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OVERVIEW

In the history of domesticated agriculture, have we ever had so many resources, data and new contributors in pursuit of the goals to feed the entire world a healthy and sustainable diet?

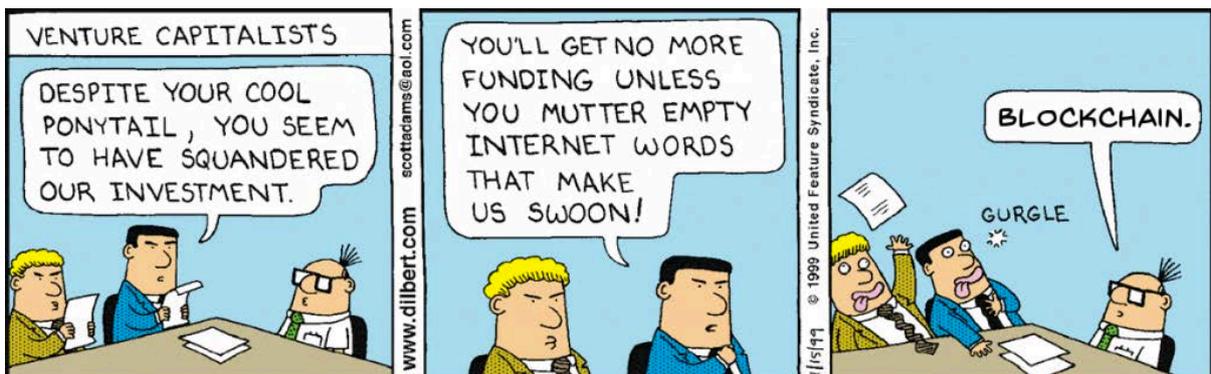
To bridge the gap, it is crucial that we take a fresh look at questions around how we think about food, organize intermediaries to 'stay relevant' in this diversified industry, share cleaner data and incentivize all stakeholders to further engage in the ecosystem, whether they be large multinationals, SMEs, Start-ups, NGOs, Academics, Policymakers or Individuals.



Blockchain is one of the key tools to help us simplify those conversations and embed trust across the farm-to-mouth supply chain.

And, it is our belief that the greatest of all opportunities in integrating blockchain solutions are in agriculture and in the broadly defined food value chain. This expands beyond typical supply-chain activities to include anyone with direct or indirect relation to the ways that food is grown, processed, shipped, handled, sold and eaten. Resulting in improvements in double and triple bottom line return such as environmental and individual data sovereignty impact.

First, let's concede what blockchain is not in relation to agriculture



Blockchain is not a panacea for solving all agriculture business problems in our world. It's ultimately just a ledger—though with immutability—and ledgers have been around perhaps only several thousand years fewer than has been agriculture.

Blockchain, however, *is* a mechanism that is most promising in terms of evolving much of the same technology and data that has already existed in agriculture (and other areas of life). The excitement around integrating blockchain is that it allows us to more effectively manage and democratize the agriculture ecosystem and to further encourage transparent collaboration. In effect, blockchain shoulders the burden of trust, freeing people to further align with one another, as opposed to talking past each other.



**New Technology + Old Business Model
= Expensive Old Organizations**

But that second part about the promise and excitement around blockchain and agriculture? That part is consequential. The next 20 years will bring about the most profound achievements in the agri-food industry, and blockchain stands to be one of the essential tools in the transformation

Demystifying Blockchain Solutions

But let's take a step back and consider how that would work. One of the most important impacts of blockchain is that it can abstract away questions about trustworthiness in transactions if applied correctly.

With the business details of a transaction hashed onto the blockchain, all of the substantial effort that has been previously invested in brokering old centralized transactional trust and validating each other's deliverables can now be re-applied into building a truly open, better functioning and secure collaboration network, where the founding team becomes more the custodian of the ecosystem.

Ownership is democratized through the issuance of tokens, and blockchain's inherent immutability delivers the validation of deliverables that today so bogs down commerce. Access to the trust function is safely democratized, and all stakeholders are empowered to create their own transactional relationships as ecosystem shareholders.



**New Technology + Empowered Community
= Successful Adaptation**

This new model works by integrating technology - such as Internet of Things (IoT) sensors - to smart contracts on top of a blockchain architecture, to achieve transparent, traceable and real-time decentralized management of data and financial transactions across the supply chain.

And, this model allows stakeholders to build a new **governance** for access and financial inclusion in an ecosystem.

Commodification of Trust:

- self-enforcing smart contracts
- IoT solutions

Inclusive Governance Model:

- democratise ownership
- custodian of ecosystem

Agriculture First Mile Needs and Cooperatives

Farming has been a romantic and tradition-rich industry, and nowhere more than in Europe, where agriculture has shaped the culture and its citizens identities for thousands of years. Entire nations have been linked to their agriculture and livestock outputs. One hundred years ago, almost 50% of Europeans worked in agriculture. Now days, there are significantly fewer small plot farmers and arable land in Europe, but the demand is only rapidly increasing.

Agriculture is still the single largest employer in the world, with 40% of global population and over 1 billion farmers on 500 million small farms worldwide - 85% are small-scale farms.

But according to the National Accounts (NA), *only around 10 million people worked in agriculture in the EU-28 in 2015 and accounted for 4.4 % of total employment. Almost three quarters (72.8 %) of the agricultural workforce in the EU-28 was concentrated in seven countries: Romania, Poland, Italy, France, Spain, Bulgaria and Germany.*⁽¹⁾



For 150 years, European farmers have been at the forefront of utilizing cooperatives to strengthen their individual transactional position. For the 76 organizations in the European Agri-cooperative, COGECA, the value is derived from *their self-governance model* [of effective control by its members] to *ensure its farmers-members get better returns. In the EU, 22,000 Agri-cooperatives generate €350 billion turnover by collecting, processing and marketing produce from their 6 million members and by directly employing over 600,000 individuals.*⁽²⁾

To give some perspective, there are 2,100 such cooperatives in the US with roughly 2 million members.

A cooperative is broadly defined as a business owned and democratically controlled by individuals who use its services and whose benefits are derived and distributed equitably on the basis of use. This governance framework is perfectly suited to integrating a blockchain mechanism to broker transactional trust from the technology one can build on top of this infrastructure.

Three main factors determine the success of cooperatives and they relate to (a) position in the food supply chain, (b) internal governance, and (c) the institutional environment.⁽³⁾

A governance model where stakeholders collaborate to better market their produce, add value to it and seek new market outlets by translating consumer expectations into concrete projects. And can only be done with the full involvement of their members⁽²⁾

In 2013, the European Parliament and the Council formally adopted their Common Agricultural Policy (CAP). It is aimed at

helping European farmers meet the need to feed more than 500 million Europeans, to provide a stable, sustainably produced supply of safe food at affordable prices for consumers, while also ensuring a decent standard of living for 22 million farmers and agricultural workers.’ It has identified three priorities for 2020: (i.) viable food production; (ii.) sustainable management of natural resources; and (iii.) balanced development of rural areas throughout the EU.⁽¹⁾

Coops give all participants greater opportunity to influence the value chain narrative to one that is more informed at every link. According to **Cooperatives Europe**, European institutions can help farmers with:

- *Research programmes [that] could be easier to access and more suited to co-operatives.*
- *Business transfer to employees could be studied and encouraged through specific policies and financial programmes.*
- *Facilitate the participation of co-operatives in EU programmes that encourage the setting up of transnational and national specialist networks and the development of best practices in innovative sectors.*
- *The co-operative business model could be recognized as the first choice when speaking about responsible business model and corporate social responsibility (CSR) issue.*⁽⁴⁾

The Challenge Today

In a sector with robust and complex supply chains, further transparency increases consumer confidence, better business practices, cleaner data collection and industry standards. Blockchain can verify a product provenance and ground truth data up the supply chain and relay transparent feedback downstream. This can remedy doubts, misalignments in developing trust or prove to be a deterrent - whether fearing nefarious actions or miscalculations from even the most competent partners.

Providers could be nimbler and more certain in their efforts to avoid or mitigate against food loss and loss of opportunities. Farmers can also track demand and price fluctuations all the way through point of sale, giving them network data access to organize more effective practices. Where intermediaries can reinvent themselves to be a key part of reducing inefficiencies and to be incentivized as innovation facilitators.



With a broad range of topics to upgrade and improve, farmers would benefit from intermediaries that show understanding of their challenges and lead the way in applying new ways of working and collaborating. There is no time for individual wheel reinvention. This opens a new and strategic role for traditional distributors and resellers who can now build, adapt and make innovative practices available to farmers.

This is valuable in emerging and developing markets where first mile providers are often vulnerable to everything from extortion to asymmetric price transmission. As well, users in a favourable production environment, such as in Europe, stand to gain from this new model.

People and Soil

To feed a global population of 8 Billion people by 2020 a healthy and sustainable diet - and 1 Billion more people expected by 2030 - we need to focus on the many building blocks of our value chain. Let's start with the corner stones - People and Soil.

Satisfying the needs of a growing population is a massive challenge. There is an ever-growing demand for goods, services, energy and food. Meeting the demand while preserving the environment, and protecting individual well-being requires an efficient use of resources, and clear collaboration and communication among all stakeholders. This challenge requires shared knowledge, trust and best practices.

According to the Agriculture Markets Task Force (AMTF), *there are about 11 million farms in the European Union and 44 million people are employed in the entire EU food supply chain. Farmers often work independently of each other, and there is little in the way of collective*

bargaining power to help farmers defend their interests against other parts of the food chain, such as food processors and retailers.

Concrete ways to strengthen the position of farmers in the food supply chain:

- *addressing unfair trading practices (UTPs)*
- *market transparency and*
- *producer cooperation* [\(5\)](#)

A blockchain integrated ecosystem could strength the positions of farmers in regards to all three of these themes, but how agriculture practices affect other citizens every day is also important to highlight beyond the obvious of how we procurement our meals.

Agriculture, today:

- *Is responsible for 70% of all freshwater consumption;*
- *produces 80% of all pollution released to waterways and oceans;*
- *has released more carbon than all the oil burned to date;*
- *and is the most impactful human activity to wildlife populations, genetic diversity and degradation of natural infrastructure.* [\(6\)](#)

The European Environment Agency has been publishing a series of environmental status, the trends and prospects assessments of Europe, from the lens of a global context. Their European Environment — State and Outlook Report (SOER) is *aimed at policymakers involved in framing and implementing policies that could support environmental improvements in Europe. The information also helps European citizens to better understand, care for and improve Europe's environment.* [\(7\)](#)



The report focuses on 13 Europe-wide thematic assessments, but their observations about **soil** as a key environmental theme is what we think demands a closer look:

Nearly all of the food, fuel and fibres used by humans are produced on soil. Soil is also essential for water and ecosystem health. It is second only to the oceans as a global carbon sink, with an important role in the potential slowing of climate change. Soil functions depend on a multitude of soil organisms which makes it an important part of our biodiversity.

And, unfortunately, our knowledge base on many of the key functions of soil that deliver vital environmental services and goods is still poorly developed. [\(7\)](#)

we feed the world, but they release a powerful greenhouse gas called nitrous oxide when broken down by soil microbes. One way their research suggests reducing the amount released by farmers is an increased focus on “collective crop storage”. Farmers working together to have a better understanding for when to sell their crops at a more advantageous time.⁽¹¹⁾

Much of what we think we know is limited by the lack of data or more specifically by the lack of organized and clean data, but there is momentum to make significant advancements in this regard. Last year, the European Commission’s Joint Research Centre (JRC) laid out recommendations for *open-access and a large-scale soil data to facilitate science-driven decisions on the EU environmental and economic agenda. And therefore, one of the most important features of the LUCAS ((Land Use/Land Cover Area Frame Survey) soil project is the totally open access to all data.*⁽¹²⁾

Smart Farming and Data Sovereignty – Who owns the data?

The value of smart farming strategies to reduce the ecological footprint of farming was perfectly layout by Achim Walter, Robert Finger, Robert Huber, and Nina Buchmann in their opinion, Agricultural Sciences, Sustainability Science – smart farming is key to developing sustainable agriculture. It can *provide a concerted path out of locked-in technologies and practices characterized by strong polarization and market segmentation, but still, numerous hurdles must be overcome. Among the major questions to be addressed: **Who owns the data?***

Information and Communication Technology (ICT) that records the input of resources and the output of products does raise questions of property rights and use of data. Business models might create added value by converting spatially explicit big data into information and advice not only for farmers but also for regulatory authorities who may use the data for surveillance and control. Governments must establish a regulatory architecture that guarantees high-quality data while at the same time fostering trust among all actors involved. The potential misuse of data creates additional legal and ethical challenges for regulation and monitoring

ICT and data management can provide novel ways into a profitable, socially accepted agriculture that benefits the environment (e.g., soil, water, climate), species diversity, and farmers in developing and developed countries. But this can only happen with the proactive development of policies supporting the necessary legal and market architecture for smart farming, with a dialogue among farming technology supporters and skeptics, and with careful consideration of emerging ethical questions.⁽¹³⁾



There are huge packets of Agri data and best practices that exist, but they need to be more organized and readily accessible to allow users to confidently track production in real time. To allow product provenance and verifiable ground truth data seamlessly up the supply chain and transparent feedback relayed downstream. So, users can track timeline and product conditions in real time, allowing them to respond to market demands, manage environmental compliance and IP protection and pinpointing where any problems that lead to fraud, corruption or loss of value may occur.

Minimized or site-specific application of inputs, such as fertilizers and pesticides, in precision agriculture systems will mitigate leaching problems as well as the emission of greenhouse gases. ⁽¹³⁾

But other concurrent factors such as soil moisture, plant density, and harvest techniques are not being given the attention they need either because relevant data is not available at EU scale or experimental data is missing. Efforts need to be made to incentives the proper collection of all data to combat food lost and waste.

Data is (or should be) integral to every aspect of decision making by government, business, civil society, and individuals (users). Availability of verified, transparent, reliable, and accurate data can make or break a user's capacity to make robust decisions

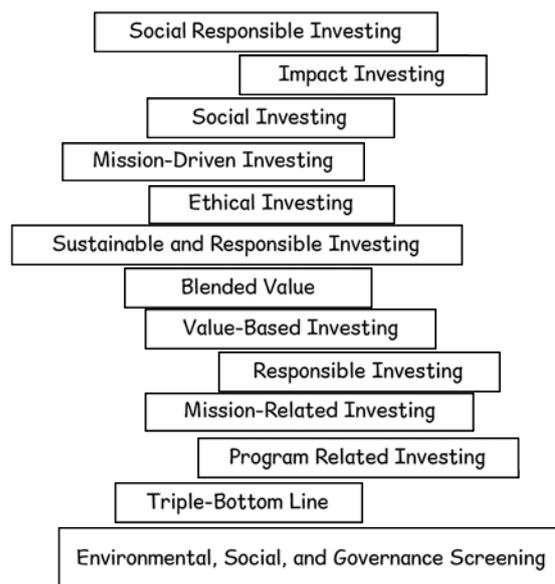
Governments need data to ensure current and future social services are delivered and built efficiently and effectively.

For business, this could be everything from identifying the geo-strategic political risk to a consultant undertaken market research.

For civil society, it means ensuring their activities – whether it is for urban mobility programs to development of sustainable agriculture – has real impact.

For individuals, it means everything from accessing historical real estate data before they buy their home to a university student undertaken research.

Thousands of government, business, and civil society users are working separately and/or together to use big data to improve decision making; many of the same users generate and provide data, open or otherwise.



Direct Engagement

- 1) DATA SERVICES - evidenced-based and fulfills a recognized need for access to global and regional data sets
- 2) USER ENGAGEMENT – brings data users and data providers into a community conversation for peer-to-peer knowledge-sharing, data-sharing and feedback

Indirect Engagement

- 3) DATA POLICY – using and contributing to cooperative initiatives to harmonize data ontology, promote standards and the use of open data
- 4) DATA LITERACY – improve the capacity of users to use data for decision making

TRANSFORMATION OF THE BUSINESS MODEL

Eating is an agricultural act

– Wendell Berry: farmer, poet, author and activist

This is a statement of individual empowerment, because it means that every time we make choices about what we eat and who we purchase it from, we are voting on the direction in which we want our food system to move.

From the consumer perspective and farmer's perspective. The journey from farm gate to the Point-of-Sale (PoS) needs to be more transparent and inclusive. Better accessibility throughout the value chain for the creation of trust in the network's products and its usage along the chain:

Input providers -> Distributors -> Farmers -> Output Processors -> Retailers -> Consumer

Added Value of traceability and transparency:

- **Production** – to create more accurate forecasting and confirm proper/ optimal practices
- **Logistics** – verify correct deliverables (deadlines, volumes, product conditions)
- **Storage** – guarantee conditions to store the SKUs in the Distributions Centers
- **Shelf-life** – control the time of each SKU stored on the shelves and collecting the products about to expire to effectively process, for example, to donate to food banks
- **Best Practices** – proper use of products, machinery and software solutions
 - pesticides crucial for health and environment⁽¹⁴⁾
 - food security, sustainable agriculture and forestry, marine, maritime and inland water research and the bio economy⁽¹⁵⁾
 - operational safety
 - upkeep and maintenance
 - precision agriculture practices

There is incredible potential and multiple opportunities for improvement, but why haven't farmers, cooperatives and companies not yet realized the benefits of transparency and open information exchange?

Business innovation requires a thorough understanding of the reality of each key actor to ensure there will be a successful adoption of whatever we propose. In the past, we used to rely on training and communication hoping all stakeholders would understand a theoretical Return on Investment analysis and would be willing to dedicate the resources to learn the new tools.

This was a risky approach which relied on too many assumptions:

- We expected all actors to be fully cooperative based on a general concept. Reality proved that concept did not always apply, leading to situations where potential customers would reject the new approach.
- We also expected players to be able to learn the new way of working following the training provided. Again, different realities ask for different ways to introduce a change and provide knowledge.
- It was assumed all players would be in a position to adopt this new way of working. It often resulted in formidable conflicts with their own processes and business style.
- Historical relationships among stakeholders and conflicts were not taken into consideration. We observed valid suggestions being rejected based on emotions, unresolved conflicts, or as part of a way to express their disagreement on totally unrelated topics.
- To make matters worse, blockchain normally comes with the expectation of being the technology for disintermediation and we often hear comments about how this will eliminate a middle person, or organisation. It is not our intention to make this program a way to replace any of the existing layers. The goal is to improve productivity, alleviate some of the challenges expressed above and empower citizens with solid and reliable information about what we eat and what choices we have.

With all these hurdles, it is not surprising many technological initiatives do not drive the expected results. If we add to this the level of uncertainty and complexity we are experiencing today (we live in VUCA times), it is necessary to complement our work with the provision of certain activities that will help us to understand, adapt and provide the necessary confidence.

Importance of Effective Collaboration

Any product or service is meant to be used in a certain way to obtain an optimum result, get all the benefits from it, minimise any impact or damage on the environment, or avoid negative consequences to the community. Manufacturers make every possible effort to test and analyse product performance and to provide clear and complete instructions on how to use their products in the market.

When we use products or services differently, i.e. in a way that does not follow recommended practices, the results are often far from ideal; we obtain unsatisfactory results and create

more damage than good. It happens in multiple industries, from medicine to electronics to, of course, agriculture. Mixing the wrong ingredients or quantities will not deliver the formula we need; using hardware in the wrong weather conditions, or our mobile phones under water will lead to no performance and a damaged device. Likewise, using fertilisers at the wrong time, or in the wrong way will not only make production and quality fall short, but it will also affect pollution levels.

Communication is one of the key levers to address this issue and to maximise performance. This also includes capturing and sharing relevant data about the product, the way we use it, or the environment where it operates. This data helps to understand actual product performance, identify risks, provide real-time feedback on how to improve or react to unexpected conditions, or simply improve the product further.

Technology has been available for some time. There are examples of commercial use of data capture and exchange mechanisms to scan and measure product performance, as well as conditions and practices that can have an effect on it. The field of Internet of Things (IoT) represents a great opportunity to industries trying to understand how their products behave

in real life, how customers use them, or what factors or local conditions impact the expected performance.

While this is not a straightforward implementation, companies have made significant progress in using such data regularly to provide enhanced services, reduce risks, control costs, or improve product performance. The potential for this way of working is huge, but we can confidently say citizens, administrations and companies are today benefitting from the concept of gathering and using data to everybody's advantage.

Then, why is it that current practices differ from these recommendations? Why are the parties in agriculture and other industries not interested in sharing data more openly? What impact would sharing info have on the value provided by each member? What is the risk to distributors and local players of sharing data openly with the manufacturing company? Is information blockage a necessary tactic for survival? Is the risk real, or a perception?

Whatever the answers to these questions, it is clear we need to fully understand the reasons for and address these concerns to obtain the benefit we are looking for. We need to understand the ecosystem and each of their players. What drives their business and what is challenging their profitability and own survival? What is the history of the interactions among themselves? Is there any legacy or well-accepted principle preventing collaboration? I

In order to facilitate the adoption of new technology and with the view of achieving the full potential of effectiveness and transparency, we need to dive deeper, understand and address existing and mental barriers.

Communication and Trust

In a multi-layer business relationship, i.e. one where multiple organisations collaborate or are involved in the delivery of some products or services, communication is complex for two

reasons: we depend on every party being able to transmit the information properly, i.e. having the tools and knowledge to capture and exchange. The second reason is subtler, they must be willing to share this information and for this we need to ensure they see value in doing so and we help them address any concern, or perception of risk they may have.

On one hand, we often rely on proper communication dissemination across multiple companies and groups which, as we know, it often results in an incomplete, or inaccurate transmission of the intended message, something we commonly known as a Chinese whisper. Critical information may be lost or ignored, leading to poor results that we could easily avoid.

Part of the issue involves culture and working styles. Different intermediaries will handle information in different ways based on their expertise, focus and own way of doing things. Context, local conditions, emotions, skills and knowledge play a significant role, leading to an almost unique way of doing things each time.

On the other hand, we see parties not willing to exchange information, based on lack of understanding, misinformation, or lack of trust. This happens both at the intermediary and end customer levels, i.e. the wholesaler and the user, or the reseller and the farmer. Why would any of them mistrust the companies further up in the value chain? Sometimes it is a lack of belief on the technological platform or product, and what it does. The rest is normally a lack of confidence on how this exchange of information would affect their business and could compromise the perception of what value they provide, or the importance of the role they play in the process.

International organisations rely on a network of local distributors to engage with local customers and deliver the best possible experience to customers. In a commercial environment, this needs to happen both during the pre and post sales phases. In a non-commercial one, it still requires clear communication to reach an agreement and for the execution part.

In a world where technology allow direct communication, exchange of goods and payments, we are often questioning the value of the intermediaries. Their business models originated many years ago and their validity today is, sometimes, unclear. Many of these organisations are constantly looking at ways to justify their existence and find ways to provide new value. This may explain the lack of trust and collaboration on anything that could make their role obsolete, or redundant.

When the actual exchange of information involves transferring or giving access to data, we face an additional challenge due to privacy, regulations and fear. When the relationship between manufacturers, distributors and wholesalers is not at its best, the information exchange rarely happens efficiently, leading to parties blocking information, or blaming each other.

The result is a complex paradox. All players need to ensure high performance to protect their profitability and reputation, but they often work in isolation holding on to what they know and creating silos of information that more often than not affect that performance and create unnecessary and negative consequences.

We have experienced working in industries where lack of consistency and good practices and lack of trust between members of the value chain had created serious damages to the players and products involved, both in terms of results and reputation. Intermediaries blocked the adoption of technology and the exchange of data involved based on concerns that their business could be taken over from the manufacturer, or other service providers.

Although we live in an era of collaboration, constant exchange and co-creation, we still hold on to the perception that the one who has the information is in control, even if this happens at the expense of productivity and competitiveness.

There are many examples of the fast-growing importance of establishing trust to meet the demands of consumers. Consumers have far from ideal experiences seeing how companies are using their own data, how new innovative models affect workers conditions, how a company's value chain is impacting the environment, etc. The result is a growing user conscience of the need to react and demand evidence of good behaviour and to flex the muscle and exercise control through buying decisions.

Trust is a fundamental currency for business value. More importantly, transparency and good behaviour are critical aspects for attracting both partners and talent at a time when open collaboration and co-creation seem critical to address both social and business challenges.

How do we break from this negative spiral and address the issue of trust and information visibility? Of course, technology is part of the solution. We have technologies that can guarantee the validity and immutability of certain actions and records. However, many valid technologies failed to deliver on their expectations before. They did not find the necessary adoption, or even worse, they were misused or introduced in a way that did not deliver any positive change and were eventually rejected, or abandoned. The solution to this challenge also requires building trust by working with all parties to address their challenges and reinvent their business models or build new ones.

Updating the Business Models

Manufacturer and Retail companies are too robust to change their 'centralized' transactional business models, but can bring a stable platform, financing, infrastructure and testing grounds for solutions.

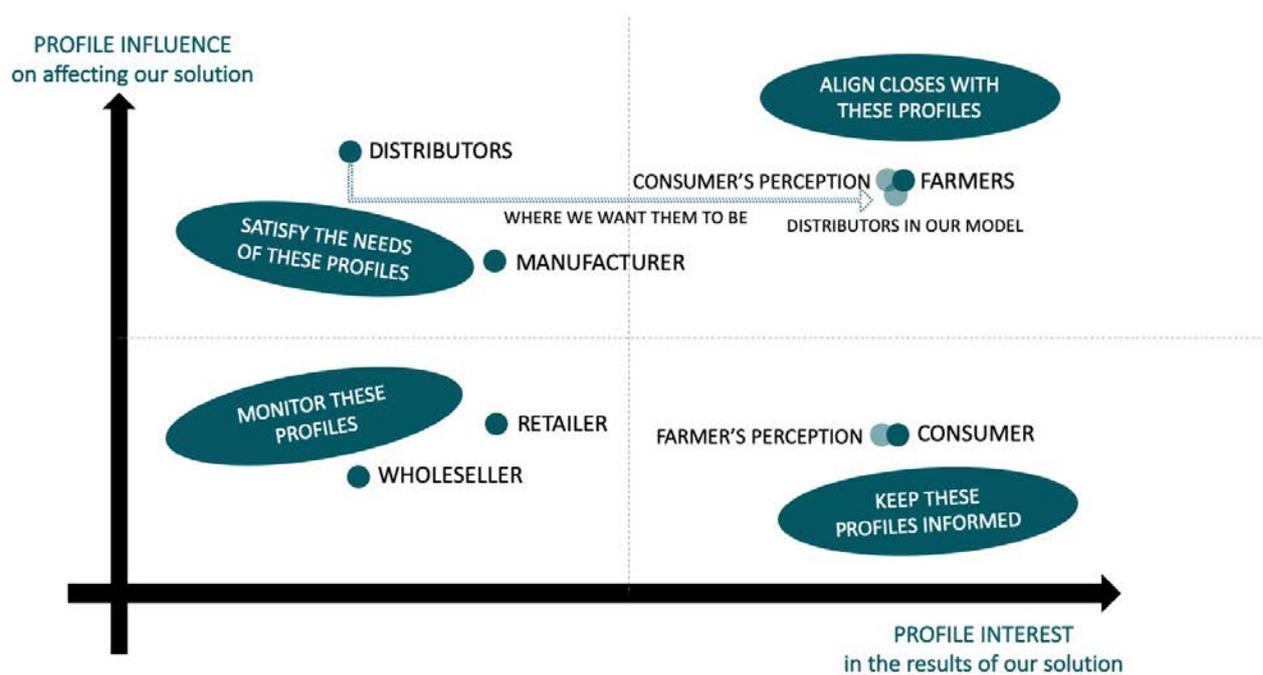
Start-ups are agile enough to implement and evolve a disruptive new business model that demonstrates added value to manufacturers, distributors and farmers - with less threat - and conversely to all stakeholders.

Farmers just want someone to demonstrate to them that a technology works, what benefit it brings, and how it is going to be paid for. They are always looking for an advantage to improve their razor-thin margins.

Distributors and Wholesalers are the spokes that the channel infrastructure revolves around and they hold a lot of influence in most markets, but their position as an intermediary is

weakening as we further transit into automated systems where direct contact with all parties is possible without the involvement of an intermediary.

Customers and consumers believe they have more power than they actually do and they are concerned about more than just price points, but other factors such as environmental sustainability. However, information is unreliable and their own beliefs need to be challenged and tested.

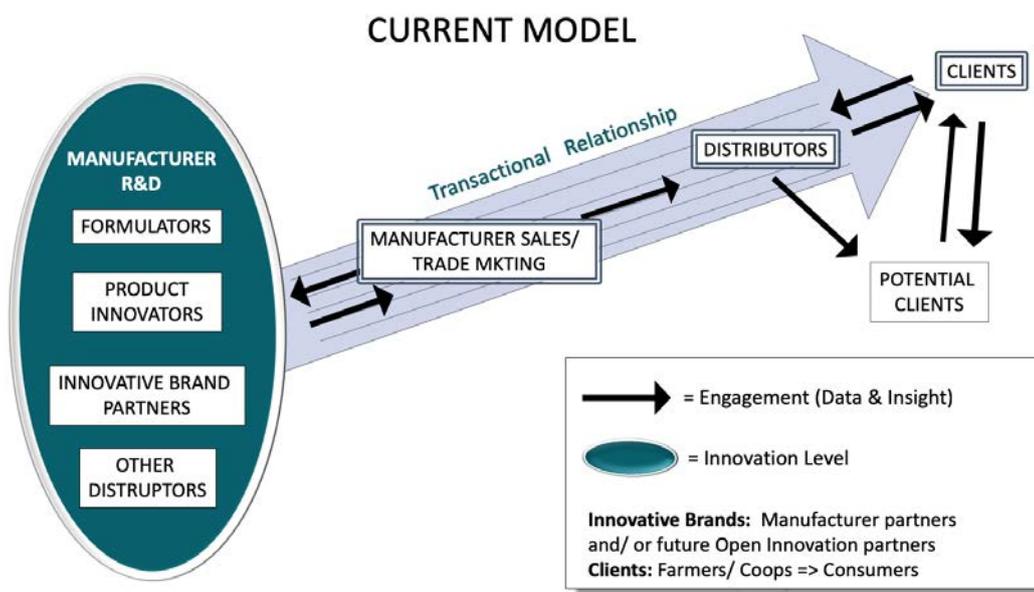


The importance of understanding the actor to create an enhanced production and information exchange model.

For example, there is a common belief that buying local reduces the carbon foot print, but there are many instances when it may cause larger impact to produce a product locally than transport that same product from a more optimal environmental growth area. Also, it is possible the product has a lower nutritional value or the other benefits of reducing the carbon foot print do not outweigh the alternative, such as, when compared to the strain on our water impact.

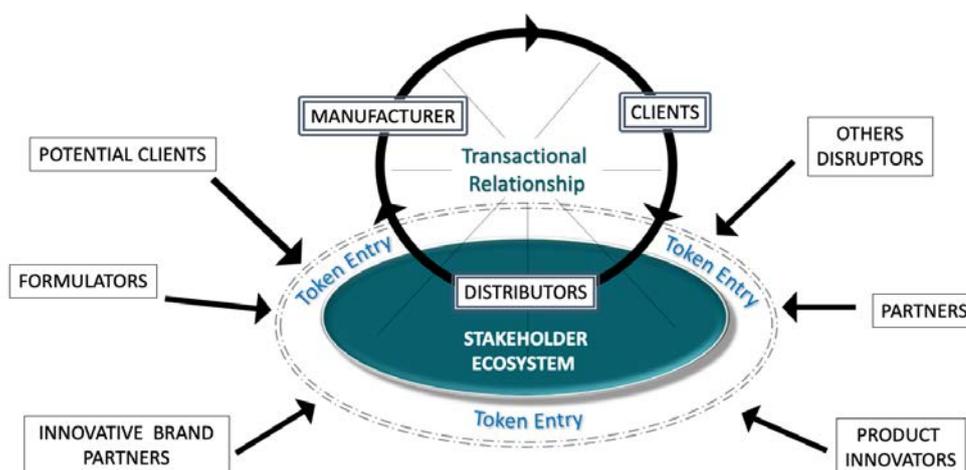
One example, when looking at imported Moroccan vs. off-season French locally produced tomatoes, a study found that from the perspective of freshwater, the French options is more optimal compared to the Moroccan imports, whereas the opposite is true in regards to carbon and energy perspective.⁽¹⁶⁾

In a current centralized business model, a company dedicates an enormous amount of effort to broker 'transactional trust'. Trust gained through validating each partner's deliverables. Most of the innovation lives within the silos of the manufacturer and its closed network of partners, restricting access to valuable research and earn experience from testing, which leads to waste and redundancy throughout the ecosystem.



With Blockchain technology, ownership is democratized to give all stakeholders access to create their own transactional relationships. Where the blockchain immutability validates all deliverables. The founding company becomes more the custodians of their platform and allows them to focus on building better UX, products and services of secure and verifiable use.

TRANSFORMATIVE MODEL WITH BLOCKCHAIN IMMUTABILITY



There are enormous needs for this new collaborative mindset. Partners can capitalize from their own contributions, improve quality control and incentivize connectivity. Whereas any stakeholder stands to gain from transforming the system for everyone, and all this can be done without losing competitive advantage or regulatory control.

Obtaining significant progress in terms of food production and waste reduction requires changing people's hearts and minds. As it happens with any significant change, we need to understand the unique reality of each case and show our ability to help the players be successful, using technology effectively and intelligently. Only then, companies will be able to collaborate in a way that will deliver optimum output, viable economical models and open collaboration.

OUR 40% | 60% VALUE SOLUTIONS

Value Derived from Business Operations



Solutions

Wouldn't it be great to have an **automotive**, **organized**, and **open-sourced** database platform to help you search, sort and analyze the forest of data and metrics - tracked in real-time - so you could make more intelligent decisions and impact!

How wisely and holistically we integrate the innovation of blockchain throughout the agri-food ecosystem will have long-term bearing on how well we feed the world in the decades ahead.

And across the food value chain, the absolute consensus is that the system needs to bring consumers and farmers closer together to improve inefficiencies. To reduce food lost and waste we must re-organize intermediaries, offer user friendly solutions and incentivize ALL stakeholders to further engage and collaborate in the value chain ecosystem.



Our team has chosen to start with the individual farmers and offer solutions to solve their pain points of connectivity, digitalization and harmonization of data to further open collaboration using that shared data. Most existing DLT supply chain projects are focused on tracking across the entire chain and are forcing stakeholders to adopt top-down methods leading to resistance, slow or none adaption, which hurt both producers and consumers.

Individual stakeholders process information in different ways based on their own experiences and the results are often unsatisfactory and create more damage than good.

Blockchain can be a tool to help define bottom-up solutions to embed trust across the farm-to-mouth supply chain and further open collaboration using shared data. And to build a human centric governance model for access and financial inclusion in an ecosystem.

We believe that in the current atmosphere, where there is no one blueprint to working with a Blockchain ecosystem and DLT solutions. And believe that building products to improve parts of the value chain and with a focus on future interoperability within a standard of utility, are the best way to bring measurable added value. So many Blockchain projects are offering *the world* to users, where we believe in trying to simplify ideas to give maximum impact.

How Blockchain Companies Market Themselves



What Users Want



To bridge the gap, we are focusing on the value proposition building a smart farming tool for minimal viable soil and environmental data to model a soil fingerprint for farmers, providers and consumers to align with existing agriculture Cooperative governance and collaborative business environments. Working hand-in-hand to research with, for example, the European Crop Protection Agency, an existing Soil Association certifying [organization](#), and/ or any of the European Agriculture Cooperative Organization like COGECA to identify relevant minimal viable soil and environmental data sets to model a soil fingerprint - such as, (i)soil microbiome measurements, (ii)Carbon footprint at farm, (iii)variable rate fertilizer application, (iv) pesticides residue and (v)water usage data.

- (i) **Soil Microbiome** is important for the ecosystem's nutrient cycling, organic matter turnover, and the development or inhibition of soil pathogens.
- (ii) **Carbon Footprint** calculation identifies the quantity and source of carbon dioxide, methane and nitrous oxide emitted from the farm, highlighting areas where improvements or changes can be made to reduce greenhouse gas emissions. ⁽¹⁷⁾
- (iii) **Variable rate fertilizer application** - Matching applied fertilizer to fertilizer requirements represents a significant input cost saving for the grower and a reduction in potential pollutant loading to ground and surface water. ⁽¹⁸⁾
- (iv) **Maximum pesticide residue** A sustainable use of pesticides in the EU by reducing the risks and impacts of pesticide use on human health and the environment and promoting the use of Integrated Pest Management (IPM) and of alternative approaches or techniques, such as non-chemical alternatives to pesticides. ⁽¹⁹⁾

- (v) **Water Usage**, Different crops are subject to irrigation at varying levels of intensity. Four main categories are distinguished by the Institute for European Environmental Policy ⁽²⁰⁾

40% TRANSACTIONAL SOLUTIONS

1. the Data Smart Farmhand Platform (Product)

The platform would fetch and scrape relevant public data from the European Union's Copernicus project of both satellite images and in-situ data⁽²¹⁾, the Land Use and Coverage Area frame Survey (LUCAS)⁽²²⁾, the Eurostat Database for Agriculture,⁽²³⁾ the ISRIC — World Soil information,⁽²⁴⁾ European Soil Data Centre, ⁽²⁵⁾ and other data aggregators, to build a more complete overlaying data picture of our soil fingerprint.

Specific soil and crop data would be captured by our platform through participating farmers, cooperatives, distributors, neutral industry organizations and manufacturers, either by manual input, scrapping and/or automatively through a system of connected IoT sensors across the network.

Our intuitive search algorithm and sort UX would allow users - farmers and the extended affected communities – to input their data (or make queries) and compare it to the overall data models for region, country, European level, and potentially globally.

A user, or group of users, would be able to contribute to improved data models with their inputs, and fetch immutable data that would certify the value of their practices, and conversely, how much more effective their outcomes would be by adopting to other evidenced-based soil management practices in efforts to improve their results.

While citizens would have access to fetch general data maps to have a better view of the ecological impact that agriculture practices have on an extended region. This allows all stakeholders to work closer together to promote better local agriculture standards and reward farmers and supply chain stakeholders for their efforts.

This user contributed data would live in a hybrid blockchain solution having both on-chain and off-chain components, with on-chain verification and auditing capabilities, so individual farmers, their cooperative affiliates, distributors, manufacturers and others can assign access for third parties to fetch immutable data for their needs. This mechanism would give the users data sovereignty over how that information will be reused, while giving the ecosystem a snapshot of valuable anonymous data, and potentially another source of revenue (see governance).

Using a hybrid architecture will also address data privacy issues, as our system will manage private data and offer auditing capabilities through digital fingerprints computed using cryptographic algorithms, thus our system will offer Privacy by Design. Stakeholders can

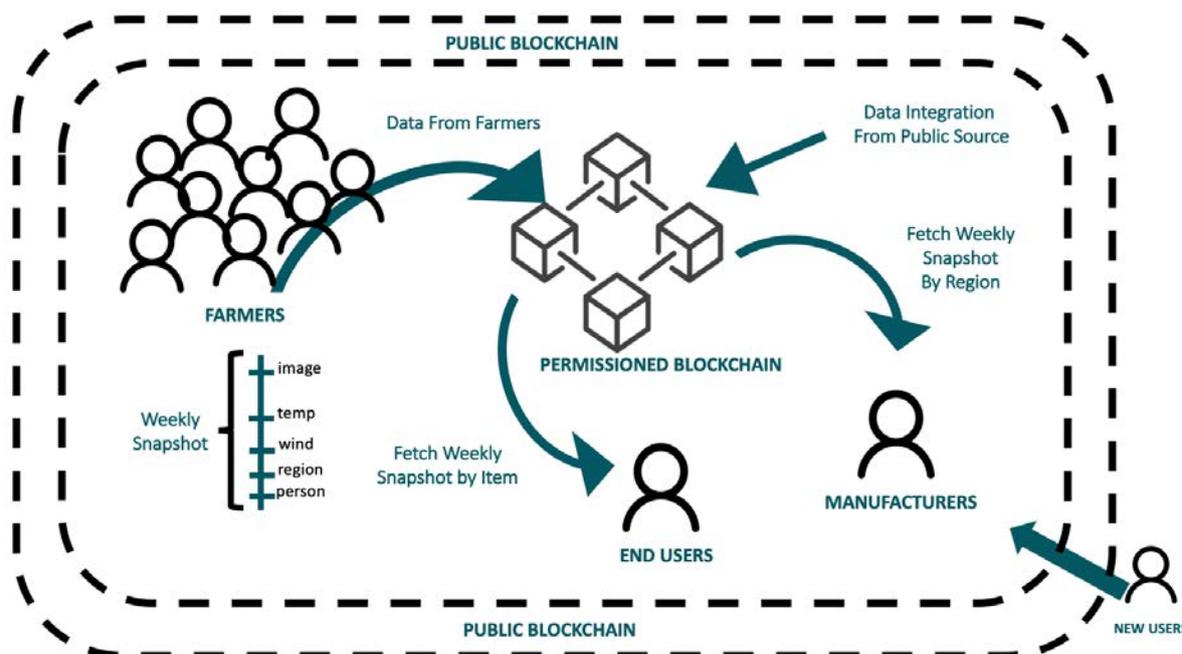
decide who to share the digital fingerprint and verification with, as well as sharing policies for the raw data.

This internal database blockchain acts as the lubricant for the platform - where our system is the custodian of the 'write' function of verifying data recording. This allows for real-time updates at a minimum transaction cost - just basically the cost of building and managing the platform.

In order to make the technology more accessible to stakeholders our core system will consist of two major components:

1. A software library capable of taking data packages in order to audit them with an on-chain solution – this would be a reusable component that can facilitate trust building between stakeholders. Following an open licensing model this software component could be used in any of their existing system in order to offer verifiability and auditing capabilities for their data.
2. A data management and exchange platform that offers a pleasant and intuitive user experience in order to facilitate cooperation, data exchange and free flow of information – all powered by the auditing library for the extra benefit of verifiability

In our vision these two components together would address most challenges that we face today: the system would build trust between all stakeholders while keeping the adoption barrier low.



For stakeholders, it would be possible to host various types of data and control access to it while still being able to offer tamper protection and verifiability. The system being built on a

modular basis it would be possible for stakeholders to adopt parts of the tech stack or the full solution. Obviously, the more they adopt the higher the value that the solution brings. This flexibility will encourage adoption by creating value through technology and contributing towards a more open ecosystem. The proposed technology will fulfil its purpose of facilitating collaboration and trust, while being seamless and non-intrusive.

Another benefit would be for stakeholders to test and verify manufacturer data and best practice recommendations from upstream, without the fear of exaggerated and/ or 'manipulated' data from any third parties.

Moving forward, the farmers, cooperatives and distributors can seamlessly transfer a time-stamped, digital certification "DNA" to their product's packaging with information such as soil variety, quality, geography, production practices and timeline. We would work closely with one of the standards organizations on data conformity to create a certification labelling.

Products reveal relevant and immutable information that empower the chain – eventually to the consumer - to learn as much as possible about each product's life cycle. The ability to trace – in the moment - each product gives us greater insight into what we are eating and how to better handle and to sell these items.

For example, this information could verify the "maximum residue level" on products up chain, to demonstrate they are within the highest level of a pesticide residue that is legally tolerated in or on food or feed when pesticides are applied correctly (Good Agricultural Practice).⁽²⁶⁾

Another potential usage could be for tracking organic standards of soil and crop production providence that is transferred to the wholesaler and as the package moves through to the Point-of-Sale (POS), and into the individual consumers homes. Farmers would also be able to trace demand, price fluctuations and access network data to organize more effective practices, without the need for it to pass through unnecessary intermediators.

Governance is perhaps an even more important in terms of accelerating blockchain's benefits. Much of the talk about blockchain has been tightly focused on technology and less concerned with governance, but we need these parts to work together to achieve measurable added value.

This new ecosystem governance must incentivize all stakeholders by making them shareholders. Our hybrid model would allow for an off-chain governance of community driven decisions and quorum for voting, but is filtered by using on-chain and decentralized access (membership) to participate in that community. And where the centralized custodian agent makes the technical changes for the ecosystem.

This is achieved by creating a public and decentralized blockchain and crypto token to create access to our ecosystem. But since the jury is still out on the blueprint to create this token and the regulatory framework to standardize how we use these systems, as well as the need to scale and connect platform interoperability, we are advocating the development of the internal open sourced and DLT structure of our platform, and in the meanwhile, we listen, process and learn the best way forward in terms of the tokenomics and public integration.

Incentivize Better Data Input and More Data Inputs to replace ~~Garbage In, Garbage Out~~ with Value in, Value out!

- Open source database platform
- Agnostic APIs
- Hybrid blockchain model to broker trust and enhance efficiency through increased supply chain transparency, where the permissioned DLT is the lubricant of the ecosystem and a decentralized blockchain would use a crypto token access.
- Its immutability validates deliverables
- Agnostic interoperability for future token integration to other decentralized platforms
- Private keys to allow autonomous sharing and segmented monetization of individual farmer and/ or cooperative data.
- Demonstrate measurable value when clients properly use network data
- Disintermediation of Food Distributors while empowering them to realign and more efficiently engage in the value chain ecosystem
- Assist network in complying with industry and manufacturing standards.
- Product has an intuitive, efficient and modern UI/UX

2. Business model relevance analysis as an Intermediary Service

These are some of the activities we propose as part of this project:

- Individual workshops with farmers to ensure we fully understand their current model, relationship and interaction with other members of the value chain and stakeholders, main challenges affecting, or threatening their model, change readiness, technological and digital maturity, etc. The content of this sessions would include:
 - Model analysis with an emphasis on main challenges and opportunities
 - Stakeholder analysis and context

- Value chain analysis to understand their role, objectives and value generated
 - Gap analysis
 - Today's processes and use of data
 - Digital skills
 - Potential for business model innovation
- A similar workshop for distributors/ resellers to understand their model and challenges and help them reinvent their model making use of this new way of working and repositioning their leverage as intermediaries within a blockchain immutability system.
 - Identification of data driven business improvement and customer innovation opportunities with a view to define the most compelling reasons for them to join the initiative, as well as a prioritisation of the main data fields to be captured and the activities and related processes where they can be used.
 - Mentorship
 - Grant and encourage involvement and participation from all parties to co-create the new solution, since we believe this is the best way to guarantee successful adoption and usage.



60% ADVOCACY SOLUTIONS

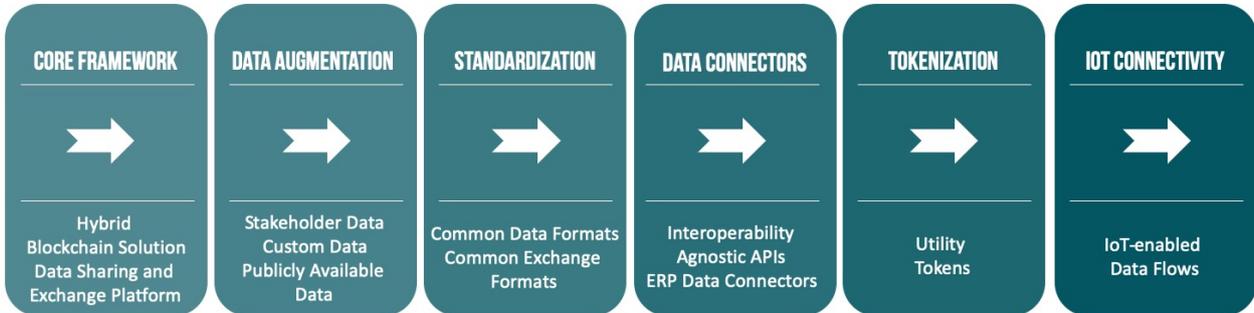
3. Agri-Food Transformation Narrative

Combining off-chain governance + hybrid off/ on-chain soil data fingerprint with user friendly experience to incentivize better ecosystem collaboration, we would lead as a **neutral** 3rd party custodian towards bringing further transparency to agriculture industry and supply chain by strengthen perception of products, services, and to gain confidence across the alignment of the value chain ecosystem.

Facilitate open innovation amongst farmers using existing network data, with a dedicated and transparent message that blockchain is a mechanism to evolve the existing processes that previously bogged down collaboration.

- To confidently use existing network data in decision
- To incentivize farmers to share and properly record their data
- Utilize marketing buzz of 'Blockchain' to engage all stakeholders
- Community Building: Content Creation, Events and Workshops

DEVELOPMENT ROADMAP



The main milestones of our system are:

1. Core Framework. This is the underpinning of a smart data sharing platform based on DLT technology for auditing and verification. The framework makes it possible to publish data in various formats and control access to this data, while offering the guarantee of immutability through cryptographic hashing. The system can be envisioned as a hybrid blockchain solution with a mix of off-chain data and on-chain verification possibilities so that both privacy and authenticity concerns are addressed. Thus, our system facilitates trust building within stakeholders by using a Privacy-by-Design model and can be adopted on top of a series of business models, while offering a low entry barrier and adoption curve.

The Core Framework will have two main building blocks:

- A software library capable of taking data packages in order to audit them with an on-chain solution – this would be a reusable component that can facilitate trust building between stakeholders. Following an open licensing model this software component could be used in any of their existing system in order to offer verifiability and auditing capabilities for their data.
- A data management and exchange platform that offers a pleasant and intuitive user experience in order to facilitate cooperation, data exchange and free flow of information – all powered by the auditing library for the extra benefit of verifiability

2. Data Augmentation. Having a stable framework to exchange data, this component facilitates the use of publicly available datasets combined with stakeholder's own data. Data discovery and exchange will be facilitated while stakeholders would be in full control of the type of data they are publishing.

3. Standardization. While offering a way of publishing data in various formats is key and appealing to the majority of stakeholders, we are also mindful of the fact that a relevant portion of data will contain similar metrics and KPIs. Defining standard around data structures and exchange formats will greatly enhance the interoperability with other systems and will facilitate and streamline data exchange between parties that would find it difficult to work together otherwise.

4. Data Connectors. Once our ecosystem is proven to bring value to the industry we will move our focus towards higher scale adoption, which comes with its own challenges. One of the major challenges is the effort needed to publish data into the system, thus automating this process as much as possible is crucial at this point. Creating and delivering various data connectors to widely adopted and used systems could facilitate the flow of information between internal tools (ERP, custom data stores) and our platform. Having an open architecture and a transparent and agnostic API will facilitate this phase.

5. Tokenization. Incentivizing stakeholders to publish recent and accurate data is key in achieving the vision of the project. Creating a crypto utility token would be a direct means of incentivizing stakeholders as they would become effective shareholders of the system.

6. IoT connectivity. Once data is flowing through the system our next step will be to automate data collection even further. Smart contract-enabled IoT connectivity will contribute not only to the automation of data ingestion, but will also build trust between parties, as data will flow directly from sensors and other devices into the system.

Need to add roadmap of go-to-market. We are aware of the potential and in the end, we will have more knowledge and criteria to make suggestions on where to go with this.

Expected Impact

1. Standards

The organization of the pertinent viable data and structuring of our platform around the 4-5 metrics in our soil fingerprint would help the European community identify what needs to be tracked on an agriculture blockchain and eventually create conformity for our package labelling.

By streamlining bureaucracy - a key obstacle preventing the current EU Common Agricultural Policy (CAP) from successfully delivering on its objectives - will strengthening the position of farmers within the food production chain, and making the CAP more efficient and more transparent, while providing a response to the challenges of food safety, climate change, growth and jobs in rural areas, thereby helping the EU to achieve its Europe 2020 objectives of promoting smart, sustainable and inclusive growth. ⁽³²⁾

Aligning the data necessary to collect during preharvest would be the first step, but it is only one finger of our efforts to build a more transparent value chain. As we continue to research the best metrics, scale the transparent ecosystem, and gain acceptance of our sustainable business model, we look to further connect individuals to create data conformity across the entire value chain.

For example, by working with retailers to input their data to compare against industry databases in efforts to evolve our provenance fingerprint as it moves up the chain. This evolution of product DNA would continue all the way to the Point-of-Sale (PoS) and beyond. Consumers would be able to use an application to research individual products in the brick-and-mortar stores or eCommerce sites to compare the value of carbon footprint, water usage

and dietary requirements amongst the different SKUs (Stock-Keeping Unit) A label rating system to measure these data sets could be implemented similarly to the nutritional values you now find on label.

It could even conceivably encompass, for example, educators who are involved with improving the way students are being fed so as to offset the effects of malnutrition on their studies. Or empowering citizens to continue to be conscious consumers by connected product packages to their home smart devices in an effort to reduce food waste and minimize the effects of potential contamination.

2. Empower Cooperatives and Individual Citizens

Tracking data towards blockchain transparency in general, and further making how to decipher and use that data more efficient would be an enormous deterrent against negligent or nefarious transactions. As well as creating the trust necessary to encourage open innovation. It would be another significant tool to help cooperatives label, communicate and market their products.

Cooperatives can be very useful to help individual stakeholders, but their power is limited when compared to their retail customers or suppliers. This is causing cooperatives to merge further across the globe to help bring more market power, but this homogenization may generalize the desired outcome and create the potential for weakening the 'specific' value for individual member control.⁽²⁷⁾

Our bottom-up solution embeds trust and further open collaboration using shared data. And aligns the Cooperative's governance model with a blockchain backed and human centric model for access and financial inclusion in an ecosystem.

3. Improve Manufacturers Access

No doubt, increased access to cooperative and individual farmer's data will improve R&D capabilities of manufacturing companies. As well as improve the communicate around best practices of their products and research to all partners. By allowing them to have further insight into how farmers apply, integrate, upkeep and utilize their products and services will allow them to improve their offerings and to more precisely demonstrate the value of their products.

Reducing the light between how manufacturers intended their products to be used and actually use will lead to improved nutritional yields in crop production, lead to minimizing food lost and waste and improved environmental compliance.

And improved operational safety for the direct customer and indirectly for consumers and other citizens throughout the value chain, for example, reduce water contamination from unnecessary fertilizer and/ or pesticide application.

4. Improve Soil Ecosystem to Minimize Food Lost – and in the future, Food Waste

The JRC launched a call for support and collaboration on soil biodiversity assessment...and strategies for large-scale DNA fingerprinting of soil organisms and actively contribute to both the LUCAS Soil and other global soil biodiversity assessments. ⁽²⁸⁾

Soils received further recognition when the UN Rio+20 Summit ⁽²⁹⁾ highlighted soil degradation as part of land degradation, and called for a land-degradation-neutral world in the context of sustainable development goals, to which the EU subscribed. This target is reiterated in the European Union's 7th Environment Action Programme, *the degree to which society can benefit from soils is dependent on how it uses and manages them.* ⁽³⁰⁾

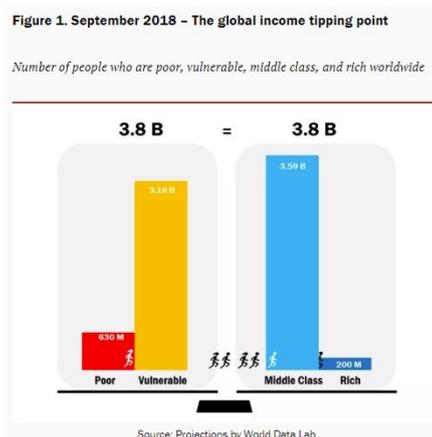
The metrics defining sustainability and how it is used in the parlance of agriculture are broadly applied these days, but several scholars argue it originally meant farming that does not erode its own base of soil, water, farmers, or children willing to farm.

In a report by the United States Public Broadcasting Service about the future of Sustainability, they label sustainable agriculture as the following:

- *bio-diversity in the soil*
- *farmers dispersed on the land with the option of smaller farms*
- *meat and produce grown with personal care and attention*
- *fair markets for crops and animals*
- *local surface or groundwater quality*
- *watersheds that are not contaminated by farm runoff* ⁽³¹⁾

...as a result of expected changes in population and income levels, the environmental effects of the food system could increase by 50–90% in the absence of technological changes and dedicated mitigation measures.

Source: Nature.com



The global population is projected to reach 9.8 billion people by 2050 (UNDESA, 2017), and for the first time in history the world population of middle/ upper classes* in 2018 equalled our most vulnerable population - our food waste problem will only grow as a population with further expendable income increases, meanwhile our food loss problems continue to cause concerns. Our soil degradation problems will only increase with further environmental and climate changes. This is significant, recent reports only continue to highlight the impact of our food system on the environment. More than ever, we need a more literate soil definition affording all citizens to be bold in our mitigation measures.

**Metric: extreme poverty (households spending below \$1.90 per person per day) and those in the middle class (households spending \$11-110 per day per person in 2011 purchasing power parity.*

5. (UN) [Sustainable Development](#) Goals (SDGs)

The SDGs identify soil resources as of crucial importance for sustainable human development and food security ([Keesstra et al., 2016](#)); thus, the need for improving and maintaining soil quality has enormous positive impacts toward zero-land degradation and double/ triple bottom-line returns.

Factors such as access to clean and uncontaminated water, improvements in nutritional outputs, biodiversity regeneration, pollination, pest control or nutrient recycling, and environmental and climate change affects every user.

Farmers in the EU are the first line of defence for protecting the natural environment of soil, water, air and biodiversity on 48% of the EU's land. A 2017 commission to the European Parliament stated *that its Common Agricultural Policy (CAP) should lead a transition towards a more sustainable agriculture, where a majority of farmers and other stakeholders believe that they should do more about environmental and climate challenges. Land-based measures are pivotal to achieving the environmental and climate-related goals of the EU, and farmers are the primary economic agents in delivering these important societal goals.*⁽³²⁾

Potential Revenue Model

- To use the MVP, customers could be charged based on the amount of segmented or sorted data they want to use or with a subscription for an unlimited amount of data.
- Manufacturers would pay to have access to farmers and distributors data. Retailers would pay to better understand the consumers purchasing habits.
- Issuing of a Token with Share of Value to holders.
- Visualising the data on the UI is free; downloading data or downloading visualised data (maps, tables etc) is charged.
- Certification – for example, the UK Soil Association's organic certification for Horticulture land is 400GDP per ha, per year.
- Other more complex pricing models could be developed.
- Cost savings from improved usage of products and services across agriculture supply chain.
- Workshop Fees and Sponsorships.

PERSONAL MOTIVATION

Value of Transparency - Do Good Do Well.

Agriculture and the Food Value chain are not the low hanging fruit like Fintech, but it is the most tangible example of how integrating blockchain can affect every individual. Because, it affects something we need to consider daily (if we are lucky) - what we eat and where our food comes from?

20,000 years ago, more stable economic relations were brought about with a change in socio-economic conditions from a reliance on hunting and gathering of foods to agricultural practice. The trust in nutritional utility of the food system led to food products becoming money and then to becoming tradable commodities with value of exchange that could be measured by scarce metals like gold and silver.

Later, our banking system transformed that trust into a paper guaranteed system, that allowed centralized organization to assign value to goods and services – totally removing the physical utility value of products. Into the 20th century, that trust was assigned to a piece of code that would transfer between banks, rendering the physical transaction of goods to cease to matter as well.

With Blockchain, the concept of tangible utility value can return to food products, where a token immutability verifies deliverables and allows a trust-less system to dictate the measure of value – where transactional value is again measured in real food metrics like nutritional yield.

What a great time to be alive, when we can all be food experts and truly influence maybe the most basic social-economic engine that transcends all cultures, races, genders and locations – our exchange of food utility.

FOUNDING TEAM



BRIAN HEINEN

Founder,
Agri-Food Transformation Researcher and
Blockchain Innovation Business Developer

  @brianheinen

Drawing from 20 years of collaborating with a global community of multinational stake holders, influencers, suppliers, contacts, and other professional resources to orchestrate collaborative and turn-key solutions in Innovation Development and Transformational Business Creation.

Since 2013, when he started as the Executive Producer of the **Bitcoin Foundation** 2014 Initiative, Brian has researched and advocated for blockchain solutions. This continued in his role as co-owner of the 350,000 **Procurement Professionals Group**, when he started to research the value of blockchain 's immutability and inclusive governance narrative in reducing inefficiencies in the food value chain.

Now, as a top influencer in the blockchain and food/ ag tech industry, Brian has advised companies and hosted workshops with start-ups, SMEs and large multinationals to help wrap their minds around the measurable added value of using a blockchain mechanism to build their ecosystem.

He has helped launched and developed several blockchain projects that have raised over 40 million USD in funding and produced business development projects with budgets upwards of a million-dollars.

He was a strategic consultant at **Allfoodexperts** - the Farm-to-fork Open Innovation Community Platform.

Brian has debated his blockchain and agriculture research at the **European Parliament Innovation Summit** alongside **Marietje Schaake** and **Eva A. Kaili** (Members of European Parliament), **Pēteris Zilgalvis** of the European Commission, **Willem Jonker** (CEO of EIT Digital), and various IEEE industry leaders, and presented his research at numerous events through his "Demystifying Blockchain Solutions for the Food Value Chain" presentation.

- **World Ag-tech** event, alongside the WW Lead of IBM Trust
- **Global AgInvesting** Summit in London
- **IOT Solutions World Congress/ Blockchain Solutions Forum** Barcelona
- And several times the **Blockchain Expo Global** and **Blockchain Expo Europe** Summits, **London Tech Week**, **Blockchain 360** and **Blockchain for Business Summit**

You can read more in his latest [Inside Food & Drink article](#) and [Parliamentary Magazine](#) articles.

Brian owns the Blockchain in Europe group, Blockchain ambassador for **Funding Box C-Car Community**, and a founding member of the **IEEE 2418.3 'Standards** for the framework of **DLT** use in **Agriculture'** Working Group - bringing conformity to how we connect our ecosystems.



ALFONSO ROIG

Founder,
Organisational Transformation Expert
Master's of Business and Technology

  @alforoig

Extensive experience helping international organisations in EMEA and APAC to collaborate effectively with channel partners, transform their business models and adopt technology to increase profitability and commercial results.

Alfonso led the successful financial and operational transformation of **Ricoh** distributors in EMEA including the adoption of new revenue models, service offering, proactive maintenance, and the use of remote monitoring tools to allow data driven decisions to increase profitability and customer satisfaction.

He created a partner program and certification and participated in international events to promote new ways of working and collaborating.

His background includes the successful implementation of Business applications working with Enterprise customers during his time at **Oracle**.

He works comfortably in international environments adapting solutions to the local needs and is an experienced consultant in the areas of cultural and organisational transformation.

As the founder of the **Stay Relevant Methodology**, his work includes supporting different B2B organisations in their transformation journey in areas such as Internet of Things, Channel management and business model innovation. He assists organisations in their efforts to be flexible, important and trustworthy to their customers, as the pillars of business success.

You can find more information and read his articles on his [Stay Relevant Blog](#).



ADELA G. HOBLE

PhD in Agronomy, Land Improvement
Master's in Design, Appropriation and
Maintenance of Green Spaces

  @adela_hoble

Adela G. Hoble is a Lecturer at the University of Agricultural Sciences and Veterinary Medicine in Cluj-Napoca (Romania) in courses about crop irrigation, terrain drainage, soil erosion, territorial planning, ecology, and land valuation/ real-estate appraisal.

She is a Diplomatic Engineer with main field of study in 'Horticulture', specialization in 'Landscape design', she also received the academic title of Doctor in the field of Agronomy (2012) with specialization in Land Improvements: Irrigation of Crops, and a Master in the Arrangement, Improvement and Maintenance of Green Spaces.

As a researcher, Adela worked as a member in an international research project (BiodivERsA/FACCE-JPI joint call) regarding biodiversity-based ecosystem services in vineyards; the project analyzed interlinkages between plants, pollinators, soil biota, and soil erosion across Europe with the scope to formulate best practice recommendations for policy and farmers (acronym [VineDivers](#))

Drawing from her Doctorate in Agronomy in Land Improvement, Adela is focused on bring measurable added value to improving Land Development: Rural, Agriculture and Horticulture, Irrigation and Desalination of Land, highlighting soil degradation as part of land degradation concerns and usage of irrigation in field crops. In the last 10 years, she contributed to over 50 research articles, which were published in international journals and participated in over 15 national and international conference.

Adela is in her eleventh year as a member of the editing team of the [Scientific Review of Agriculture - Science and practice](#). Previously, she spent two year as a member of the [Horticulture Bulletin Board](#), published within the 8th and 9th International Symposium Prospects for the 3rd Millennium Agriculture, Cluj-Napoca.



NORBERT SZAPPANOS

CTO

Certified Blockchain Solution Architect,
Master's of Science in Computer Networks and
Distributed Systems

 @norbertszappanos

Turning ideas into working software and viable products is what Norbert does as CTO at RebelDot. Having over 10 years of experience in the industry, his main focus is architecting and delivering software solutions that bring value to stakeholders. Combining technical expertise with problem solving, Norbert is an advocate of **Value-Added Development**. In his vision technology can solve almost any challenge and the role of an architect is to understand the needs, shortcomings and constraints and come up with the right solution given the context.

Over the years he has **architected and delivered solutions** that process millions of transactions a month using both commercial and open-source technologies. He has lead development teams for core projects of multi-million-dollar organizations, using web technologies and cloud computing. Being adept in **LEAN start-up and AGILE** he focuses on solving problems, prioritizing effort and delivering value.

Always having an eye on emerging technologies Norbert has become a **Certified Blockchain Solutions Architect** and Blockchain Trainer. Tackling the issue of demystifying blockchain and bringing it closer to broader adoption he juggles the fine line of offering immutability and security, while bringing down adoption barriers through hybrid solutions. You can read some of his views in his latest article about [Blockchain Adoption](#).

Norbert is also an Artificial Intelligence enthusiast and lately has been looking into ways in which emerging technologies can empower change and transformation inside an organization, ecosystem or industry.



FERNANDA ACCORSI

CMO

Retail Transformation Expert
MBA, Business Management

  @feraccorsi

With over 15 years of experience building business strategies and branding campaigns - leading the alignment, development and implementation for clients every step of the way. Fernanda combines **Marketing, Communications, Retail, Merchandising, Shopper**

Marketing and Sales - in order to create unique customer experiences and drive sustainable sales.

She has a detailed knowledge of the B2B/ B2C purchase process for the entire supply chain of various sectors. Specializing on the diversity of offers, channels, and the use of technology in changing the way we purchase. Collaborating with globally known corporations, SMEs and start-ups to develop multichannel distribution strategies to fulfil the new multi-shopper patterns.

In the Personal & Family Care sectors, Fernanda coordinated projects for **Kimberly-Clark**, **Melhoramentos CMPC**, **Santher** and **Navigator**. She has successfully optimized their portfolio with more sustainable SKUs and, at the same time, increasing overall profitability. Fernanda has also managed negotiations with Key Account groups such as Walmart and Carrefour, for their different flagships (Retail and Cash&Carry).

In the Food sector, she has coordinated and implemented distribution plans and merchandising campaigns for companies such as **Pepsico** and **Grupo Adria**. She has managed studies and diagnostics to help clients understand their shopper needs and to better address their preferences, focusing on the right portfolio and displaying it properly in the POS (Point of Sales) - proposing more effective Category Management for them.

Fernanda has forged new business development with C-level executives during merger process, coached sales teams and negotiated with vendors across LATAM, EU and the UK. Through her hands-on experience and public communication skills, she has spearheaded 'Customized Retail and Merchandising Programs' for POS teams of 400+ pp orchestrating live and interactive seminars and workshops.

As part of her personal and professional career development, Fernanda is an ongoing contributing columnist, market analyst and keynote speaker for advocating emerging trends at industry leading platforms such as **Supermercado Moderno**, **Do It**, **Tissue World**, **LightSpeed**.

***We will work with a network of business partners, agriculture and academic institutions and collaborators. Working hand-in-hand to research with, for example, the European Crop Protection Agency, an existing Soil Association certifying organization, and/ or any of the European Agriculture Cooperative Organization like COGECA.

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