PRIMUS | A SMARTER APPROACH TO FOOD SAFETY

On July 13, 2020, the Food & Drug Administration (FDA) announced The New Era of Smarter Food Safety Blueprint. These guidelines build on the Food Safety Modernization Act (FSMA), which was signed into law on January 4, 2011. To understand the nature of the New Era of Smarter Food Safety, it helps to review at a high level its predecessor, FSMA.

FSMA OVERVIEW

Signed into law by President Obama, FSMA was described as "the most sweeping reform of our food safety laws in over 70 years." Recognizing that 1 in 6 Americans are affected each year by foodborne disease, FSMA had an overarching goal of enabling FDA to better protect public health by strengthening the food safety system. It allowed FDA to focus more on preventing food safety problems rather than reacting to problems after they occur. Provisions included:

- New enforcement authorities designed to achieve higher rates of compliance with prevention- and risk-based food safety standards
- Stronger response to and ability to contain problems when they occur
- New tools to hold imported foods to the same standards as domestic foods
- An integrated national food safety system in partnership with state and local authorities
- Authority for FDA to conduct inspections and ensure compliance

FSMA established these lofty goals with the intent of enacting detailed measures later. Penn State University provides a simple high-level overview of FSMA on YouTube:

https://www.youtube.com/watch?v=lc5Cli0H76k

THE NEW ERA OF FOOD SAFETY BLUEPRINT

The New Era of Food Safety Blueprint builds on FSMA, and, like its predecessor, it is highly ambitious in scope and vision. It serves as a guideline, not a definitive playbook. The intent is to populate this framework document with detailed procedures, processes and measures over the next 10 years.

OVERVIEW

Issued on July 13, 2020, the Blueprint outlines the approach FDA will take over the next decade to usher in the New Era of Smarter Food Safety. FDA has recognized that the processes by which food moves from farm to fork have changed dramatically in recent years, as non-traditional players have been introduced into the supply chain and are handling food products (think DoorDash, Uber Eats, etc.). Likewise, the nature of the food product itself is changing with engineered foods and cell-based food products, among others. The recent focus on buying local introduces smaller food producers into the mix. And the COVID-19 pandemic has created unprecedented imbalances in the market, changing consumer behaviors and reinforcing omnichannel food distribution, including a significant rise in e-commerce. It's no surprise that during a food revolution, regulatory changes are not only appropriate but essential to food safety. FDA's tagline is revealing:

> "The New Era of Smarter Food Safety is people-led, FSMA-based and technology-enabled."

FDA describes the Blueprint guidelines as those that build on FSMA's risk-based, prevention-oriented regulatory framework, and that are in harmony with the seven building blocks of FSMA. Susan Mayne, Director of FDA's Center for Food Safety and Applied Nutrition, adds this: "We are not walking away from, nor are we replacing, FSMA. Instead, we are building on the progress we have made in implementing this landmark law."

The four core elements of The New Era of Smarter Food Safety Blueprint are:

- Tech-Enabled Traceability
- Smarter Tools and Approaches for Prevention and Outbreak Response
- New Business Models and Retail Modernization
- Food Safety Culture

TECH-ENABLED TRACEABILITY

The records involved in moving food through the supply chain are still largely paper-based. During an outbreak of foodborne illness, this can cost time, lives, millions of dollars in product loss and damage to consumer trust. The food industry is in an interesting place. There is sophisticated consumer data collection and analytics at the supermarket level, but less rigorous systems in place at the farm and various points along the production and supply chain. The quality and reliability of this data – and our ability to manipulate the data to prevent foodborne illness from propagating – is highly variable. Think of the disparity of technology and record-keeping between smartphones, shopper loyalty cards and bar-code food tracing versus paper bills of lading, order-picking and QC inspections. This first core element seeks to move toward a technology-oriented database where AI systems can analyze tremendous amounts of data and alert consumers and producers to risks.

Imagine a scenario where heavy rains in certain parts of the world cause sewer overflows to impact the groundwater used to grow food. Now imagine predictive data analytics which notify the producer to conduct immediate testing of water and food product. It then goes on to issue notifications to sellers to reject delivery of products between certain dates of production. Finally, it locks cash registers to prevent sales of product from that area or producer for a specified period of time. Although this may sound far-fetched, parts of it are already in use in industries such as medical devices and pharmaceuticals. FDA's goal is to grow the food supply database to mine and utilize its information in a similar way.

SMARTER TOOLS & APPROACHES FOR PREVENTION & OUTBREAK RESPONSE

Major components of this second core element include:

- Strengthening the root-cause analysis in response to foodborne outbreaks
- Advancing FDA's predictive analytics capabilities
- Ensuring a framework for state and federal information-sharing and mutual reliance
- Development of inspection, training and compliance tools including 3rd-party audits
- Modernized process of food recall information and notification.

While it's easy to get lost in the language, this element boils down to improving tools and improving cooperation. Improving the data tracking and applying analytics to that data facilitates root-cause analysis as well as forward-pointing safeguards and notifications. Improving the cooperation between federal and state levels not only enhances the FDA database, it allows fast access to implement local solutions. The internet is universal, and eliminates state lines.

NEW BUSINESS MODELS & RETAIL MODERNIZATION

FDA has recognized that the changing food industry has created supply chain and delivery models that are new and don't follow traditional paths or patterns. One of the most interesting questions is who "owns" the food in the last mile, and how are they tracked, educated and regulated relative to food safety? Do you know who handles your food before it arrives at your home? Do you know if every one of those people is tested, qualified, trained and tracked relative to food safety? For most of us, the answer is no.

COVID-19 has also caused a dramatic increase in food handling and preparation at home. That means anyone preparing meals at home also needs training in safe food handling and storage. They too should be connected in some form to the underlying database of information envisioned by FDA. And once again – a common theme throughout the Blueprint – technology plays a key role, with real-time monitoring of time, temperatures, tamper resistance and traceability information throughout the supply chain. This includes retail establishments, where controls are currently most varied. As an example, smart kitchen equipment can be utilized to ensure product cook times and temperatures are correct and consistent.

FOOD SAFETY CULTURE

The final element of the New Era of Smarter Food Blueprint involves the development and ongoing enhancement of a food safety culture throughout the supply chain. Where do we get our food? Grocery stores, food processors, malls, restaurants, online vendors, delivery firms and many other sources. The people-led side of the new guidelines calls for a means of educating farmers, suppliers, processors, warehouse workers, transporters, consumers and other key stakeholders in food safety. The goal isn't a flood of information as much as an effective buy-in to a culture of voluntary food safety. Incentives such as reduced inspections for those with a verified safety culture program may be used as a motivator, for example. The engagement of new "partners" in expanding this food safety culture may include influencers, bloggers, celebrity chefs and other recognized figures in concert with social media outlets.

SUMMARY

So how best to summarize such an ambitious undertaking?

Change is coming! FDA's growing reach and focus on food safety will also affect the design, maintenance and operation of food-related facilities that reaches beyond current best practices. And technology is a key component of the Blueprint and the expectations for food safety.

So what does this mean to those of us in the design and construction industry? For now, some implications are strongly suggested:

So how best to summarize such an ambitious undertaking?

Change is coming! FDA's growing reach and focus on food safety will also affect the design, maintenance and operation of food-related facilities that reaches beyond current best practices. And technology is a key component of the Blueprint and the expectations for food safety.

So what does this mean to those of us in the design and construction industry? For now, some implications are strongly suggested:

- As facility requirements turn increasingly to data-driven and traceable processes, the infrastructure to handle that large data will need to grow to accommodate it. That includes computer rooms, intermediate distribution frames (IDF) and the network backbone to support the data.
- As computing requirements grow, the systems to accommodate the heat load also must grow and include backup and maintenance bypass provisions.
- The coordination of IDF cabinets relative to automation systems is critical. IDF cabinets need to be located outside of the automation system footprint while still satisfying facility coverage needs, to reduce system downtime.
- As paper processes are phased out, electrical supply, redundant dark-service circuits and backup power will need to become part of real estate due diligence and programming efforts.
- Similarly, multiple data providers, SONET ring capability and environmental risks must be incorporated into front-end real estate due diligence processes. Every food facility runs on data – whether receiving and processing orders or running a WMS – and the reliability and integrity of the data matters.
- Traditional sanitation weak spots such as dock door equipment and seals, floor joints, floor/wall interfaces, girt top treatment, IMP seals and the handling of water – industrial waste, sanitary sewer and stormwater – adjacent to the facility all need increased attention.
- As companies move to illustrate onsite compliant food safety programs as a way of reducing inspections, the physical requirements for offices, QC stations and equipment may affect the programming and layout of warehouses and office space.
- As more aspects of product safety data collection are included, the network infrastructure and related systems – such as additional data inputs into the fire alarm system – will require greater capacity.
- And every new monitoring and communicating device adds heat, which has cooling and refrigeration implications.

Those are just a few of the early implications of the New Era of Smarter Food Safety Blueprint on facility design. We know from its framework structure and our experience with FSMA that the program will be organic and that many new systems, processes and procedures will be added to the basic framework described above.

Primus has the in-house resources to respond to these changes. Our team features site selection specialists and process engineers who will incorporate updated requirements into our scope of work. Our clients can rely on our team to provide accurate and responsible deliverables that reflect these new standards.

To learn more about Primus and our capabilities, visit PrimusBuilders.com.