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?

A transaction is recorded → The network verifies the transaction → Each block of information is linked to the next

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.

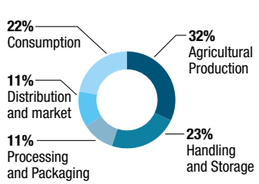
Shared
Multiple stakeholders along the supply chain are able to exchange data.

Accounting (ledger)
There is an unchangeable, verified record of every transaction.

A third of food never reaches consumers

One third of the food we produce for human consumption never reaches a fork, according to the Food and Agricultural Organization of the United Nations. Digital technologies, such as blockchain, and the Bühler Insights IoT platform will significantly help to curb this loss.

Where food loss occurs:



65% of grain is processed on Bühler equipment

Rice, corn, and wheat are food staples that provide 60% of the world's energy 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 packaged product. This puts Bühler in a unique position to support its customers in reducing food loss along the value chain.

Source: Food and Agricultural Organization of the United Nations, PwC, Bühler Group

How can blockchain help the food industry?

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.

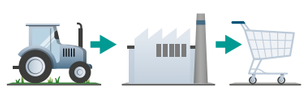
Empowerment for farmers and consumers
Trust and ethics are important to today's consumers, and blockchain allows them to get the transparency they are looking for when it comes to the foods they buy. For example, consumers can trust that a "Fair Trade" label really means that the farmer was treated ethically 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.

Blockchain is transforming big industries

A range of industries are using blockchain to drive greater transparency, including banking, healthcare, charity organizations, the luxury goods sector, and many more.

Maersk and IBM are working with nearly 100 partners on a blockchain shipping solution to improve efficiency and increase global trade security. With this solution, they can track critical data and share it in real time.

3M and Microsoft worked together to introduce tamper-evident labels with blockchain to track the journey of pharmaceutical drugs. This helps prevent counterfeiters from entering supply chains and it safeguards against tampering of any kind. Consumers will have assurance they are getting a safe, genuine product.

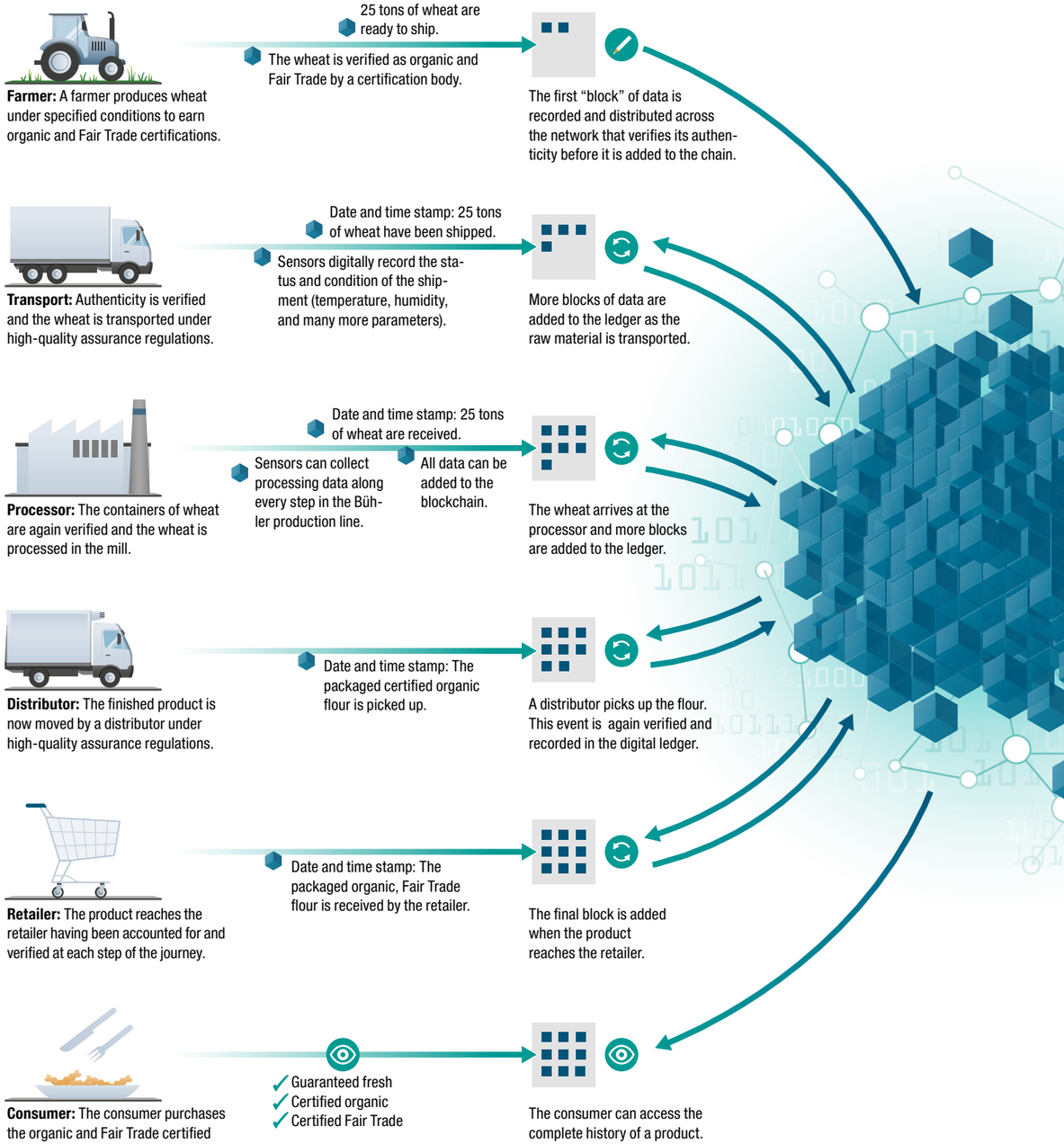


Bühler and Microsoft are working together on the development of a blockchain solution that will increase food safety and transparency across the food value chain.

Every "block" in the 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*



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