Walmart & Tracking Food

We are lucky enough to live in a world where food is often easily accessible year-round, in both abundance and variety. But have you ever walked into a grocery store in the middle of winter and wondered where those strawberries are coming from? It turns out, it might take your grocery store a long time to discover the answer to this question if you asked it.
In the past five years, however, Walmart has teamed up with their technology partner IBM and used blockchain technology to bring more transparency to their food chains. Blockchain technology is becoming an increasingly popular way to track products from their source, through production, to the hands of the consumer.

"Agricultural workers sort lettuce as it comes in from the field"
https://corporate.walmart.com/newsroom/2018/09/24/in-wake-of-romaine-e-coli-scare-walmart-deploys-blockchain-to-track-leafy-greens

Why is this type of technology important, or even relevant, for food? Let us consider a real-life example to answer this question: in 2018 E. coli cases began popping up in unusually high numbers in the United States. The Food and Drug Administration (FDA) quickly linked the outbreak to Romaine lettuce. However, tracing where this specific batch of Romaine lettuce came from was extremely challenging. It didn't take long to trace the lettuce to Yuma, Arizona, one of the biggest lettuce-growing areas in the US. But where was the specific farm where the outbreaks began? Without that knowledge, the FDA was unable to do a successful recall and take the lettuce that had potentially been infected off the market. In addition, knowing that the lettuce originated from Yuma was not enough information for consumers either. Without the source of Romaine lettuce written on packaging, and without resources for grocery store employers to answer the question, millions of Americans across the US simply threw out their Romaine lettuce.
A public health issue grew to also be a food waste issue simply because we lacked a system with which to track our food.

Walmart tested the possibility of using blockchain technology to solve this tracing issue in 2016 with a batch of mangoes. First, they tested how long it would take without the technology to discover the source of a pack of mango slices: after seven days of typing and researching and tracking, employees finally had the answer. Next, Walmart spent time with their partners designing the technology and creating protocols that require suppliers to start using new labels and uploading their data through a web-based interface. When the project was complete, a pack of mango slices was able to be tracked in 2.2 seconds to its source. With success in this first case study, Walmart began to envision an expansion to other products and do the same thing. Now if a situation similar to that of E. coli were to arise in one of these tracked products, it would not take long to know which ones needed to be pulled off the shelves and which ones would still be safe for customers to buy. Since this original case study, Walmart has expanded to trace 25 products from 5 suppliers and is now working on requiring all of its leafy green suppliers to trace their products using this technology as well.
Using blockchain technology to improve the transparency of the complex food supply chain is beneficial for all the parties involved in multiple ways. It builds trust between Walmart and their customers

[1] *https://www.npr.org/sections/thesalt/2018/08/29/642646707/investigators-track-contaminated-lettuce-outbreak-to-a-cattle-feedlot*
[2] *https://www.hyperledger.org/learn/publications/walmart-case-study*

by ensuring that if something were to happen, Walmart has a system in place to respond quickly. It also helps suppliers of food by ensuring that health crises could be identified early on and therefore dealt with in an efficient manner, again building trust along the supply chain. Lastly, this ability to trace by using technology decreases the overall cost of traceability. Before this development, employees needed to spend days, sometimes weeks, tracing a product. By building in the data from the start and decreasing the time it takes to trace products, the price of disaster is decreased when something like the E. coli event happens.

"Walmart is changing the way we track our food systems"
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This project is still in its early stages and there are endless possibilities for the ways in which it could expand. First, Walmart is working to extend this tracking system to more of its items in the store, including meat and certain packaged foods that include multiple ingredients, like baby food. Next, they are considering going beyond the very basics of tracking our food (the journey from source to store) and also tracking sustainability data, such as water and pesticide use on produce, or emissions calculations on the transportation of this produce to the store. If this data were able to be tracked and easily shared with consumers through an phone application or some other form, the way we consume food could be transformed. Consumer's would have the ability to choose foods, especially produce, based on more criteria than simply organic or non-organic. Those wishing to consume their produce more responsibly could begin to make greater influences in the economics of agriculture by supporting the items they believe in, rather than blindly picking without knowledge of the source. If large groups of consumers came together when picking produce based on this data, they could even become drivers of the market.

Similar to Everledger's case study, Walmart's tracking system incorporates components needed for implementing Full Material Responsibility (FMR) in our economy. With FMR, the entity extracting a nonrenewable resource from the earth remains responsible for this resource throughout its entire lifetime. Walmart doesn't go so far as to continue to keep suppliers of produce responsible for its use once customers have bought it, but their technology does open the door for greater accountability in the future. By tracking the source of our produce, we are able to build a future where workers and farms are given accurate credit for their work when produce is exceptional and held accurately responsible in cases such as the 2018 E. coli outbreak. This work that Walmart has started shows us how even something that is consumed as quickly as food has a role to play in a FMR economy.

Full Material Responsibility

Full Material Responsibility is a principle that can guide the transformation to a circular, smart service economy with zero waste.

- *Find out more about FMR here:*
  https://www.leave-it-in-the-ground.org/full-material-responsibility/"
- *More information on this case study:*
  https://www.hyperledger.org/resources/publications/walmart-case-study