

ADDRESSING FSMA COMPLIANCE WITH THE INTERNET OF THINGS

MAY 2018 TECH BRIEF FOR THE FOOD SERVICES TALENT NETWORK



Leveraging Technology to Protect the Consumer

In the early 20th century, food distribution systems in the United States were simple and centered on the area farmer. Families shopped local, bought fresh, and ate very close to their food supply. Issues related to product spoilage, tampering, handling, and packaging were literally nonexistent.

Then, as the population grew and became increasingly urbanized, food sources of necessity became more centralized, and were driven to mass production to meet increased demand. The advent of the chain store, retail co-op, and supermarket gave urbanites convenient access to staples, as well as additional product diversity. But, alongside the benefits this new shopping dynamic provided, issues began to arise as control over product handling, storage and management was necessary to maintain proper food safety. The question now becomes how can the effective deployment of technology be used to meet this growing need? How can this translate into jobs for the workforce?

Labor Force Takeaway

This is an issue that is presently not fully addressed with workforce. The need for supply chain tracking is high due to regulatory requirements, but it has been heretofore managed as a manual, add on function to be completed by existing workforce members, usually those already tasked with the physical distribution of product.

Technology is available to handle the data gathering and grouping, but jobs will need to be created to analyze data trends that are gathered, and subsequently act upon them to ensure the ultimate safety of the consumer.

Certifications in top industry software packages, like FoodLogiQ, FacilityDude, and Esko's WebCenter (which assists in SQF Level III certification) can be highly beneficial to associates seeking roles in this area. (www.packworld.com)

FSMA Compliance and the Internet of Things

In 1937, when 105 people died after taking an over the counter medicine called Elixir, formal Federal legislation was finally enacted. Ingredients not completely disclosed via labeling caused renal failure in certain patients. This led to the Food and Drug Cosmetics Act of 1938, which gave the Food and Drug Administration the needed power to monitor and control the safety of these distributions to the American public. For a time, consumers could again be confident in the safety of the food and drug supply.

As demand for items continued to increase, however, the pressure on the logistics channel from farm to table were directly proportional. After the attacks on the World Trade Center in 2001, the threat of bioterrorism elevated concerns further, and the Bioterrorism Act of 2002 empowered the FDA to take additional steps to protect the US Food Supply.

But it was not enough. Major food recalls in 2007, 2008, 2009, 2011 due to various infectious bacteria, including but not limited to salmonella, e. coli, and listeria, each costing an average of \$2B, and impacting anywhere from a few thousand to over a million consumers, drove necessary legislative action. Today, the Food Safety Modernization Act (FSMA) of 2011 has promulgated a major paradigm shift in focus from responding to food borne illnesses, to preventing them (see FSMA Final Rule: Amendments to Registration of Food Facilities (/Food/GuidanceRegulation/FSMA/ucm440988.htm) July 2016).

Specifically, FSMA provides assurances that food is handled, stored and managed according to approved guidelines to ensure safety. It states that any facility engaged in the manufacturing, processing, packing or handling of food for consumption shall submit regular registration to the FDA, and enable the FDA and its agents to inspect at will. If a facility is found not to be in compliance, the FDA also reserves the right to suspend the registration of the facility that caused, had part in, or had knowledge of any issue resulting in serious adverse health consequences to humans or animals due to improper handling.

FSMA puts the burden of proof of food safety directly on the purveyor, who bears all the liability of the entire supply chain.

Already operating on razor thin margins, food manufacturers must now find ways to track and manage food safety as products move through various stages of processing to the final consumer.

Consumers are also demanding more information about the products they buy. They want to know if products were grown locally, whether they were treated with certain sprays, how they were handled and packaged, and so on, as “clean eating” and “allergen free” has been added to the list of wants and needs.

The “Internet of Things” and increased machine to machine communication will be essential to the successful resolution of this issue. By adding chip technology to containers, trucks, and ships carrying products, real time data on temperature, handling, and nutrient additions can be passed from handler to the end purveyor via data management systems, thereby giving access to critical information as it moves through the system. Without the expensive and time-consuming intervention of humans, this data can be affordably gathered and managed, and even represented on

packaging via a QR code or other scannable, making that same information at summary level available to the end consumer.

In summary, effectively selected and deployed, emerging technologies like the Internet of Things and chip/smart sensor technology, can take the tracking and managing of essential data down to the elemental level in a time sensitive manner, lending the necessary confidence in proper food handling that is both difficult and costly to gather and interpret manually today. Analyzing and managing this data will require a new group of data knowledgeable employees to drive compliance, and make the nation's food supply safe for consumption.