SIEMENS
Ingenuity for life

Food & Beverage

Trusted Traceability

Blockchain and the Internet of Things

Challenges, old and new

1 in 10 people globally fall ill from eating contaminated food each year [i]

Counterfeiting is expanding by 15% each year, costing more than 2% total global economic output [ii]

Consumers avoid brands for an average of two years following a bad experience and share ex-periences on social media 45% of the time [ii]

Globally, 61% say they try to buy products from brands that act respon-sibly, even if that means spending more [iii]

The best of both worlds

The introduction of blockchain technology has already seen wide-spread impacts in the financial industry. As the technology matures it now seems ripe to tackle chal-lenges the Food and Beverage industry has long faced, such as: recalls due to contamination, counterfeiting, and meeting new consumer trends.

Previously, the challenges of col-lecting and transferring data to the blockchain in industrial environ-ments has threatened its feasibility. However, with the prevalence of internet access, cloud computing, and the decreasing cost of the Internet of Things (IoT), it is now possible to generate, manage, and communicate data effectively.

In combination, blockchain and the Internet of Things have the ability to generate immediate benefits and revolutionize Food and Beverage supply chains.

[i] WHO, *Food Safety* (2017)
[ii] Net Names, *Counting the Cost of Counterfeiting* (2015)
[iii] Ipsos, Global Trends: *Fragmentation, Cohesion & Uncertainty* (2017).

Digitalizing the supply chain

Siemens cloud-based platform – MindSphere – provides the perfect means to capture data across supply chains.

Ready-made blockchain applications on MindSphere make it easy to subscribe and contribute. These applications also allow companies to limit information viewing privileges. In this way, sensitive information can be kept behind closed doors, while exposing only critical information to other members of the supply chain.

Data from shop-floor systems, equipment, and IoT sensors are packaged and sent through Secure Cloud Gateways to the blockchain.

Siemens is actively developing both modules for its existing software and custom IoT sensors to send data directly to the blockchain.

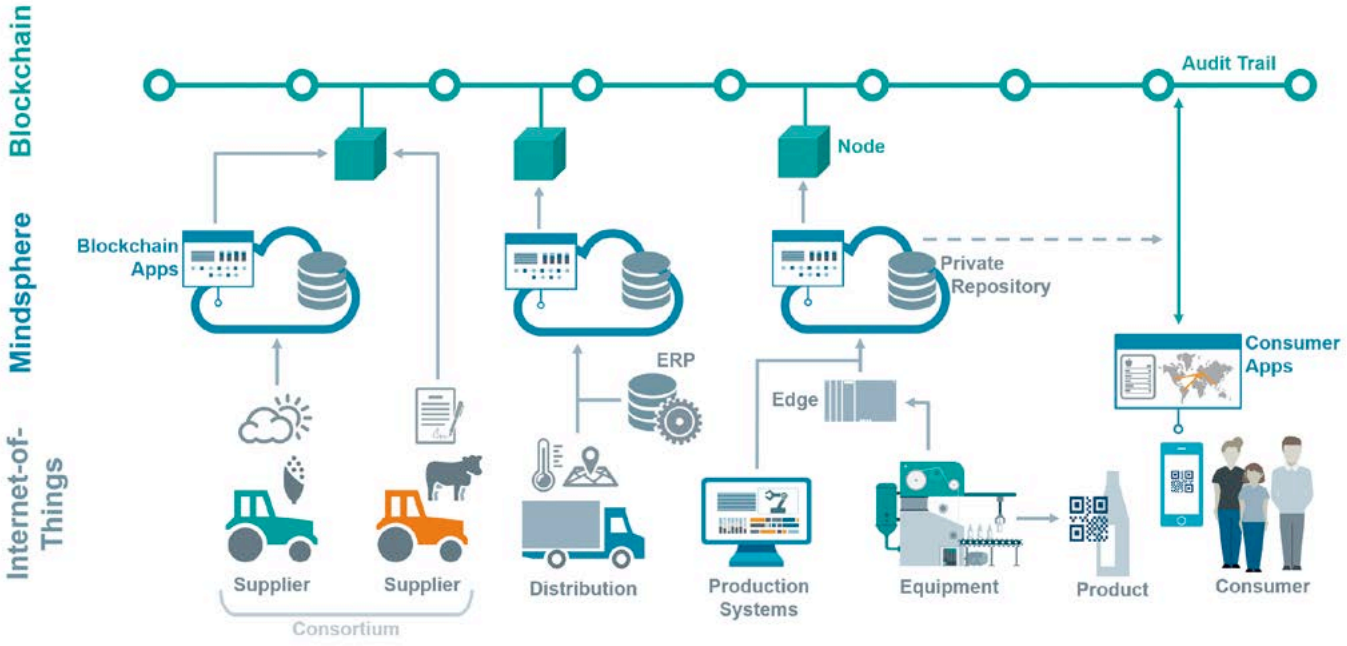
Realizing the benefits

A recent Boston Consulting Group (BCG) analysis that compared an IoT-plus blockchain solution to an IoT solution without blockchain could, "achieve net savings equal to 0.6% of revenues," on logistics and storage alone. Largely, these benefits are driven by real-time traceability combined with smart contracts, allowing for improved inventory holding, brokerage fees, fraud prevention and more.

As blind spots in the supply chain are further illuminated, a full traceability record can be built. This record can reduce recall periods and enable better root-cause analysis.

Leveraging custom rules and smart contracts, brand owners and consumers can validate product authenticity or other important claims using data from the blockchain.

Furthermore, MindSphere is equipped to handle any source of data, including: consumer feedback, weather forecasts, ERP reports, etc. By combining new data written to the blockchain with these systems and applying advanced analytics capabilities offered on the platform, completely new insights can be achieved.



BCG, *Pairing Blockchain with IoT to Cut Supply Chain Costs* (2018)

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