



The emerging blockchain economy for food

Blockchain and radical transparency
for growth in the food industry



New technologies shift transparency for compliance to radical transparency for growth

As a technology, blockchain is still regarded to be in its infancy. The transparency that current blockchain solutions offer is a good start, but companies are capturing only a small fraction of potential value. As blockchain technology evolves, it has the potential to create disruption across the food value chain. Traditional

business models focused on providing value-added products/services in areas of the value chain, which were once considered critical, will likely shift to new forms of collaboration, partnerships, and investments, creating new opportunities to improve product quality and reduce systemwide food waste.

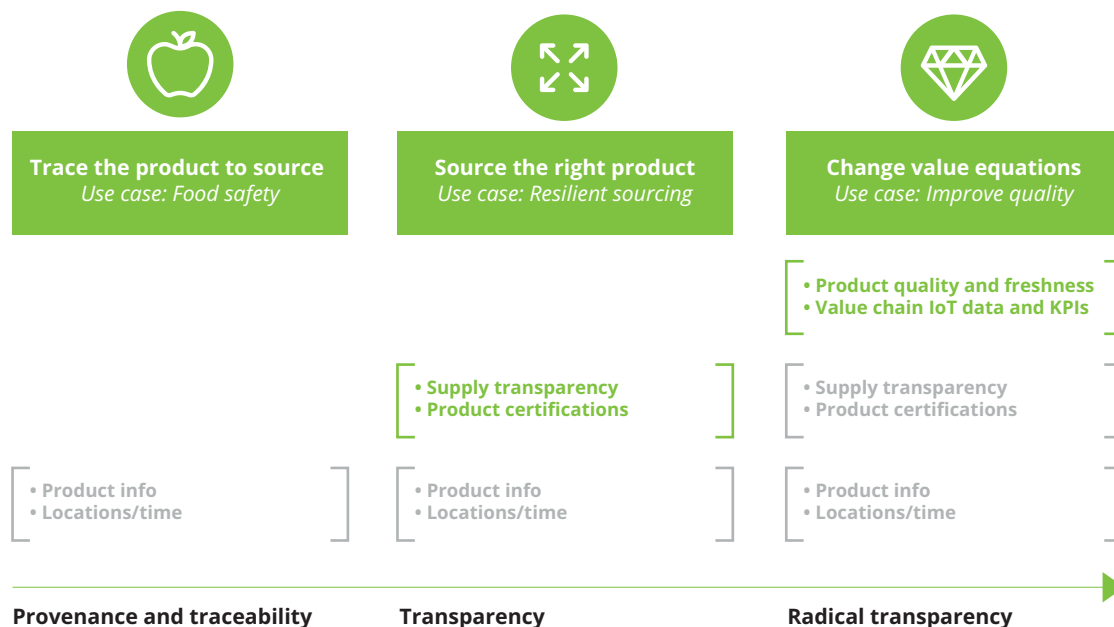


What is radical transparency?

Radical transparency is the concept of providing insights about a product or service that was previously unachievable through traditional means of data sharing. This could be because the data did not previously exist or was intentionally withheld, at a level of detail

or frequency required to influence actions prior to performing a transaction. As blockchain makes new information seamless and secure, it also creates the potential to disrupt established food markets and unlock a series of new value creation opportunities.

Identifying and collecting additional data can increase the value of blockchain as solutions move beyond traceability



What market characteristics make radical transparency valuable?

Most industries already embrace the idea that transparency can lead to better collaboration and value generation. However, there are still organizations that remain skeptical of solutions that don't deliver promised results for all participants. This means that technologies, such as blockchain, that have the potential to create valuable and radical transparency should be applied strategically and with the goal of creating benefits for the end-to-end value chain.

Food markets with the following characteristics can provide the best opportunities for creating value:



Responsible sourcing challenges:

Global food supply chains struggle with fraud, corruption, false claims, and gray-market trading. Transparency and traceability allow companies to confidently make product claims. Adding radical transparency opens the potential for increasing value. In practice, transparency helps to verify that the fish purchased is in fact tuna, while radical transparency can tell you it's "fresh" or certified (e.g., Marine Stewardship Council) tuna (and so much more).



Information asymmetry:

Food markets that have structurally evolved so the participants that are closer to the products' origin (i.e., harvest, rearing, catch) have significantly more information about the future quality than subsequent buyers. These participants may willingly or unwillingly refuse to share information, leading to suboptimal market efficiencies. With the introduction of radical transparency, buyers may choose to make different purchasing decisions, or focus on more relevant product attributes, such as quality (i.e., taste, shelf life, grade), rather than quantity. For example, suppliers will utilize the solutions to segment their products by quality and freshness, and charge price premiums for higher quality segments to increase revenue.



High-performance variability:

Operational and product handling activities by value chain partners, which inject variability into the current supply chain, are not easily attributable or captured in current product pricing. Segments of the end-to-end food supply chain (i.e., growers, distributors, 3PLs) may be continually performing poorly without repercussions since it's impossible to pinpoint the root cause of the quality issue. With radical transparency, a mishandled product might be rejected at the point of origin, prior to ever shipping, as all value chain participants would know the product will be rejected by end-market customers.

How do organizations work with value chain partners to create additional value?

The grocery industry has evolved so that participants have specialized, creating value from the information asymmetry that existed, and therefore defining the rules of the game. The introduction of radical transparency, enabled by blockchain solutions, will likely impact the way that food products are sourced, priced, and delivered.

Supplier and customer collaboration, such as joint business planning, are not new concepts in the grocery industry. In fact, organizations will mostly agree that it creates mutually beneficial opportunities for all parties involved and serves the end customer better. However, sharing information, tracking progress, and measuring benefits can be very challenging for each partner.

Blockchain solutions can not only flow the information captured across the food supply chain (i.e., sourcing location, PTI labels, shipped quantity, perceived quality), but can also store and transact data from cutting-edge IoT and ERP solutions, providing opportunities to make information actionable. Since value is only created when new actions are taken, organizations can introduce transparency in new partnership models to capture this value.

New solutions can change the value equations of food products for suppliers, retailers, and customers

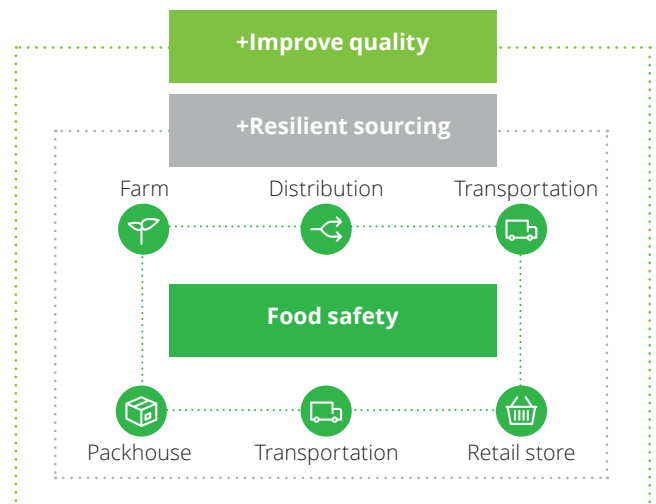
+Change value equations

Capabilities

- Track, move, and pay suppliers based on the product quality and freshness
- Reduce variability in the supply chain by next-gen partnerships with suppliers and 3PL vendors
- Dynamically price product based on freshness and quality

Value

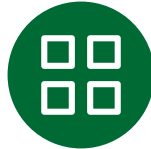
- Consistent customer experience
- Grow topline and improve margins
- Create value by reducing value chain inefficiencies





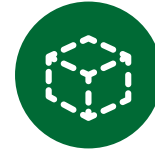
Next-gen partnerships:

Partnerships between value chain players can capitalize on the value created by reducing information symmetry. The industry can push for concepts such as freshness-based contracts, rather than quantity-based contracts. Since food quality and freshness perception currently drive product value for end customers, the grocery industry has the opportunity to align value chain compensation on product attributes that are most relevant to customers. Blockchain solutions can allow partners to share freshness KPIs, from IoT sensors, and develop new grading and pricing guidelines, prior to transactions occurring. This creates win-win solutions for the entire value chain, as buyers can now source and pay based on quality. Leading value chain players can develop enhanced joint business planning programs where better performance is more accurately tracked and rewarded.



Co-investments:

As transparency increases with blockchain solutions, partners can explore opportunities to improve their operational and financial performance by making investments based on data that was previously unknown. This means a future retailer might be able to identify suboptimal cold chain performance from their suppliers and co-invest in shared mobile cooling units to improve product quality during peak seasons when suppliers suffer from inadequate precooling throughput.



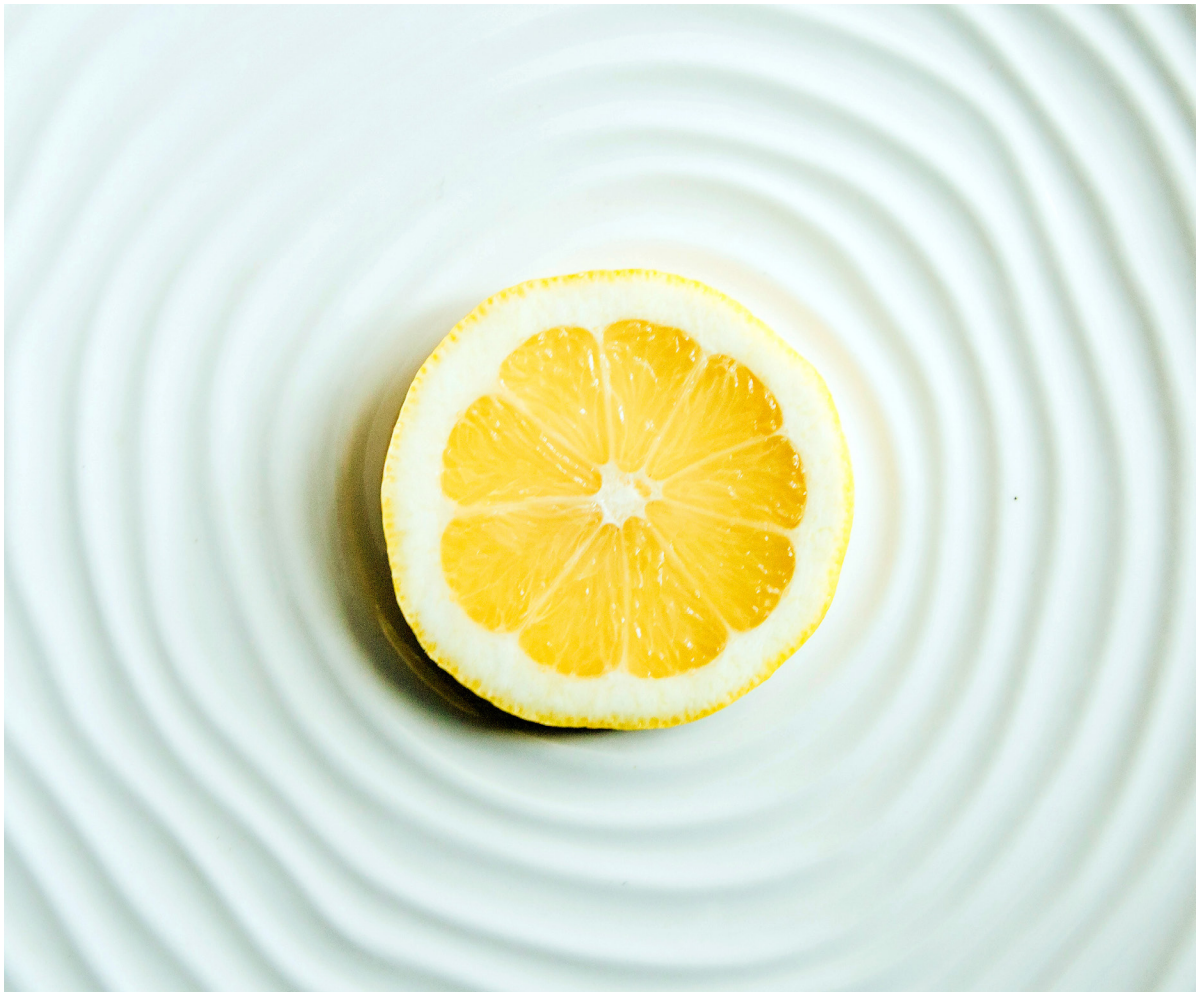
Virtual vertical integration:

Historically, organizations vertically integrated to gain control and mitigate market and operational risks. With the introduction of radical transparency, a new type of integration is possible. Virtual vertical integration could create opportunities for organizations to exert control through compliance and incentives, in a similar way to vertical integration, without having to take operational control. Once organizations have the ability to see quality, quantity, and product velocity across the value chain, they can plan better and proactively manage risk, resulting in improved product quality and reduced food waste for the entire industry.

New business models emerge in the era of radical transparency

Blockchain solutions can reduce market inefficiencies to create more value. Many inherent inefficiencies, such as food waste, are considered a “cost of doing business,” but blockchain solutions such as “smart contracts based on freshness” can reduce total industry costs and create new sources of value. New market entrants could offer

“freshness management services,” and “product-buyer matching.” These new business models, enabled by blockchain, IoT, and ERP solutions, can potentially connect the grocery value chain to a new, digitally defined industry-performance standard.



Getting started

Deloitte helps clients explore every aspect of blockchain and builds tailored solutions designed to deliver value. Through architecture, digital design, and development, we serve our clients in their quest for innovative blockchain solutions that are market-ready and address real business issues.

Contact

Kyle Tanger

Managing Director
US Lead Environmental Sustainability
Deloitte Consulting LLP
+1 571 239 3360
ktanger@deloitte.com

Andrew Feinberg

Principal
Deloitte Consulting LLP
+1 561 310 4109
anfeinberg@deloitte.com

Josh Mellinger

Senior Manager
Deloitte Consulting LLP
+1 713 828 6036
jmellinger@deloitte.com

Mayank Agarwal

Manager
Deloitte Consulting LLP
+1 617 620 7276
mayanagarwal@deloitte.com

Additional Contributors

Alura Vincent and Katrina Goulden







This publication contains general information only and Deloitte is not, by means of this publication, rendering accounting, business, financial, investment, legal, tax, or other professional advice or services. This publication is not a substitute for such professional advice or services, nor should it be used as a basis for any decision or action that may affect your business. Before making any decision or taking any action that may affect your business, you should consult a qualified professional advisor.

Deloitte shall not be responsible for any loss sustained by any person who relies on this publication.

About Deloitte

Deloitte refers to one or more of Deloitte Touche Tohmatsu Limited, a UK private company limited by guarantee ("DTTL"), its network of member firms, and their related entities. DTTL and each of its member firms are legally separate and independent entities. DTTL (also referred to as "Deloitte Global") does not provide services to clients. In the United States, Deloitte refers to one or more of the US member firms of DTTL, their related entities that operate using the "Deloitte" name in the United States, and their respective affiliates. Certain services may not be available to attest clients under the rules and regulations of public accounting. Please see www.deloitte.com/about to learn more about our global network of member firms.