Consumer Behaviour: Did it change?

**From**
- Lowest Price
- Always Available
- No “out-of-stock”

**To**
- TRUST
- Health/ Ethical
- “Enough”
- Reasonable Quality

**Values**
- LOCAL
- ETHICS
- ORGANIC
- SUSTAINABLE
Blockchain & Food Traceability

90% of consumers would **buy more** food if they can trace it. 89% are willing to **pay more** for it:

**Key data**
- 50 initiatives identified
- +61% in 6 months (+19)
- 30% based on IBM Food Trust

Source: Choe, Park, Chung, Moon, "Effect of Food Traceability System for Building Trust: Price Premium and Buying Behavior", 2009
Blockchain’s characteristics come together to create a more trusted, transparent and efficient data-sharing platform.

And that can make for a smarter, safer, more sustainable food supply for us all.

Data on the blockchain is replicated, shared and synchronized among parties on a **distributed ledger** without the need for a central administrator.

Once data is entered, it cannot be deleted (unlike data in a database). Edits can be made only by appending new or updated information. With blockchain, you have a permanent record or audit trail of all data entered and edited.
IFT Data

At its core, IFT relies on the GS1 data standard, in particular:
✓ EPCICS events
✓ GS1 XML
✓ GTIN/LGTIN/SGTI master data
✓ GL locations

“I really had an “aha” moment once I deeply understood the technology. I had been hesitant about creating yet another traceability system – the ones we had tried in the past never scaled. Now I understand that was because they were centralized databases. Blockchain, with its decentralized, shared ledger felt like it was made for the food system!”

– Frank Yannis, former Vice President of Food Safety, Walmart
Value of the Food Trust network

**Certification Bodies**
- Reduce fraudulent certificates
- Increase renewal speed

**Food Manufacturers**
- Build loyalty and engagement
- Manage inventory in real-time
- Automate & reduce manual certificate management
- Instill trust between retailers, suppliers & customers

**Wholesalers / Distributors**
- Manage inventory in real-time
- Conduct targeted recalls
- Enable internal data sharing

**Food Logistics**
- Manage inventory in real-time
- Enhance ability to meet compliance standards
- Reduce manual processes

**Food Retailers**
- Strengthens consumer relationship and increase brand loyalty
- Assure customers food is safe
- Conduct targeted recalls
- Extend shelf-life

**Food Service**
- Certify food sourcing practices
- Ensure safe food
- Reduce food waste

**Consumers**
- Understand and trust their food better
- Learn about and act on recalls quickly
- Reduce food fraud victimization

**Growers**
- Prove sustainable growth practices
- Satisfy compliance requirements and connect with consumers
- During a recall, show that farm is not source of contamination
- Ease of connectivity to the downstream supply chain

**Regulators**
- Identify contamination quickly
- Reduce unnecessary testing
Consumers demand more information on food than ever before
Retailers lack easy access to this information and ways to share it with consumers

Results & Implications
- Improved brand trust and stronger relationships with consumers
- Plans to roll out to all quality brands globally by 2022

"Complicating this investigation, the majority of the records collected were either paper or handwritten." - FDA Commissioner on 2018 romaine lettuce E. Coli outbreak

- Large amounts of data are collected during audits but never used because they are not documented and shared

Results & Implications
- Audit data was digitized, secured, permissioned, and shared via blockchain
- Opportunities for new analytics and insights on compliance data
- Product data replaces brand loyalty as primary driver of consumer decision making
- Full supply chain visibility is difficult because of food supply chain complexities

Results & Implications
- Fuller visibility into supply chain, especially across tiers, nations, suppliers, etc.
- Audit data was digitized, secured, permissioned, and shared via blockchain
- Opportunities for new analytics and insights on compliance data
- Data needs to be at right level of granularity for particular insights (e.g., surgical recalls require data by lot)
- Harvest data is hard to capture and incorporate into the supply chain

Results & Implications
- Strawberry harvest data was captured at the lot level
- Store-level data was shared back to farm/supplier at the lot level for the first time
- Opportunities for new data analytics and insights
Nestlé & Carrefour announce consumer access to Mousline (April 15, 2019)

New QR code + smartphone scan + blockchain data

En images

Journey of the product from the Nestlé factory north of France to Carrefour stores

Agriculteur partenaire
Jean-Luc, installe à 28 km de l’usine

Fabrique en France, en Sarthe
Votre produit a été conditionné sur la scie de production A et mis dans son étui en carton recyclé fourni par GPT.

Contrôle qualité
Validation de la conformité du lot le 27/03/2019
Par Laura

Cette purée est passée par 4 étapes de contrôle :
1. À la réception des pommes de terre
2. Au cours de la fabrication du flocan
3. Au cours du conditionnement
4. En laboratoire (poids, couleur)

Stockage et distribution
Récupération dans les entrepôts Nestlé à partir du 27/03/2019

Envoi vers les entrepôts Carrefour à partir du 01/04/2019

En magasin
Food fraud is on the rise. With complex supply systems, and a global lack of transparency we are seeing too many examples of mislabeling and poor quality products entering the marketplace,” Retailers around the world will be able to see this data and trace it in every stage so that they can ensure the quality of the shrimp, including confirmation it is zero antibiotic approved and certified to the Aquaculture Stewardship Council (ASC) Standard, and with neutral impact on local water quality.

IBM Food Trust has a rich set of APIs to deepen the ecosystem and grow its value for our clients and partners.

Primary Client Use Cases
- Consumer engagement
- Supply chain management
- Inventory management
- Freshness and shelf life extension
- Operational efficiency
- Dispute resolution

Third-Party Integrations
- Smart contracts
- Consumer apps
- Supply chain management apps
- Temperature monitoring
- Industry group applications

Results & Implications
- Increased efficiency
- Stronger inventory oversight and improved quality management
- Instant traceability and more precise recalls

Today, cold chains are not fully optimized to preserve food quality and extend shelf life.

Restaurants are increasingly competing on freshness.

Willingness to create a sustainable coffee industry by addressing fair wages to farmers and personalized consumer engagement to the brands.

Results
Production-ready circular economy platform. Blockchain knitting together the physical, document, and transaction layers.

The consumer APP provides access the point of origin of the coffee’s supply chain & allows the consumers to “tip” the farmer or donate to the local village for schools, clean water, solar panels, and other programs.
**Food safety**
Trace food instantly – with end-to-end supply chain data visibility – to help ensure food safety and regulatory compliance.

**Supply chain efficiencies**
Access a shared and immutable digital ledger in real time – rather than ink on paper – to find choke points and uncover opportunities to speed your supply chain.

**Food freshness**
Gain instant and efficient food tracing from source to consumer to more accurately judge peak freshness and remaining shelf life – and reduce product loss.

**Sustainability**
Rely on shared data and an immutable ledger to help ensure the promised quality of products and that food comes from a sustainable source.

**Brand trust**
Gain a competitive advantage as you add transparency and specificity about the sourcing of your food products. Build trust in the safety and quality of your brand.

**Food waste**
Identify waste hot spots and speed responsiveness using better visibility into your food supply chain. Reduce costly food waste and boost your bottom line.

**Food fraud**
Data-sharing across the food supply helps eliminate chances for fraud and errors – and can help preserve the integrity of raw materials, products, and packaging.
IBM