

Total traceability thanks to blockchain

In this digital age where food incidents can quickly become food safety scandals, traceability, transparency, and data intelligence are the truest allies of the food industry and consumers. Digital technologies, including blockchain, will unlock a new degree of food safety assurance.

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What is blockchain?



Blockchain is, like any ledger, a **record of transactions**. What distinguishes it from other ledgers is that it is virtually impossible to tamper with. This is because the information is stored digitally in a **network of computers around the world**. There is no central location holding all of the records. If a new transaction is added or a change made, it has to be verified by each of the computers before it is recorded. Each "block" of information is linked to the previous block to create an **unchangeable record of events**.

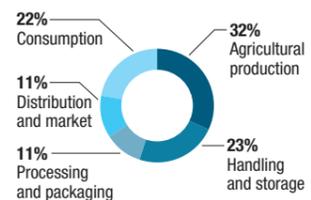
The benefits:

- Security**
Every event is recorded in time-stamped blocks and stored in multiple locations.
- Transparency**
Data is accurate, distributed across a network of computers, and always accessible.
- Shared**
Multiple stakeholders along the supply chain are able to exchange data.
- Accounting (ledger)**
There is an unchangeable, verified record of every transaction.

A third of food is lost or wasted

One third of the food we produce is lost or wasted along the value chain, according to the Food and Agricultural Organization of the United Nations. Digital technologies, such as blockchain, and the Bühler Insights digital platform will significantly help to curb loss in production.

Where food loss and waste occurs:



65% of grain is processed on Bühler equipment

Rice, corn (maize), and wheat are food staples that account for 60% of the world's caloric intake — and Bühler provides solutions for the processing of all of them. It is also involved in the agricultural value chain from post-harvest through to the packaged product. This puts Bühler in a unique position to support its customers in reducing food loss.



Blockchain is transforming big industries

A range of industries are using blockchain to drive greater transparency, including banking, health care, charity organizations, the luxury goods sector, and food. **Bühler and Microsoft** are working together on the development of a blockchain solution that will increase food safety and transparency across the food value chain. Here are some examples of how blockchain will help the food industry and consumers.

Track product along entire journey

The need for traceability is regulated, but the systems used to be compliant are not. Many players still rely on manual records, which are vulnerable to human error. In the event of a food safety incident, manual systems limit the speed of response. With blockchain, each event is verified and **the flow of a product can be traced backward or forward** to quickly pinpoint the source of the incident and mitigate risks.

Verify authenticity / anti-tamper

Food fraud costs the global food industry USD 30-40 million a year, according to PricewaterhouseCoopers. Food fraud includes mislabelling, adulterating, and counterfeiting food products. For example, olive oil can be diluted with lower quality oils; wood pulp is added to Parmesan cheese; and seafood is often wrongly declared. With blockchain, **product authenticity is verified** at each step of the production process.

Empowerment for farmers and consumers

Trust and ethics are important to today's consumers, and blockchain allows them to get the transparency they are looking for when it comes to the foods they buy. For example, consumers can trust that a fair trade label really means that the farmer was treated ethically and was paid a fair price for his products. The consumer can even **track a product back to the source** and learn more about the farmer.



Every "block" in the food chain* is tracked

With blockchain, every stage of a physical product's journey from farm to fork is recorded and verified. This is an example of how blockchain can be used in the food industry.

* This food supply chain has been simplified for illustrative purposes

