Who owns farmer data? Fairfood's principles on data governance

FAIRFOOD

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Fairfood's principles on data governance

Increased calls for transparency have put international supply chain operations in the spotlight. Where do the products we consume come from? Are they sourced sustainably? Were the people involved in their production paid a decent wage?

To answer the many justified emerging questions, massive amounts of data are needed to support companies' sustainability claims. Either to prove compliance with applicable regulations, to ensure that their products are traceable or certified, and even to create a marketing campaign: in today's wired and interconnected world, no message is valid without evidence.

The amount of data is estimated to triple between 2020 and 2025 [1]

As we watch legislation advancing at EU level to make Corporate Sustainability the norm, making companies accountable for everything happening in their supply chains, at Fairfood we invite you to look at what this means in practice. Behind the transparency we're all striving for, there's a long process of data being collected, digitised, and turned into valuable insights that allow supply chain actors to make better informed decisions. But are all actors really benefiting from this extra stream of information circulating in their supply chain? And what guidelines exist for companies to govern data in a fair and transparent way?

Are all actors benefiting from the extra stream of information circulating in the supply chain?

As data evolves to become a defining asset for decision-makers worldwide, it is estimated that the total amount of data created, captured, copied, and consumed globally will triple between 2020 and 2025[1]. Growth was higher than expected compared with previous years caused by the increased demand due to the COVID-19 pandemic, as more people were forced into a much more digital routine.

In this document, we invite agri-food experts to reflect on what an increasingly digitised economy means for our sector. We look at what the adoption of data technologies can tell us about the future of the food industry, and how it all connects to the global fight against poverty. Lastly, we share the **Fair Data** Principles that apply to the work we do with partners in the realm of innovative technological solutions.

1 Statista. Volume of data/information created, captured, copied, and consumed worldwide from 2010 to 2020, with forecasts from 2021 to 2025. **https://www.statista.com/statistics/871513/worldwide-data-created/**


Traceability has become one of the pillars of our work with companies looking to map and tackle poverty

Data-driven agriculture and its key role in tackling poverty

As you delve into this reflection with us digitally, here's a fact to stretch your brain: **40% of people around the world have never been on the Internet**[2], and most of them are concentrated in rural areas. To this we add one more fact: from the 1.3 billion of the global poor, 84.2% dwell in rural areas[3].

What does that have to do with you, working in the agri-food sector? Well, their poverty is likely linked to a supply chain you're working on, as agriculture is the main source of income for most of the rural poor[4]. Globally, approximately 2.7 billion people – more than a third of humanity – derive their livelihoods from small-scale food production[5], and this number increases to at least 4.5 billion if we include people who indirectly rely on agri-food systems for their income.

Take the example of West Africa: 80% of employment in the agri-food system directly involves agriculture, while 15% involves food marketing and 5% food processing[6].

2 According to Statista, in 2020, 59.1% of all individuals worldwide were estimated to be using the internet. Of these, 75.6% of individuals in urban areas were using the Internet, while just 38.8% in rural areas.

3 **OPHI (Oxford Poverty and Human Development Initiative) & UNDP (United Nations Development Programme).** 2020. Multidimensional Poverty Index 2020. Charting pathways out of multidimensional poverty: Achieving the SDGs. Oxford, UK and New York, USA. **https://hdr.undp.org/en/2020-MPI**

4 **Castañeda, A., Doan, D., Newhouse, D., Nguyen, M.C., Uematsu, H. & Azevedo, J.P.** 2018. A New Profile of the Global Poor. World Development, 101: 250–267. **https://doi.org/10.1016/j.worlddev.2017.08.002**

5 **Woodhill, J., Hasnain, S. & Griffith**, A. 2020. Farmers and food systems: What future for small-scale agriculture? Oxford, UK, Environmental Change Institute, University of Oxford.

6 **Allen, T., Heinrigs, P. & Heo**, I. 2018. Agriculture, Food and Jobs in West Africa. West African Papers No. 14. Paris, OECD (Organisation for Economic Co-operation and Development). **https://doi.org/10.1787/dc152bc0-en**

40% of people around the world have never been on the Internet[2]

Most are not yet part of the digital world. But they will be very soon

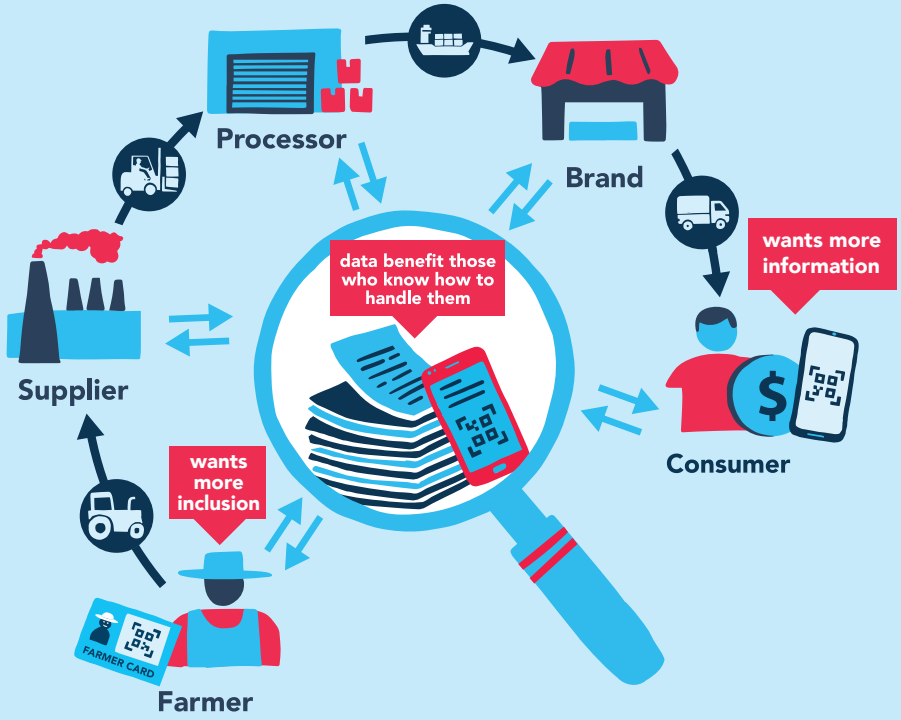
These numbers, gathered from different datasets, aim to illustrate why **agri-food systems are key if we want to reduce global poverty**. But not only that: as we will discuss in this paper, most of the global poor are *not yet* part of the **digital world**. But they will – and very soon – join **the digital economy**. And once again, there's a good chance that this will happen through a supply chain or food product you are familiar with.

At Fairfood, we carefully look at these numbers. Traceability has become one of the pillars of our work with companies looking to map and tackle poverty in their supply chains – and a big part of this work lies in onboarding farmers on our digital traceability platform, Trace. The globalisation of agri-food value chains, marked by consolidated deals and operations, and the increased power of retailers, is currently going through progressive digitalisation of procurement and of quality-based competition. This has significantly transformed agri-food systems and brings new challenges, as well as opportunities, for smallholder farmers and farm workers.

***Traceability** refers to the ability to follow a product from the beginning to the end of a supply chain, mapping its entire journey. With added mechanisms, such as verification, auditing and grievance policies to inform continuous improvement, traceability allows a company to assess its entire value chain, and quickly recognise and address errors or unforeseen negative consequences when they occur. Regardless of the format – either recorded in a physical notebook or using a modern blockchain platform – traceability is a strong ally in understanding the impacts of purchasing practices and contributes to better business performance.*

Today, about one-third of the world's agricultural and food exports are traded globally[7]. A wide distribution of certain food products produced sustainably can support and promote rural development. However, at the moment the success of international food trade is not shared by all actors in the value chain. Competition based on quality and price led by multinationals has soared in low-income countries, as those multinationals are able to offer cheaper and better quality imported products than those produced domestically. Allowing, by default, for excessive margins to become the norm. As well as increasingly long and complex supply chains – which give international food traders and buyers the final say when it comes to route adjustments, that can range from quality and food safety issues at farm level right down to to consumer preferences. Ultimately, they are the only ones with an effective overview of the market.

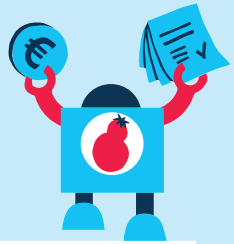
All these connections, which defy territorial boundaries, are underpinned by granular data that connect all actors. These data benefit those who know how to handle them.



7 **FAO.** 2020. The State of Agricultural Commodity Markets 2020. Agricultural markets and sustainable development: Global value chains, smallholder farmers and digital innovations. Rome. **https://doi.org/10.4060/ cb0665en**

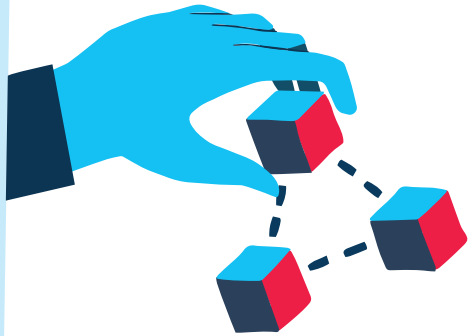
Blockchain enables **transparency** in the **supply chain**

Small bits of information collected in different parts of the globe, thus, become large datasets. Kicking-off a process that involves gathering, storing, analysing and extracting knowledge from high-volume and complex data, sometimes with the help of artificial intelligence, and algorithms, including machine learning - when simple data evolves to big data.



What are data technologies?

Big data, or simply data, can still sound like distant techie terms to some. But it's actually involved in all stages of modern agriculture. Mobile service on the ground, precision agriculture using satellite data, remote sensing for food safety and quality, are all examples of data platforms. At Fairfood, we explore supply chain transparency and traceability with the help of blockchain, and the goal of increasing first mile connectivity. The United Nations define such data technologies as key, not only to make progress in achieving the Sustainable Development Goals (SDGs), but also, and perhaps more importantly, to shift agri-food systems towards sustainability and resilience[8].



***Blockchain**. A technology that provides decentralisation, immutability and transparency for data, and where the data are organised in a growing list (chain) of data structures that we call blocks. Examples of blockchains are Bitcoin and Ethereum, of which the latter added the notion of smart contracts. At Fairfood, blockchain is used as a ledger, or a book, for digital transaction records. Once in the system, it cannot be erased.*

The technical elements behind digitisation are not the focus of this paper, but the principles guiding a more **inclusive and collaborative** approach to data management, which can potentially:

1. Improve transparency in markets and policies;
2. Ease international governance and coordination mechanisms;
3. Help reduce the asymmetry of information in food availability, stocks and trade flows;
4. Promote coordination of policy response; and
5. Lastly, better inform decision-making.

8 **FAO**. 2022. The future of food and agriculture – Drivers and triggers for transformation. **https://www.fao.org/3/cc0959en/cc0959en.pdf**

Fairfood's position: We have one shot at getting things right

Unlike when you or I opt in or out of a new digital platform – think of a streaming service, a virtual bank or the latest social media platform – farmers are not often given the option to do so. Based on Fairfood's recent experiences with implementing traceability systems in Asian, Latin American and African countries, we look at what FAO called a ***data and technology boom*** that is rapidly changing our economies and societies while very few regulations are actually in place.

Curiously enough, **agriculture is currently the economic sector with the lowest levels of digital technology adoption**. Which means there is still time to introduce regulation and better practices as the industry digitises. Yet, it's also safe to say that the emerging digital technologies of the past few decades have already completely transformed global agri-food supply chains. So, the question remains:

- Can we **responsibly** onboard smallholders and rural food workers in an increasingly digitised agri-food system as more than just information providers?
- Could they actually **collaborate** with the businesses they are involved with, while benefiting from information technology like users in urban settings?

Yes & yes, by making farmer-centric approaches to data management the norm. Even though smallholders play an important role in feeding the world, there is a high risk of them being excluded unless specific policies in their favour are implemented. This is because many small-scale producers in low-income countries are being marginalised and bypassed by the ongoing process of change/digitalisation of agricultural value chains[9]. This will simply contribute to large numbers of people remaining in poverty and will perpetuate inequalities. Yet, if handled fairly, these extra loops of information flowing through global supply chains offer great market potential and opportunities for the financial inclusion of smallholder farmers.

Information flowing through global supply chains offer great potential of the financial inclusion for smallholder farmers.

9 **FAO**. 2020. The State of Agricultural Commodity Markets 2020. Agricultural markets and sustainable development: Global value chains, smallholder farmers and digital innovations. Rome. **https://doi.org/10.4060/ cb0665en**

Agriculture has the lowest levels of digital technology adoption

The digital agricultural market is projected to reach $15 billion

The big data boom in numbers[10]

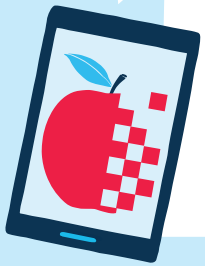
Forecasts envision **6 billion** users, or **75%** of the world's population, interacting with online data **every day** by **2025**.

6 billion users

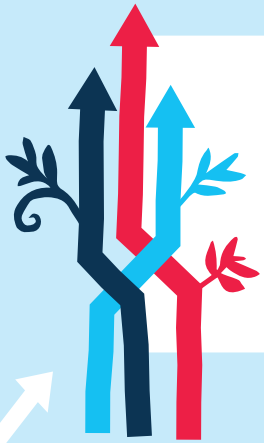
Currently, the big data industry, worth USD **198 billion** in **2020** (around **0.2%** of the value of global gross production), is set to proceed with rapid growth and triple by **2030**, driven by the increased adoption of cloud computing, AI and the IoT.

→ The World Economic Forum has projected that $3 trillion in annual economic value could be created by connecting data across institutional and geographic borders.[11]

The digital agricultural market is projected to reach USD 15 billion, equivalent to around **0.4%** of global value of gross agricultural production, as farms become more connected through the IoT platforms.



→ This is reflected differently throughout the globe: Northern America should be the biggest market because of its large farms with best-in-class equipment. The Asia and Pacific region is expected to increase investments in digital agriculture, particularly in China, while in Africa, the COVID-19 pandemic has boosted the adoption of digital tools.



The **big data** industry, is set to grow rapidly and should reach **$684 billion** by 2030

→ A survey conducted by Global System for Mobile Communications (GSMA), an association grouping mobile network operators worldwide, revealed that 70% of Kenyan farmers increased their use of mobile phones to send and receive mobile money during 2020.

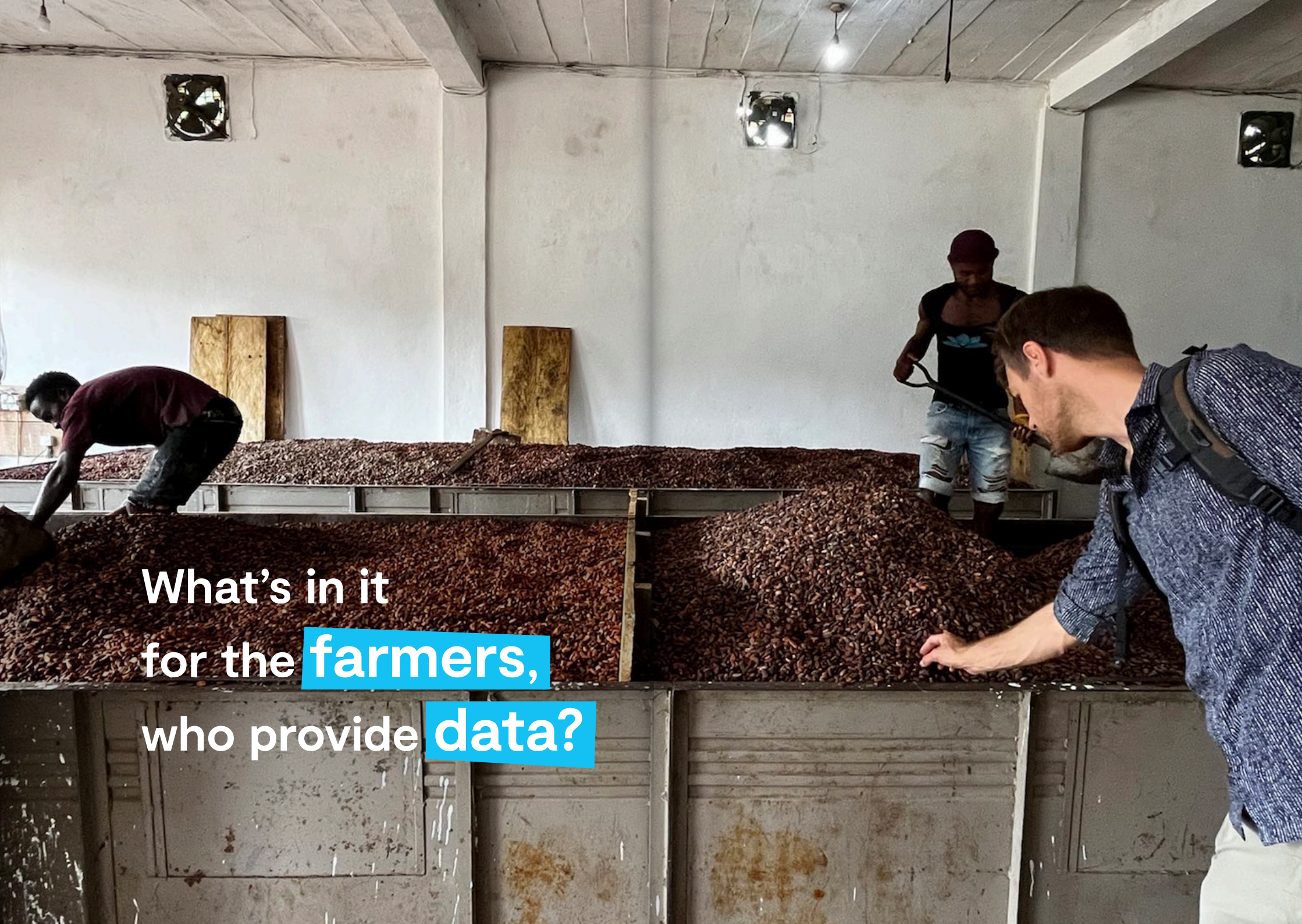
→ However, as opposed to 74 to 80% of farms greater than 200 ha in size, only 24 to 37% of farms of less than one hectare in size have access to 3G or 4G services. In Africa, only 27% of women have access to the Internet and only 15% of them can afford to use it.

We are observing the *commoditisation* of data – and that rings some alarm bells. A digital economy is supposed to be data-driven, but if valuable assets previously concentrated in the hands of large retailers and traders are gradually transferred to large digital companies, it is hard to believe that this economic system will be fairer or more inclusive than the current one.

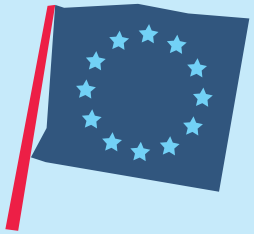
Data collected on a daily basis from farmers and farmworkers helps ensure compliance with current standards and expectations, and gives companies a firm grasp on volume, speed and reliability of deliveries as well as who provides them. **But what's in it for food suppliers, who also provide data to companies.**

10 **FAO**. 2022. The future of food and agriculture – Drivers and triggers for transformation. Rome. https://www.fao.org/3/cc0959en/cc0959en.pdf

11 Thirani, V. 2017. The value of data. World Economic Forum. https://www.weforum.org/agenda/2017/09/the-value-of-data/


What's in it
for the farmers,
who provide data?

Traceability and Data Responsibility: New asymmetries in digitised supply chains



As legislation is discussed at the EU level to make companies accountable for what happens within their direct and indirect supply chains, more information starts to be systematically demanded at farm level regarding the quality, safety and sustainability of food products. And this gives rise to new concerns, as digital technologies can both support these projects or create new forms of exploitation in agri-food systems.

Let us explain. While further evaluations of the socio-economic and environmental impact of data usage are still to come, the investment in innovative data technologies could be costly for some actors in the value chain, both in terms of finance, as well as time spent on gaining the digital skills required[12]. So far, the benefits of data are around global buyers and traders, who are in direct contact with consumers and regulators and are aware of their requirements regarding food quality and sustainability.

12 **Loures, L., Chamizo, A., Ferreira, P., Loures, A., Castanho, R. & Panagopoulos, T.** 2020. Assessing the Effectiveness of Precision Agriculture Management Systems in Mediterranean Small Farms. Sustainability, 12(9): 3765. **https://doi.org/10.3390/su12093765**

The investment in **big data** technologies could be costly for **some actors** in the **value chain**

By treating some users more favourably, digital platforms behind supply chains reproduce **exploitative dynamics**

So, **is technology simply intensifying the very vertical structures they were expected to be breaking by now?** It's a little early to say, but we can clearly identify increasing data asymmetries. The broad spectrum of digital technologies is on a continuum, requiring varying levels of mobile coverage, Internet connectivity, skills and knowledge - which is why smallholder farmers, especially women in low and middle-income countries, have largely been left on the sidelines[13].

By treating some of their users more favourably than others, giant digital platforms behind the modern supply chain reproduce exploitative dynamics we are already familiar with. By establishing themselves as indispensable intermediaries between businesses and consumers, new platforms create dependence, as there are no comparably effective alternative options for businesses to reach their clients (and vice versa). Quite different from traditional market power imbalances, that may put them in a position to extract excessive profits, and impose unfair terms and conditions. Depending on how data is shared and governed it can easily establish several lock-in effects, setting standards, defining codes of conduct, and barriers to market entry, thus dictating who will be able to act on that market, when, and under what conditions.

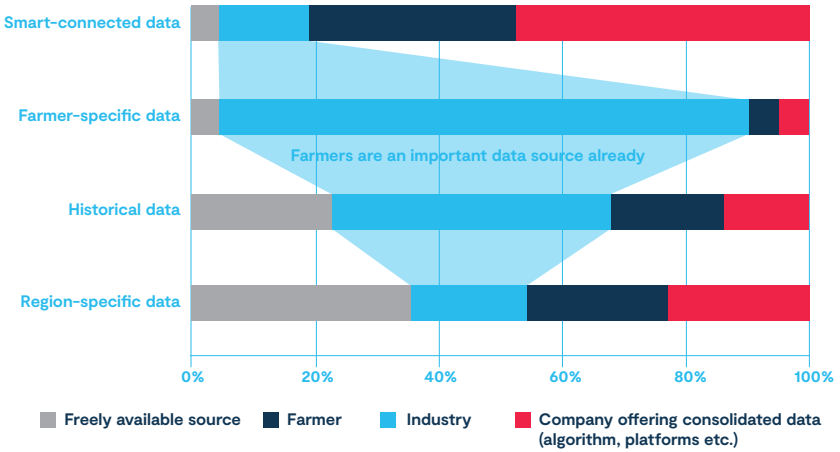
13 **Mehrabi, Z., McDowell, M.J., Ricciardi, V., Levers, C., Martinez, J.D., Mehrabi, N., Wittman, H. et al.** 2020. The global divide in data-driven farming. Nature Sustainability, 4: 154–160. **www.nature.com/articles/ s41893-020-00631-0**

Another difference, compared with previous conditions, is that with the irruption of digital platforms, the prices of goods sold are no longer the main source of profit for firms. New sources of wealth are now emerging, such as asset valuation. You only need to look at how some tech companies see their stock exchange value boom even without commensurate profits in their daily operations. That's because technology takes the definition of power beyond market competition, influencing others' behaviour, or a favourable outcome from a bargaining process.

Instead, it lies in the capacity to attract consumers and businesses to a single platform, to change technology and create new products - or scarcities -, and obtain the cooperation of both clients and businesses by providing them with something they consider indispensable.

Although owned and controlled by different actors, farmers are the main source of data within global value chains. If we think of traceability, implementation pilots must pass a series of tests before being widely adopted. Along the way, questions arise around the scalability of the project; privacy, ownership and control of data involved; protection of new users against cyber-attacks and system failures; all while making sure the project doesn't exclude the most vulnerable, further increasing inequalities.

Figure 1.30 Sources of data for data-driven agriculture



Source: PA Consulting, 2015. Digitizing Agriculture: Unlocking the potential in the agricultural value chain. London. www2.paconsulting.com/Digitisingagriculture_download.html

Still, their interests are not always taken into consideration. Challenges are encountered during the project development phase. Today, it is still common for notebooks and physical spreadsheets to record the daily lives of cooperatives and farmers. Uploading this information to the Internet - or should we say the 'cloud'? - can cause things to evolve quickly: one single document can be handled online by different stakeholders, applications can make commercial and financial transactions transparent, and from there, analysis of this data can support data-driven business decisions. Before going online, though, there are significant challenges for institutions to adapt, and concerted action is required if the data collected is to truly include and benefit data providers at large. Persisting asymmetries across countries and agri-food system agents involving knowledge, capital, information and **data management**, as well as delayed technology transfers aimed at maintaining dominant positions, mean that digital technologies can favour different people to very different extents, thus fuelling inequalities. However, it is worth stressing that regulation, safeguards and ethics around data and digitalisation remain a serious issue that even high-income countries in Europe and North America are just beginning to grapple with.

Farmers are the main source of **data** within global **value chains**

Where are we in terms of regulation?

While policy and regulations that govern personal data, such as the European Union's General Data Protection Regulation (GDPR), are becoming more common, there is a dearth of legislation covering the collection, sharing and use of data in agriculture[14]. Recently, the European Union launched the Data Act that is part of the overall European strategy for data, and complements the Data Governance Regulation by clarifying who can create value from data and under which conditions. In terms of agri-food, there are four examples of countries where private stakeholders (mostly farmer organisations, private companies and industry associations) have established common standards for data management and governance structures for agricultural data.

Table 1.8 Farm data governance frameworks

COUNTRY	OBJECTIVE	DATA GOVERNANCE FRAMEWORK
1. Australia (farm data code)	Ensuring farmers have confidence in how their data are collected, used and shared.	**7 principles** (transparency, fairness, access, documentation, portability, security and compliance)
2. United States of America (privacy and security principles for farm data)	Principles, policies and practices to be consistent with the contracts with farmers and to have an ongoing engagement and dialogue regarding the rapidly developing technology.	**12 principles** (education, ownership, access, notice, transparency, portability, terms, disclosure, retention, unlawfulness and liability)
3. New Zealand (farm data code of practice)	Define disclosures and behaviours for storing, handling and moving data. To give confidence that information is secure and being managed in an appropriate manner.	**14 principles** (corporate identity, rights security, access, sovereignty, security, regulatory compliance, self-audit, review non-compliance, complaints, withdrawal)
4. European Union (the code of conduct on agricultural data sharing by contractual agreement)	Data sharing, setting principles, responsibilities and creating trust.	**7 principles** (contract, details, permission, access, originator, no restrictions, protection)

Source: Source FAO. 2022. The future of food and agriculture – Drivers and triggers for transformation.[15]

14 Zampati, F. 2019. Does data mean power for smallholder farmers? In: World Bank Blogs. Washington, DC. Cited 17 May 2022. **https://blogs.worldbank.org/opendata/does-data-mean-power-smallholder-farmers.**

15 **FAO**. 2022 **The future of food and agriculture – Drivers and triggers for transformation.**

Concerted effort is needed, as data technologies directly affect entire agri-food systems, given their high interconnectedness with both the supply and demand of food, and their linkages with the global socio-economic context within which food and agricultural activities take place. Data platforms can be conceptualised within three layers: data collection, data analysis and data visualisation - but to truly support decision-making, credibility is needed from the very first step. And that's why new developments cannot push smallholders to the background: greater quality input provided by farmers or farmers' organisations is of interest to all stakeholders.

Not *your* farmer

It's common to hear supply chain managers referring to *their* farmers and *their* workers. When it comes to data, this rings an alarm bell. The lack of regulation creates opacity regarding an important question: **who owns data retrieved from farms, and who controls their use?**

Today's highly concentrated context contributes to weakening farmers' positions and offers opportunities to others - commodity traders, agribusinesses, data service providers or data brokers - in trading them. With little information about rights and obligations in place, the overpowered position of big data service providers is causing their users, particularly farmers, to agree to terms and conditions about which they are not sufficiently informed, as they may have no choice but to remain with their provider for fear of reprisal.

Closing the trust gap: how responsible data use can accelerate a sustainable society

Here's where things get interesting. As citizens, or consumers, and governments call for transparency, at Fairfood we advocate that we should first ensure trust - and its value - in data not only as an asset, but in its governance.

Available data sets are often scattered and published using a range of different, standardised and non-standardised, formats and protocols. To change that we have to bring data providers on board. The current lack of guidance or legislation is resulting in some farmers becoming reluctant to share data - and, without knowing, giving away access to beneficial services. Gaining their trust means empowering them with and easy acces to their data. This is critical to improve and protect their livelihoods - and hence, the entire value chain that will benefit from trusted information to guide their decision-making.

Who Benefits from Farmer-Centric Data Governance?

- Farmers gain more control over data, greater equality, meaningful participation and representation, bargaining power, alignment with their interests, and access to new markets and opportunities.
- Agribusiness, tech providers, governments, and development organisations, benefit, i.a., from: better and more consistent, reliable, higher-quality data, enhanced access and availability, greater data sharing opportunities, enhanced data management, and decreased data fragmentation;
- Greater efficiency and productivity, (public) service design and delivery, decision-making, situational awareness and response;
- Improved mediation and more formal relationships, communication, transparency, feedback, nurtured trust;
- Better reputation, public relations, legal and privacy compliance, responsibility and meaningful corporate social responsibility; and
- Increased knowledge creation and transfer, research opportunities, value creation, and new avenues for innovation.

The choice of methods to collect data heavily depends on considerations regarding the desired level of accuracy, frequency and data presentation level, budget allocation for data collection activities, quality and expertise of the data collection officers, and the size of the particular plot of land. This may sound like rather technical information you're not necessarily familiar with, but they will play a critical role in your sustainability commitment: as data quality depends heavily on the proper integration and incentivisation of data providers.

Data can make a fundamental contribution to a sustainable, beneficial and inclusive world – but only if we let it

As farmers are onboarded to digital supply chains, it's time to carefully look at how this data is governed. We need accurate, high-quality information that reflects on and takes into consideration the reality of those involved in the process. This is regardless of whether the aim is to ensure a product can be certified for its sustainable practices, or to carry out traceability and obtain an overview of supply chain operations.

As **farmers are onboarded** to digital supply chains, it's time to carefully look at **how big data is governed**

farmers are the main source of data within global value chains

> *Creating value from data is not always about control or ownership; it is more of an exchange. For instance, social media platforms' users agree to allow the collection of their data for targeted ad purposes in exchange for using the services. In addition, this exchange usually entails some assurance of privacy and security for the data generators. What differs in the context of the data of smallholder farmers and other first-mile actors in the Global South is often the lack of regulations and legal frameworks for data collection, valorisation, and privacy. Therefore, dealing with smallholders' data becomes an ethical data governance issue that organisations and companies should figure out. These organisations should adopt the best practices out there when it comes to data governance. Smallholder farmers should have the option of opting in or out from data collection processes, they should have guaranteed data privacy and security, and they should be compensated fairly from the valorisation of their data.*
>
> *Sidi Amar, Maastricht University.*

Data Governance means proactively managing your data in order to support your organisation to achieve your strategy and objectives – it does this by improving the quality of your data. The success of the framework to do so is:

- A policy to mandate how your organisation is going to manage data – *that shows your organisation will treat and manage its data like an asset,*
- Roles and responsibilities sharing, ownership and access, and
- Processes detailing what needs to be done to manage data. *Ensure consistency!*

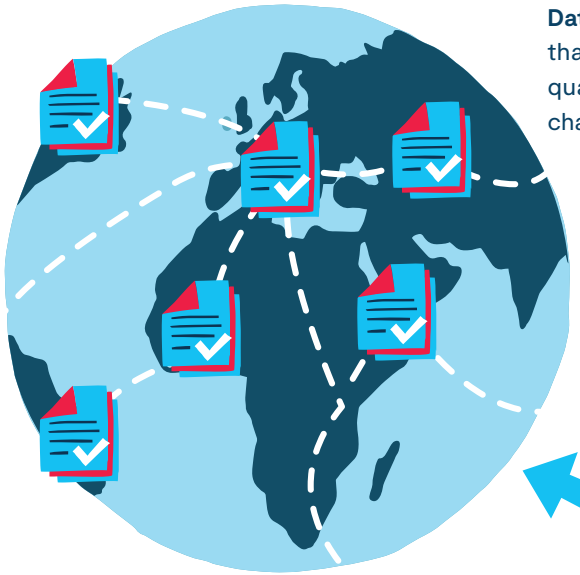
A common mistake is to expect data governance to be mere data security or data protection. Governance must be aligned to – and support – these tasks, but they are separate ones undertaken by different experts within an organisation.

Our principles: innovating to create value for all supply chain actors

If **fair food** is your goal, your **Data Governance** will **create value** rather than extra costs

Ok. The digitisation of supply chains is happening globally, and we don't have any intention of slowing this process down. Quite the opposite. **At Fairfood we see great opportunities in promoting open data sharing across value chains, but in order to have value benefitting all actors, it requires all of them to agree and take the time to build trust.** Starting with trust in the data itself, because we want agri-food leaders to take decisions and make claims based on reliable, quality data. As well as on the way data is governed.

** For the technicalities behind our principles, check the glossary on the last page!*



The **digitisation** of supply chains is happening **globally**

Fairfood's traceability projects; with the goal of improving the lives of smallholders farmers and agricultural workers

The first steps to human, digital, and financial inclusion

Digitisation is the process of making sure information is compiled and ready to be processed. By that we mean cleaned, analysed, compared and turned into actually valuable data. In a traceability system, this means turning analogue administrative paperwork into digital collaborative databases. All without any different-in-kind changes to the process itself. As information keeps coming, the digitisation step must be able to cope and a strong framework is needed to guide this process. If fair food is your goal, your **Data Governance** will create value rather than extra costs, and finally, generate quality data that will benefit the value chain as a whole.

Fair Data: Fairfood principles for fair data data management

Responsible data practices are no different from other sustainable business practices. It means not only complying with the law, but also thinking ahead to ensure that as data innovation evolves, ethical data practices evolve together. The way each of these principles is handled is decisive for the fate of rural communities in the digital economy. **Building on the Digital Principles for Development**, which guide practitioners in applying digital technologies to development programmes, we focus on the agricultural context by sharing what's on the horizon of Fairfood's traceability projects. With the goal of improving the lives of smallholders farmers, these principles play an important role in shaping how companies working with Fairfood will respond to situations and set their own parallel goals.

It's possible to manage data while creating value for all actors within the chain through partnerships that are **accountable, data-driven, collaborative, inclusive** and, ultimately, **transparent.**

Working on digital inclusion of farmers with the **Fairfood Farmer Cards**
more info on page 35

Our principles: innovating to create value for all supply chain actors

1

Accountability: the farmer's rights

The first and most important principle. As guidance and legislation is still lacking, organisations must honour the **human rights** of these individuals in their data practices. Accountability is what ultimately defines the scope of true sustainability ambitions: from **designing interventions** to the **purpose limitation** when collecting data. How can my project enhance farmers' livelihoods without adding extra burdens? Which type of data is really necessary for the project to succeed? Involving experts to look into **data privacy** and **security** will help you exclude **sensitive data** that cannot circulate arbitrarily throughout the supply chain, hence, giving credibility to your commitment and avoiding reputational damage. Because, who wants to be accused of endangering workers' lives due to data misuse? Accountability in data management means organisations must put policies and mechanisms in place, as well as sufficient competencies and capacities, to uphold and monitor adherence to the following principles. **Your keyword in the glossary: data colonisation.**

2

Data-driven: quality over quantity

At this point, it's safe to say that today, most decisions are taken based on data. But what's the quality of this data? A culture of 'the more data, the better' led us to a world in which available data sets are often scattered, and published using a range of different, standardised and non-standardised formats and protocols. The choice of methods for collecting data heavily depends on considerations regarding the desired level of accuracy, frequency and data presentation level, budget allocation for data collection activities, quality and expertise of the data collection officers, and the size of the estimated plot of land. At Fairfood, quality data is the trigger of transformation, as it demands commitment at all levels of the supply chain. In other words, it demands a constant creation of value at all levels of the supply chain. If we are to call for transparency, we must first ensure trust – and its value – in data sharing. **Your keyword in the glossary: data minimisation.**

3

Collaboration: built-in participatory mechanisms

Nowadays, collaboration is a highly familiar term. But improved consent and understanding of data ownership is needed if we truly want to reach the farm level and shift the power dynamics. When it comes to technological solutions, redistributing the control of benefits from data sharing starts with the **design phase:** design with the farmer to empower the farmer. Turning farmers from passive data providers into active collaborators depends on inclusive and representative tools that include **consent mechanisms** for data use (or re-use), alongside clarity over when and why sustainability claims are being made. This can only be accomplished by working on the ground with partners to include farmers in this process. **Flexibility** is key as contexts change and there's no one-fits-all solution. With this in mind, stakeholder challenges must be easily accessible and communicated; and the different actors in the value chain must understand the **role and responsibilities** of all actors involved in a given step. As a result, decentralised data sharing will promote trust in the protocol, data traceability, use, and privacy protection.

Collaboration is a keyword in value chain approaches to innovation such as the one we believe in at Fairfood. If the aim of technological solutions is to support the development of rural communities and a better position for farmers, we must not only examine the benefits, but also the extra burdens that must be avoided. This translates into interoperability: technology should leverage existing principles and processes that already exist, rather than impose new platforms or tools that could result in extra work for farmers with no clearer outputs. **Your keywords in the glossary: Data ownership, interoperability and technology neutrality.**

4

Inclusion: the incentive

Traceability can include farmers in the value chain—from farm to fork—and share a narrative of the products being sold. Meaningful inclusion means more than that—it also means that farmers are included equally in financial terms. If value is added to a product through claims being made about food products and by storytelling, then farmers should benefit from that. Morever, if agriculture is to tackle poverty, solutions must look at the structural risk of excluding smallholder farmers, as barriers to entry are high for them, and their capacity to adopt technological changes advised by big data-backed systems may be limited. Unless they are provided with the appropriate support, they may not be in a position to benefit at all from the digital revolution. And in the end, the whole value chain will lose out.

Linking sustainability efforts to new earning models for farmers is definitely a key strategy for upscaling and lasting results, and it's what we explore in every new partnership. At Fairfood we are experimenting with this through a **Data Premium**, immediate compensation for farmers contributing with data sharing in value chains in Southeast Asia and Africa. For every transaction, agents and farmers are rewarded for the information added in the blockchain traceability system. This way, actors experience the immediate added value of transparency. This leads us to the next principle.

5

Transparency: the value of data

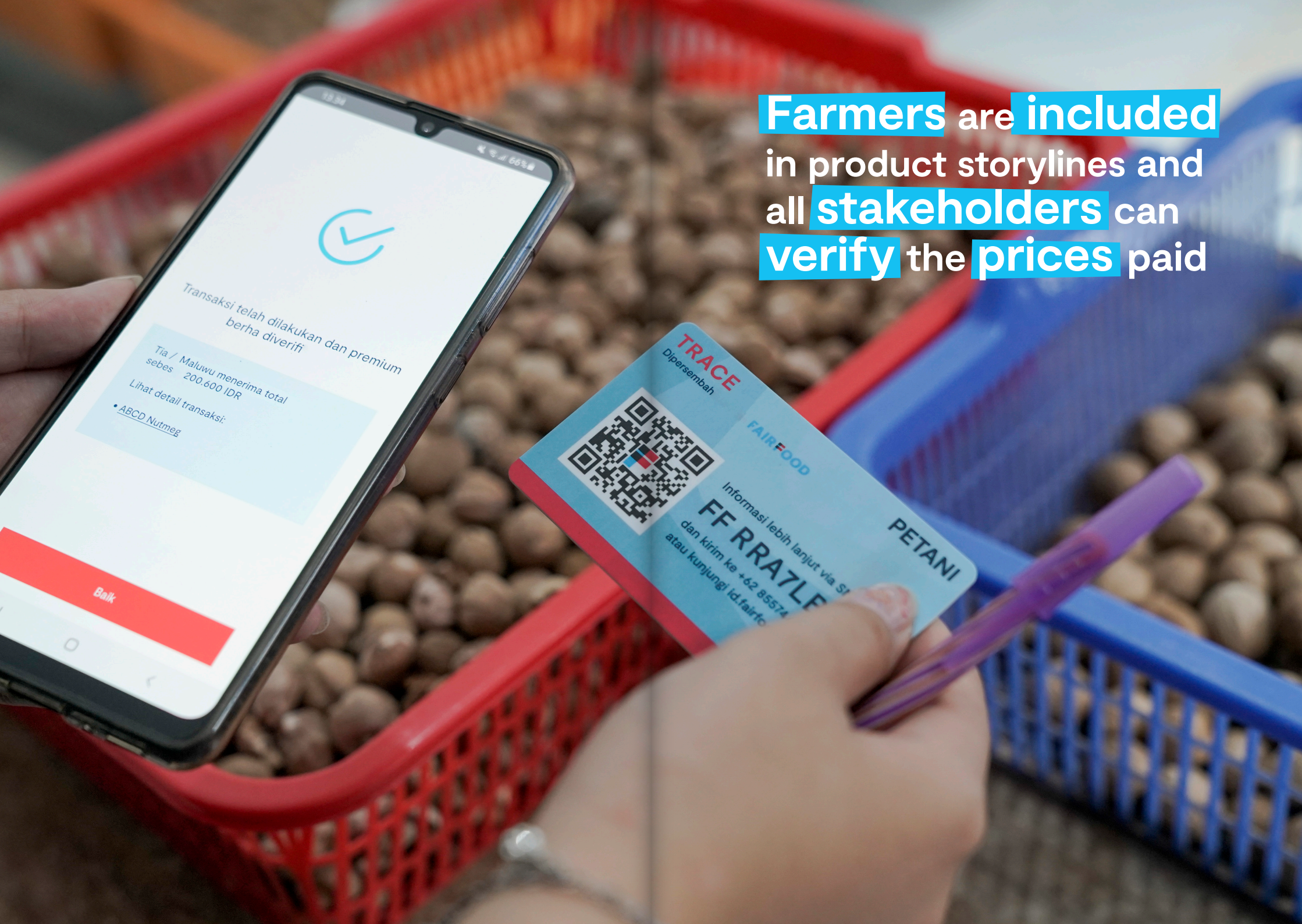
Transparency speaks to human connection, which is invaluable, but often neglected in digital systems. Data Governance in contexts where poverty is prevalent, and its consequences are felt by data providers, should be carried out in ways that offer meaningful transparency to stakeholders, notably affected populations. This should include the provision of information about the data management activity and its outputs, as well as data sharing in ways that promote genuine understanding of the data management activity, its purpose, intended use and sharing, as well as any associated limitations and risks. Lastly, at Fairfood, even if you say it with the best intentions, the farmers involved in the same supply chain are not 'your farmers'. If storytelling is perhaps the final stage of the data journey, it must reflect a commitment to inclusion in how workers are treated, both in language and benefit. Both internally, and only then, by external audiences.

> ***Although farmers generate a lot of data, developers own the data and that puts farmers in kind of a paradox: there's growing consensus on the importance of redirecting ownership towards farmers. But the term 'ownership' can distract from other significant issues. That should also include data collection, data control and access to data. Because data ownership in itself can be meaningless for farmers if they can't use the data in the end. So building capacity, trust and confidence, and automatically control, requires more than clarifying terminologies.***
>
> ***Jonathan van Geuns, Development Gateway.***

Fairfood Farmer Cards:

Applying a technology you're probably familiar with from shopping with your contactless debit card, near-field communication, or NFC, allows farmers to interact with our Trace platform even in regions where access to the Internet and smartphones is limited. It takes one scan for the transaction to be registered in Trace's blockchain system, farmers are included in product storylines and all stakeholders can verify the prices paid. This is part of our vision of data providers being able to verify the kind of information that will be distributed throughout the supply chain. So farmers better understand how their data fits with brand promises and the importance of verification. This requires training stakeholders and involving them in data collection and seeking informed consent, creating an open dialogue, which is essential in data sharing processes and the related communication. Ultimately, farmers must feel that people far away care and appreciate their products and are interested in their lives. Just as they must be able to log in and out of the platform or flag issues with data.

Fairfood Farmer Cards: Bringing connectivity to small-scale farmers and farm workers


Farmers are included in product storylines and all stakeholders can verify the prices paid
Transaksi telah dilakukan dan premium berha diverifi
Tia / Maluwu menerima total sebes 200.600 IDR
Lihat detail transaksi:
• ABCD Nutmeg
Balk
TRACE
Dipersembah
FAIRFOOD
PETANI
Informasi lebih lanjut via SI
FF RRA7LF
dan kirim ke +62 85574
atau kunjungi id.fairfo

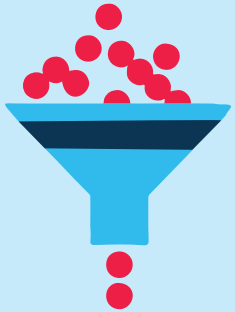
Glossary:

Data colonisation: The definition of 'data colonialism' is the process by which governments, non-governmental organisations and corporations claim ownership of and privatise the data produced by their users and citizens. In practice, we can view it as companies in the North monetising on data provided by workers in the South, who cannot understand or access the benefits from it.

Data ownership: One of the tenets of Data Governance is that enterprise data doesn't 'belong' to individuals. It is an asset that belongs to the enterprise in charge of it. Still, data needs to be managed, and that's why these organisations assign 'owners' to it. This could be someone who digitises it, analyses it, or protects it. In some cases, a data steward like Fairfood is entitled to manage it in a neutral way. With farmers out of the technological loop, their ability to 'own' data is limited – together with their ability to benefit from it. Advocating for data ownership for farmers, thus, means advocating for translating each and every step of data processing into a language farmers can also understand and opt to share.

Interoperability refers to the basic ability of computer systems to readily connect and communicate with each other, even if developed by widely different manufacturers in different industries. Being able to exchange information between applications, databases and other computer systems is crucial in rural areas. This is due to the fact that there are different interventions administered by NGOs, companies and governments. With so many complex systems being networked, interoperability issues must be taken into account by programmers and developers if the goal is to truly include farmers.

Technology neutrality: The assumption with neutrality is that the technology can be neutral because it was designed to be that way. However, in practice, programmers who design 'technology neutral' are hiding behind their algorithms, since their programs can only go as far as their programmer goes. Viewpoints and limitations regarding, for example coding or programming, will reflect and influence the outcome. That's why having a clear objective in your project is fundamental when defining your solution or intervention. In our case, the objective is to improve the position of farmers in global value chains, increasing their income and bargaining power. Therefore, farmer representative feedback should be included at all development stages.



Data minimisation: This is a valuable principle when it comes to Data Protection. It requires all data collection to be carried out because otherwise, you cannot achieve the purpose of the processing. For example: your building might collect biometric data as part of a fingerprint check to keep out unauthorised people. As a result, you don't need to have photos and names of residents in the system, right? In agriculture this is crucial since in certain contexts of conflicts or unstable government regimes, the leak of information such as geolocation and information about households can put people in danger.

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