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Blockchain: Accelerating Traceback Investigations in Food Poisoning Outbreaks

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Statement of the Problem: International food supply chains have made tracing contaminated food products back to their source difficult and time-consuming. Once a contaminated food product has been identified, investigators must first retrace its journey backwards from the retailer through one or more distributors to its original manufacturer, farm, or ranch. Once investigators have discovered the original source, investigators must then reverse course and trace the product's route forwards through the supply chain this time from farm to manufacturer, through distributors, and to all of its ultimate retailers. Currently, traceback investigations can take weeks or even months. Traceback investigations are complicated because: (1) there is no single database for tracking food products through supply chains from their original source to their ultimate consumers; (2) not all supply chain information is digital and critical supply chain information exists only in paper documents; (3) paper documents must be physically gathered to reviewed by investigators; (4) our food supply chains are now international, with food products routinely shipped from farms in one country to markets in another country or continent; (5) often investigators live in the market country, not the country of the product's origin; (6) there may be language or interpretation barriers; and (7) the food supply chain has grown so complex that some retailers have great difficulty in guaranteeing the provenance of the food products they sell.

Blockchain's Application to Supply Chain Management and Food Safety: Blockchain technology creates a way for investigators to rapidly trace contaminated food products backwards from fork to farm and then forwards from farm to fork. Traceback investigations that currently take weeks to months could be completed in minutes. By accelerating traceback investigations, blockchain technology can lead to much more rapid product recalls, reduce the spread of outbreaks, and ultimately, to fewer consumers being injured by contaminated food products.

Blockchain Explained: A blockchain is simply a continuously growing list of records (called "blocks"). Once data is recorded in a block, the data cannot be changed without also changing all subsequent blocks in the chain. This means there is a permanent, unalterable record. The blocks exist on a distributed ledger in which the records are distributed through a vast network of computers spanning the globe. This permanent, unalterable record can be accessed from anywhere on the planet. Industry Experiments With Blockchain in Traceback Investigations: In May of 2017, Walmart reported the results of its collaboration with IBM on blockchain technology. Using blockchain technology, Walmart traced Chinese pork and U.S. mangoes back to their original sources. This traceback process, in the past, would take two weeks. But with blockchain technology, the traceback took 2.2 seconds. Walmart, Nestle, and Unilever are currently collaborating with IBM to apply blockchain to the global food supply.

Biography

Jory Lange became a lawyer to help make our communities safer. Jory helps families who have been harmed by large corporations. Through his cases, Jory works to deter corporations from harming other families in the future. After 14 years of practice, Jory has wide-ranging experience in litigating cases involving dangerous products. As co-lead of Robins Cloud's Food Safety team, Jory helps victims of food poisoning. Jory grew up in San Antonio. After graduating with honors from the University of Chicago, he earned his law degree at the University of Texas School of Law. While at the University of Texas, he was awarded the Deans' Achievement Award for achieving the highest grade in Constitutional Law I. Jory lives in Houston with his wife and their four daughters, and their dog and two cats.

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