



Our Solutions. Your Success.

WHITE PAPER

THE BEST DEFENSE: How Automated Technology Tools Can Improve Food Safety

May 2021
version 1.0

Optical Phusion, Inc.

9 Beaver Brook Rd
Littleton, MA 01460

Introduction

“We are in the midst of the food revolution. Many believe there will be more changes in the food system over the next 10 years than there was the last 20 or 30.”

- Frank Yiannas
*FDA Deputy Commissioner of
Food Policy and Response*

Technology is transforming the food sector in a myriad of ways. From how it is formulated to how it is produced and distributed to consumers, many believe we will see more changes in the food industry over next 10 years than we have over the past several decades. In particular, it is projected the field of food safety will be greatly impacted. Consumers and the government alike are demanding transparency and holding companies accountable for ensuring food safety. Innovative technology-based solutions are rapidly emerging to address these new challenges.

Let’s take a closer look at some of the legislative efforts and protocols happening in America today that help maintain the safety of food products –and how automated technology can help meet today’s compliance requirements while ensuring customer safety.



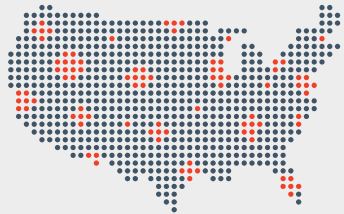
SECTION 1

The Facts About Foodborne Illnesses

While many advancements have been made in food safety over the past decade, the rates of foodborne illness in the United States has not significantly changed. The Center for Disease Control (CDC) estimates that each year in the United States, foodborne pathogens account for:¹

- 48 million people getting sick
- 128,000 hospitalizations
- 3,000 deaths

FOODBORNE ILLNESSES BY THE NUMBERS



7,757

foodborne disease outbreaks
tracked in the US between
1998 and 2008.



The FDA gets
involved in

700



food-related
recalls per year.

The average cost* of a
food-related recall is

\$10
MILLION



The total direct and indirect costs** associated
with illnesses caused by major
foodborne pathogens is



\$15.6
BILLION PER YEAR



*as estimated by the Grocery Manufacturers Association (GMA) in 2012

**as estimated by Department of Agriculture in 2014

Retail, grocery and foodservice establishments — as well as food producers at all levels of the food production chain — have a growing responsibility to ensure that proper food safety and sanitation practices are followed, ultimately, ensuring the safety and health of their customers.

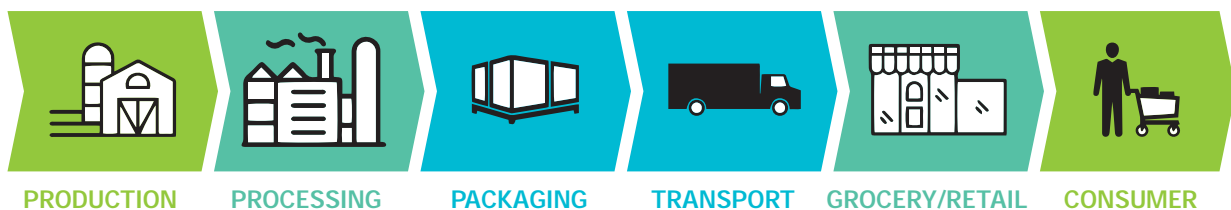
¹ Burden of Foodborne Illness, 2011. URL: <https://www.cdc.gov/foodborneburden/2011-foodborne-estimates.html>

SECTION 2

The Future of Food Safety

There is a demonstrated need for real-time, data driven, and agile approaches to help insure a strong and resilient food system that keeps all Americans safe.

Delivering safe food to the dinner table is the culmination of work performed by many people:



At every touchpoint, the challenge is to perform the required actions as well as possible to ensure the food Americans eat is safe and free of dangerous hazards. Organizations that fail to provide transparency and maintain high standards for food safety are at risk of spreading foodborne illnesses and triggering food allergies. They also face consequences – the high costs associated with food product recalls, food waste, noncompliance, and loss of consumer trust.

THE NEW ERA OF SMARTER FOOD SAFETY

Unveiled July 13, 2020, the *New Era of Smarter Food Safety* is the FDA's blueprint for the future. Sounding the alarm for greater transparency about our nation's food supply, it represents a new approach to food safety that leverages technology and other tools to create a safer, digitized and traceable food system. Building on the organization's Food Safety Modernization Act (FSMA) passed in 2011, it envisions a framework that will enable food to be traced from its source in seconds and will utilize new data analytical techniques to strengthen prevention of foodborne illnesses.²

² *New Era of Smarter Food Safety – FDA's Blueprint for the Future*, p1 (July 2020)

One of the four core elements of the blueprint and a key priority is tech-enabled traceability. While technology already assists in outbreak response, the quality and compatibility of this data varies. The blueprint aims to tap new technologies and integrate data streams to identify outbreaks and trace the origin of contaminated food to its source in minutes—ideally even seconds—enabling a quicker response when the public health is at risk.

While previous regulatory policies do require traceability recordkeeping, it is not necessarily digitized. This — along with insufficient data identifying the product along the supply chain — makes it difficult to rapidly track and trace food. In the midst of an outbreak, this can cost lives, millions of dollars in product loss, and harm to consumer trust.

HACCP

The HACCP (Hazard Analysis and Critical Control Point) system is an internationally recognized preventative system for assuring food safety. The most basic concept underlying HACCP is that of prevention.

HACCP is designed for use in the entire food industry from growing, processing, manufacturing, distributing, and retailing food for consumption. HACCP is important in order to prevent foodborne illness but also to reduce recalls and help companies save money.

A HACCP system helps businesses in minimizing or eliminating threats to food safety at specific points in the process. This includes biological, chemical, or physical hazards. Any company can use HACCP to minimize or eliminate food safety hazards in their products.

“If you’re capturing food safety information on paper, start getting on the journey of digitizing it. Because food safety data on a piece of paper is a dead end. But food safety data in digital form is the beginning of meaningful prevention.”

- Frank Yiannas
FDA Deputy Commissioner of
Food Policy and Response



The seven principles of HACCP ³

³ HACCP Principles & Application Guidelines, 2017. URL: <https://www.fda.gov/food/hazard-analysis-critical-control-point-haccp/haccp-principles-application-guidelines>

SECTION 3

Food Safety Automation.

Automated track and trace food safety technology systems provide the information and assurance that the FDA requires – as well as the safety, traceability and transparency that grocery stores and retailers need. These technologies can also benefit businesses by building greater efficiency, consumer confidence, and a strong return on investment (ROI).

HALLMARKS OF AUTOMATED FOOD SAFETY SOLUTIONS

- **HANDHELD COMPUTERS**

Handhelds not only assist with accurate monitoring and food safety—they can also simplify tasks such as inventory management.

- **DIGITAL THERMOMETERS**

Key to a reliable food safety program, digital thermometers connected to handheld computers ensure that temperature readings are quick and accurately recorded.

- **REMOTE SENSORS**

Passive, wireless sensors that can monitor conditions 24/7 and notify appropriate stakeholders if temperatures ever go out of a predefined range.

- **FOOD SAFETY SOFTWARE**

Specialized software tailored for grocery stores and supermarkets that offer at-a-glance dashboards, customizable checklists, real-time alerts and reminders, and audit-ready reports.

- **REMOTE ACCESS**

Real-time, cloud-based data that is accessible at any time, from any place, using any web-enabled device.

- **COMPLIANT, COLLABORATIVE MONITORING**

Data solutions that are compatible and able to interact with food safety agencies to ensure compliance.

“Nine out of ten [food & beverage] industry decision-makers feel that technology geared towards improving safety and traceability could drive competitive advantage.”

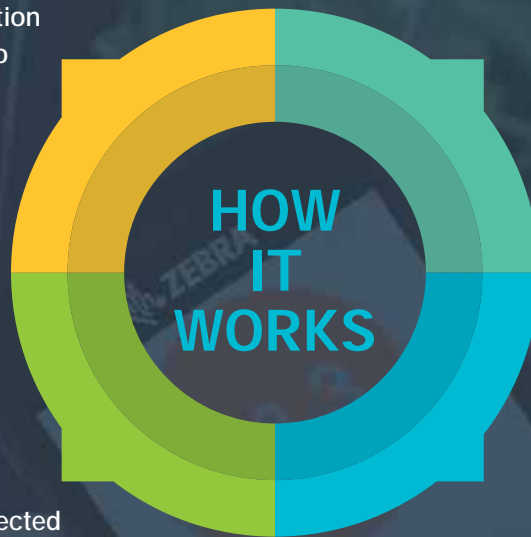
- *Food Safety Supply Chain Vision Study.*
Zebra Technologies, 2020. p.7

PASSIVE MONITORING

Wireless sensors gather temperature readings automatically inside refrigerators, freezers, and designated food storage and preparation areas. These sensors send the data to the cloud where it can be accessed and viewed by authorized users on any connected device.

MOBILITY-ENABLED OPERATIONS

Employees run through customized checklists on mobile devices, which ensure all tasks are completed on schedule. Digital thermometers connected to their devices automatically record temperatures reducing “pencil whipping” and human error.



REAL-TIME ALERTS

Instant alerts warn managers when checks are missed or food temperatures fall outside of a predefined range, enabling them to take corrective actions immediately. This helps minimize the risk of illness or contamination, as well as waste due to spoilage.

CENTRALIZED DATA

Centralized data makes it easy to follow all HACCP procedures, manage product recalls and generate audit-ready reports. With the data for all locations available anywhere, and easily searchable, management can identify points of vulnerability in their food safety systems.

AUTOMATED FOOD TEMPERATURE MONITORING HELPS BUSINESSES:

- Ensure HACCP compliance.
- Eliminate human error and data falsification.
- Access and manage data anywhere, anytime.
- Monitor temperatures around the clock.
- Conduct inspections quickly and accurately.
- Trace quality incidents and manage recalls.
- Reduce food spoilage and waste.
- Generate audit-ready reports in minutes.

It can also optimize processes, ease the burden on your employees, and ultimately ensure happy and healthy customers.

Pencil Whip /pensəl (h)wip/ verb

To complete a form, record, or document without having performed the implied work or without supporting data or evidence.

“Pencil Whipping” in food safety occurs when employees falsify data, such as recording food temperatures without conducting an inspection.

ABOUT OPTICAL PHUSION

Optical Phusion, Inc. (OPI) is a self-service kiosk, enterprise mobility and wireless technology integration solutions company that helps customers manage the entire lifecycle of kiosk and wireless technology projects with application-based solutions for a range of markets specializing in retail, logistics, and field sales organizations. OPI’s creative kiosk designs, quality manufacturing, and experience with critical components deliver responsive solutions, reduced total cost of ownership (TCO) and greater return on investment (ROI).

OPI IS YOUR FOOD SAFETY SOLUTION PARTNER.

For more information about OPI's Food Safety Solutions,
as well as other fully integrated, end-to-end retail
solutions, visit our website at opticalphusion.com.



OPTICAL PHUSION, INC.

9 Beaver Brook Rd | Littleton, MA 01460

Call us at +1.978.393.5900

©2021 by Optical Phusion, Inc.. All rights reserved.
All other company and/or product names may be
trademarks or registered trademarks of their owners.
Information contained in this document
is subject to change without notice.

WIRELESS

INTEGRATION

• SOLUTIONS