahead of potential crop threats.
- **Smarter Pest and Disease Identification Technology (SPIDTECH):** This app aims to help farmers monitor pest and disease in the Philippines using digital pest and disease identification for agricultural workers. The app was developed under the project **SARAI (Smarter Approaches to Reinvigorate Agriculture as an Industry)**.
- **CropIn:** CropIn gathers data that is captured by trained field officers as well as big data gathered from remote sensing and Artificial Intelligence technologies. The tool provides digital farm management solutions with remote monitoring, where data is translated into actionable insights to, for instance, increase agricultural productivity at cocoa farm level.

Figure 1: The CocoaLink App, with information on identifying the best location to grow cocoa in Ghana



Source: [Play.google.com](https://play.google.com)

Tips:

Consider investing in the digital skills of your cocoa producers to increase productivity and improve

sustainability. This technical assistance process requires time and dedication: farmers need to see the benefit of using these tools, need to agree on the tools, and then should be taught how to use them.

Be accurate when collecting data; only correct and detailed information will help you make the right decisions. As such, it is important to have a quality control system integrated into your data-input and data-processing activities.

Check out the [Sustainable Cocoa Production guide](#) by the International Finance Corporation (IFC) and [the good agricultural practices in cocoa production](#) by the Federation of Cocoa Commerce (FCC) for additional knowledge and best practices to ensure sustainable agricultural practices.

3. Improve your internal processes by using digital tools

The implementation of digital tools can be a crucial step in monitoring and improving the internal processes of your cocoa business. By collecting accurate information about your business, you can track the activities happening on the farm, control the internal management system, connect with producers and producers' groups, as well as monitor sales. With digitalisation and digital tools, you can also connect and compare information from different business areas to identify which areas need improvement.

An example of a digital platform specifically created for the cocoa sector is [Cacao Móvil](#). Developed by the Lutheran World Relief, the aim of the platform is to improve the competitiveness of SMEs and small cocoa producers, mainly in Central America. Through a mobile application and the website, Cacao Móvil includes a tool for postharvest cost management, which aims to automate the recording of costs related to postharvest activities like collection, transformation and commercialisation. From the input of this data, the tool generates a cash flow and break-even points, which can be used by producer organisations to strengthen their decision-making processes. In addition, the tool includes several guides related to the upstream and downstream processes of cocoa cultivation, tutorials to improve production, flavour maps, crop calendars and extension support.

Another recent example, so far implemented only in Peru, is the [Digital Platform for Monitoring Sustainable Agricultural Production \(MOPAS\)](#). This platform offers collection, systematisation and visualisation services for sustainability data. MOPAS aims to help users (producer associations and local buyers) work digitally with producers and assess the sustainability of farming practices, assess supply risks and identify the needs of producers.

Tips:

Understand your needs before going digital. Run your due diligence before choosing off-the-shelf tools or develop your own, tailor-made, digital solution. Check these [Lessons for Sustainability](#) by the Technical Centre for Agricultural and Rural Cooperation (CTA) for tips on finding the right technology for your needs. Although not targeting cocoa exporters specifically, these lessons apply very well to the cocoa value chain.

Stay informed on the latest developments to be competitive in the cocoa sector, or which could be applied in your cocoa business. This is key as digitalisation is an ongoing process, and new tools are developed regularly.

4. Increase traceability by joining blockchain initiatives

Blockchain technology is a tool that is used to increase accountability, transparency and traceability along the supply chain. It is an open system of decentralised data tracking and storage, meaning that it records transactions in a verifiable and permanent way. The system requires each actor along the chain to join the blockchain technology, so that the entire journey of cocoa beans can be traced back to the origin. This includes prices and profit margins from farmer to the end-consumer.

By bridging the information from source to market, blockchain can create and strengthen relationships. Blockchain technology is also believed to improve accuracy, traceability and efficiency in the supply chain. Although mainly used by larger cocoa companies at the moment, blockchain gives producers the tools to share up-to-date and accurate information about their harvests. This lowers risks and may even strengthen and increase the possibilities for producers to take out loans, for example. Consumers also profit, as they are better informed about the journey, origin and sustainability of the cocoa used in their chocolate.

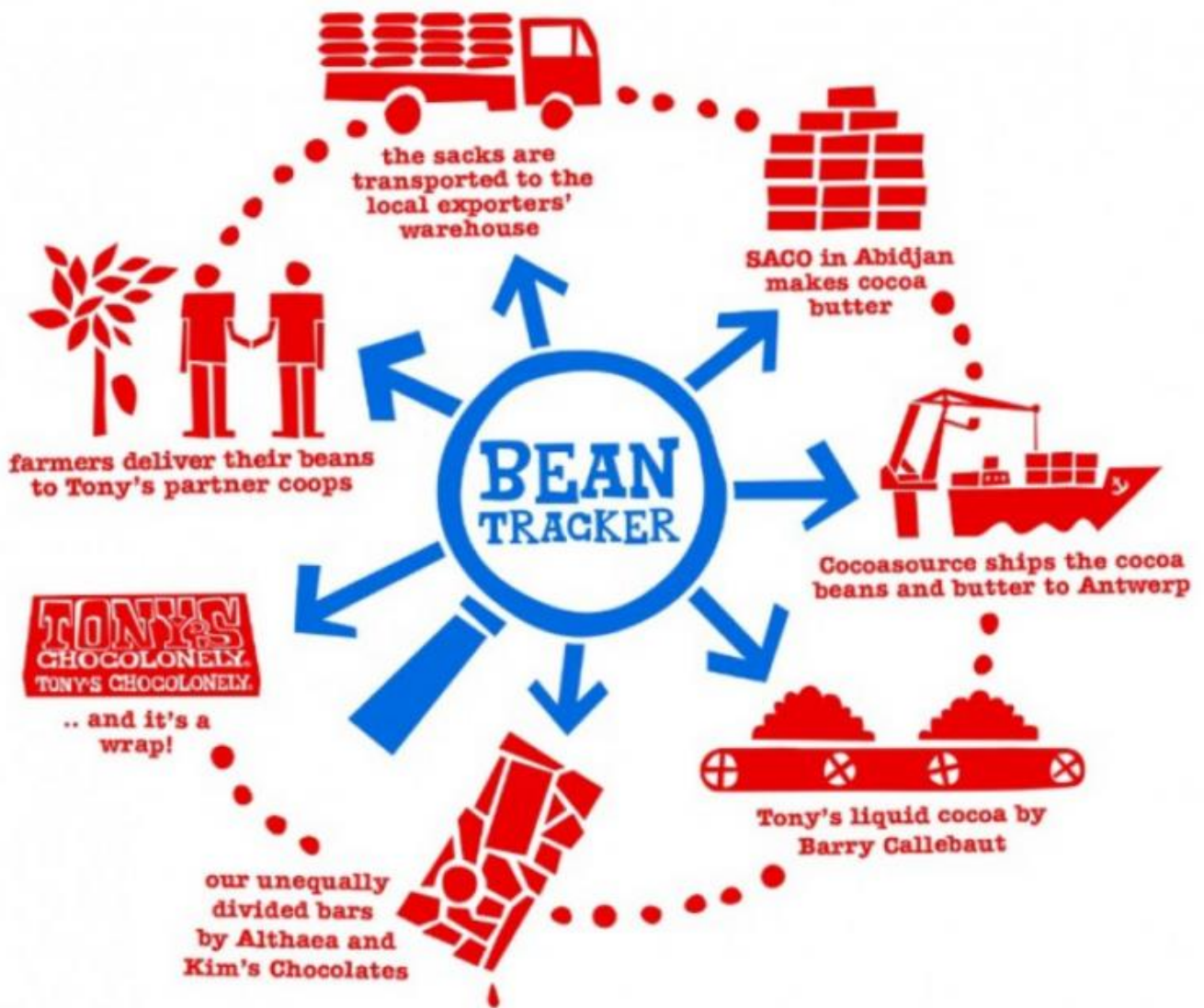
An increasing number of blockchain projects have been set up by NGOs, support organisations and the private sector.

[Tony's Chocolonely](#), a popular Dutch chocolate brand, was a pioneer in the implementation of blockchain technology in the cocoa value chain. In 2018, Tony's hosted a pilot to test blockchain in its [Beantracker](#) traceability platform. Developed by ChainPoint, this cloud-based platform collects data from the farmer cooperative down to production, supporting Tony's mission to make the chocolate industry 100% slave-free by creating full transparency in their supply chain. When the pilot was over, the company decided to stay with its original cloud-based platform. [Tony's believes there is important potential in blockchain technology](#) and has been following blockchain developments closely.

A more recent example is [Cocoblock](#), developed and tested by the French NGO Nitidae with support from the Technical Centre for Agricultural and Rural Cooperation (CTA) in 2019. Cocoblock was a [blockchain traceability system aiming to limit fraud, reduce transaction costs and increase transparency and profit margins](#) within the Ivorian cocoa industry. Despite the short-term nature of the project, the [solution succeeded in tracing 500 kg of cocoa](#). Similarly, a Swiss-Ghanaian startup called [KOA](#) is using blockchain technology to prove transactions and higher income for cocoa farmers in Ghana. With this tool, KOA expects to differentiate itself from existing certification labels, [providing consumers with direct proof regarding supply chain transparency](#).

Other examples of blockchain-based platforms are [SourceMap](#), [FarmerConnect](#) and [GrainChain](#). All these platforms aim to improve traceability in several agricultural supply chains, including cocoa.

Figure 2: The traceability Beantracker of Tony's Chocolonely, based on ChainPoint software



Source: [Tony's Chokolonely](#)

In addition to these blockchain initiatives, there are other tools whose main objective is to increase traceability along the supply chain. For instance, the [Olam Direct](#) platform geotags and timestamps every transaction between farmers, micro collectors and warehouses to improve traceability and consistency. Sourcing information can be shared with customers, offering a unique value proposition of transparency. This mobile phone app helps farmers do business directly with Olam, leading to better prices. [Olam Direct also provides access to advice, trainings and financing to farmers.](#)

Tips:

Learn more about [traceability along the cocoa supply chain](#) in the technical brief of the Sustainable Trade Initiative (IDH).

Learn more about other actions and initiatives that companies have taken to ensure traceability in the cocoa supply chain. For instance, read about [Cargill's new Monitoring and Evaluation System](#) using barcoded cocoa bags, which goes beyond the previous [Cooperative Management Systems \(CMS\) from Cargill](#). With this traceability system Cargill can manage its sourcing operations across West Africa and prove traceability to customers, while farmers receive access to loans, learn sustainable growing practices and increase productivity.

Access the website of [AgUnity](#) and read how they use blockchain to promise traceability along the cocoa

value chain for producers and traders in Papua New Guinea.

Refer to the [World Cocoa Foundation's Innovation Marketplace](#) to find other examples of (digital) innovations aiming to shape cocoa sustainability, from traceability & transparency to inclusive growth and efficiency.

5. Use digital tools to increase access to financial services

Securing loans and accessing financial services is often challenging for cocoa farmers. Risks related to cocoa production, low financial literacy and high transaction costs are seen as [obstacles to providing financial services](#) to cocoa farmers. To overcome some of these obstacles, the use of digital financial services is increasing. Some digital tools that aim to help secure inclusive finance are:

- [Agri-wallet](#): This tool gives farmers, buyers and agro-stores easier access to financing from a global network of lenders. As a farmer, you will receive your income through your digital wallet, and you can use the money to purchase inputs like seeds and fertiliser from participating stores. This means that the money earned through the Agri-wallet can only be spent in the agricultural supply chain. You can also use the wallet for savings; the higher your savings, the higher the chance you are eligible for larger loans.
- [Farmerline](#): Farmerline connects farmers to financing through provision of innovative mobile technology across Africa. As a farmer, you are given digital identity cards that you can use for all transactions. Farmerline mainly offers farming supplies on credit to cocoa producers. The input credit service comes with a flexible repayment system that allows farmers to pay back any amount at any time during the season. Farmerline also offers training in agricultural practices, up-to-date weather forecasts and business tips, aiming to help farmers increase their yields.
- [CocoaTrace](#) (developed by [Koltiva](#)): With the mobile and web applications, cocoa smallholders, traders, the processing industry, as well as input suppliers and banks are connected through end-to-end traceability platforms. Through the app FarmCloud, a farmer can apply for a loan, while loan officers can assess creditworthiness based on the data stored in the app. Data in the cloud platforms are collected by traders, input suppliers, Koltiva field agents and extension officers.

The use of digital tools by financial institutions and lenders

A more traditional way to access finance in the cocoa sector is through microfinance institutions (MFIs). Examples of MFIs are [Financiera Confianza](#) (Peru), [Advans](#) (Ivory Coast) and [Agronomika](#) (Philippines). Note that MFIs mainly channel credit to cocoa farmers through cooperatives or SMEs.

Many MFIs have embraced the use of digital tools in their financial service offer. Advans, for instance, [works through digital banking services to reach clients](#), including cocoa farmers. This mobile service contains a current and savings account and other financial services such as access to digital school loans, and wallet to bank (or vice versa) transfer services.

Tips:

Learn [how digital revolution and specifically digital financial inclusion can help reach the 2030 Sustainable Development Goals](#).

Read this report on [Access to finance for cocoa farmers](#) by the Swiss Platform for Sustainable Cocoa to read how other cooperatives achieved access to financing.

Remember that trust building and technical assistance is key if you want to start using digital tools.

If you want to access larger loans, build on your credit worthiness. This requires you to keep correct track of your business records and the agri-data related to your business, have a coherent and robust business plan, have a clear investment plan, provide information on your credit history and your assets, among other things.

6. Increase your market attractiveness through digital experiences

The COVID-19 pandemic severely disrupted travel and trade during 2020 and 2021. After the opening of borders, some buyers resumed travel to the various cocoa-producing countries. Others have preferred alternative ways to stay connected to producers at origin. It is therefore highly recommended that you maintain your digital presence to capitalise on digital solutions that could make your product more attractive to buyers.

Use digital experiences to attract buyers

Use social media, websites and newsletters to increase your digital presence. Through these channels, you can inform current and potential buyers about your product offer and about current developments in your organisation or country. You may also consider creating digital experiences for buyers, such as virtual origin/farm tours.

This could be done through making videos in which you present your cocoa farmers and shed light on specific cocoa farming techniques, for instance. Another way to go about this is through organising Zoom or Google Meet calls, which allows for relationship building between you and a potential buyer.

For example, have a look at how other cocoa exporters present their products online: [Naturkakao](#) (Guatemala), [Maui Ku'ia Estate](#) (Hawaii, USA) and [Cooperativa Ríos de Agua Viva](#) (Nicaragua). To get inspired, you can also have a look at other sectors to see what they do there. For instance, check out the virtual origin tour offered by [Primavera Coffee](#) from Guatemala.

Figure 3: Screen shot of Virtual Farm Tour of Cooperativa Alianza from Guatemala*



Source: [CBI Connecting Central America](#)

* For more examples and inspiration, check out <https://www.facebook.com/connectingcentralamerica/videos> to access the virtual farm tour videos.

Tips:

Refer to [our study on finding European cocoa buyers](#) for more information on using digital tools to find

potential buyers in Europe.

Learn from your competition. See how others present their company and check out which digital channels they use to see if this could be a good fit for you too.

When creating digital experiences for buyers such as farm tours and company presentations, make sure to use professional equipment that can guarantee the correct lighting and clear sound.

Products of higher quality and consistency might be more attractive to buyers. Within the specialty segment, it is more common to obtain attractive prices for your unique, high-quality cocoas. Buyers usually receive representative samples of cocoa that are sent to laboratories to test these features. Digital tools for monitoring and determining cocoa quality are increasingly available nowadays. You may use these tools as a guide to maintain a high-quality product.

For instance, [ProfilePrint](#) has developed a [platform that grades the quality and profile of food ingredients such as cocoa using artificial intelligence](#). The platform increases efficiency and reduces wastage of food ingredients sent out as samples. Cargill, Olam International, Sucafina and other main cocoa buyers have significantly invested in the platform and are willing to apply the technology to their portfolios.

Tip:

Collect and store data on the physical and sensorial analyses of your cocoa beans. This helps monitor quality over time and tracks changes in your cocoa quality season after season. Once information is stored digitally, you can analyse whether variations in the quality of a specific lot were the result of changes in fermentation, drying or other practices.

8. Use digital marketplaces to optimize your marketing

The cocoa market is typically a people's market, meaning that face-to-face contact and long-term trade relationships are key. As such, cocoa beans are normally not sold online. Nevertheless, digital marketplaces and digital trade fairs might be an interesting opportunity to showcase your products, assess your competition and expand your buyer network.

Digital marketplaces

There are a number of digital marketplaces out there through which buyers and sellers can more easily find each other. There are two distinctive types of platforms: Business-to-Business (B2B) and Business-to-Consumers (B2C). Cocoa beans are rarely sold through B2C platforms, as these platforms are dedicated to the sales of final products.

B2B platforms aim to bridge the gap between buyers and sellers. Note that there are no B2B platforms that only focus on cocoa. There are, however, platforms where cocoa products are sold among other products, such as: [Tridge](#), [Leroma](#), [Almacena Platform](#) and [Green Trade](#) (for organic products only). Another example is [Producers Market](#), where producers can list their products and establish market linkages with buyers. Always check what kinds of products a platform is handling; if a platform deals with mainstream cocoa qualities and you manage higher-quality products, the platform might not be the right match for you.

There are also B2B e-commerce marketplaces in producing countries, aiming to support and accelerate international exports. An example is the [B2B Marketplace from ProColombia](#), which contains an offer of ready-to-export products from Colombia, including cocoa.

Digital trade fairs

Due to the global COVID-19 crisis, many trade fairs were organised as digital events. Although these fairs are

now returning to the onsite model, some have decided to keep a virtual component including digital matchmaking opportunities and digital marketplaces. For instance, Biofach (Germany) decided to organise a hybrid virtual and onsite event for 2022.

Participation in such online events will require you to prepare well and to be proactive in reaching out to companies. Keep in mind that at digital events, samples cannot be seen, smelled, or touched, meaning that you will need high-quality pictures and prepare to ship samples directly to potential buyers.

Tips:

Always diversify your opportunities. This means that, besides being present on digital sales platforms, also keep reaching out to other sales channels such as trade shows and trade missions. Many cocoa buyers continue to do trade in the traditional way, so it is important to keep investing in relationships with them. The idea is to maximise your outreach and increase your sales opportunities.

If you are dealing with high-quality and specialty cocoa, it is recommended to also get in touch with specialised cocoa importers or directly with chocolate makers to assess these opportunities. These actors are more likely to build personal relationships with you and tend to pay higher prices than mainstream channels.

Keep your product offer updated. Regardless of the sales channel you choose (digital or through importers), always keep your product offer up to date. Have information ready about available quantities, the qualities and varieties offered, the organoleptic profiles and other relevant information.

Access B2C e-commerce websites, such as [Cocoa Runners](#) (United Kingdom), [Primos de Origen](#) (Spain) and [Chocolátl](#) (Netherlands), to get acquainted with finished chocolate products that are available on the European market. Pay special attention to the cocoa beans used for specific products, their origin and certification standards.

Answer quickly and be honest. Doing business through digital channels requires you to be on top of things. Check your communication channels regularly and answer within a day or two, maximum. Remember to always be honest about your product offer and what you can deliver; transparency and trust between buyer and seller is key in the cocoa sector.

Consider participating in virtual events. Before participating, research the event to determine if it fits your business in terms of size, market, product range, target audience and digital programme. Determine the investment involved and try to assess what outcomes you can expect from your participation.

If you participate in virtual trade events or platforms, make sure you can send samples to interested buyers. Ship your samples in time. Promote your free available samples at your online exhibitor profile and offer samples proactively to contacts generated at the event. Follow up and continue to engage with potential buyers after the event as well.

9. Connect with organisations that help you embark on your digitalisation journey

Implementing digital tools into your operations requires time, money and dedication. There are many digital tools on the market, each with their own purpose. Always make sure to truly understand what a tool offers, and whether it can help you address your specific needs.

Given the importance of technology, many national and international companies and organisations include a digital component in their projects. For instance, [ECOM](#), [Oikocredit](#), [Grameen Foundation](#), and [COSA](#) developed a project in Ecuador seeking to improve the competitiveness of small-scale cocoa producers through access to precision agricultural technologies and innovative credit products. Another example is [the COLCO project](#), developed by 12 companies from the United Kingdom and Colombia, which in part aims to support farmers, associations, cooperatives, independent traders, and large chocolate manufacturers through the development of technologies for processes like pre-harvest and quality assessment.

Also check out other international organisations, such as [TechnoServe](#), [Rikolto](#), [Agriterria](#) and [Solidaridad](#), and see whether they offer assistance and practical guidance in your country when it comes to adopting digital tools. For instance, Rikolto is involved in a [collaboration project dedicated to empowering Indonesian youths and communities through digital-based farming and agripreneurship](#), to innovate for a sustainable, profitable and inclusive cocoa value chain.

Also connect to your country's or region's sector association, such as [Cocoa Association of Asia](#) or [Cocoa Abrabopa Association](#) (Ghana), to see if they can offer support. For example, [Ghana Cocoa Board](#), in partnership with The Better Than Cash Alliance, has been making [great strides to digitise payments](#). Responsible digital payments aim for increased transparency, better access to information, financial inclusion, and higher incomes, especially for female cocoa farmers.

Tips:

Reach out to local organisations active in the cocoa sector to see whether they are involved in or know about digitalisation projects that match your interests and needs.

Access the website of [GIZ Innovation Fund](#) (and their [LinkedIn page](#) and [YouTube page](#)) to see if they employ any digitalisation projects of your interest in your country.

Access the members page of [AfricaGoesDigital](#) to have an overview of data technology suppliers in Africa, and refer to [this publication of GSMA](#) to find a range of technology suppliers active in Latin America and the Caribbean.

Learn from success stories. You can refer to [this article by Fairtrade](#) to read how a group of Ivorian cocoa cooperatives is pioneering the implementation of digitalised data systems that are owned by the cooperatives themselves. Cooperatives are now able to collect important information about where their cocoa comes from, strengthening their position as trading partners.

This study was carried out on behalf of CBI by [ProFound – Advisers In Development](#).

Please review our [market information disclaimer](#).