CMX

One platform for quality, risk & compliance

How to Digitally Transform Your Grocery Business' Food Safety System

With the boom in eCommerce, delivery, meal-kits, ready-to-eat offerings, and more and more in-house private label products being developed - Grocery Stores and Supermarket chains are dealing with more food safety risks than ever.

This increased risk requires grocery brands to implement HACCP principles to prevent hazards, and to ensure food safety, quality, and consistency.

This whitepaper outlines the benefits of going digital and how to make the switch from traditional "pen and paper" procedures.

| Phone +1 858-866-8888 | www.cmx1.com

Improving Food Safety and Quality — The Difference Between Success and Failure

| Phone +1 858-866-8888 | www.cmx1.com

With the ever-increasing demand for convenience, fresh food, and on-the-go-meals, grocery stores now stock more food than ever before. But unlike food manufacturers, these grocery chains are not required to follow the same HACCP principles for food preparation. Rather, they are regulated under the respective state, local, or tribal governments.

That said, the FDA endorses the voluntary implementation of food safety management systems and has even published a manual to help these retail food establishments prevent food safety hazards.

Because of the varying grocery store conditions and an almost endless number of products and food preparation methods, food safety management is especially challenging. Considering that a large percentage of foodborne illness outbreaks are traced back to food establishments, it's important not to underestimate the impact of a well-managed food safety plan.

Today, an optimized food safety system and process could be the difference between success and failure in protecting your customers and preserving your brand's reputation, and ultimately its profitability.

Implementing HACCP-based Principles in Grocery Stores

"Retail establishments, unlike your classic manufacturing facilities, are not routinely built for standardized work. Being diversified for the consumer base can be a competitive advantage, but this also presents challenges in providing adequate controls for high-risk food preparation processes."

Sharon P. Wood,
Food Safety Magazine

What Are the Main Food Safety Concerns in Grocery Stores?

Grocery stores are not the same they were 20 years ago. These days, you can walk into almost any store and expect to find not only freshly prepared food, but also have an abundance of available options including meal kits and delivery. In a food manufacturing setting, processes are pretty much standardized, so it's easy to determine specific hazards related to a particular product.

For grocery stores, it becomes a bit more complicated. They are almost becoming a type of restaurant, as customers are gravitating to fresh foods instead of frozen or packaged processed foods. With convenience (which saves them time), clear food labels, and availability of a variety of foods, customers now rely on grocery stores more than ever before. And with the preparation of fresh foods, they take on the same risks and challenges that restaurants face.

There are a few areas within the grocery setting that deserve special mention.

Workers

Sick employees present one of the biggest food safety challenges in any food preparation environment and are commonly cited as the number one reason for norovirus outbreaks. But managing ill employees has its own set of challenges:

Signs of illness are not always immediately noticeable — employees are asymptomatic, yet infectious.

Employees don't inform management of their illness in fear of losing out on a few days' pay.

Employees that were sent home could have already infected other employees.

With the arrival of COVID-19 and its associated regulations, many grocery chains have grown accustomed to doing regular employee screenings or wellness checks. But it's important to go beyond these screening steps. Including standard operating procedures (SOPs) for personal hygiene in your food safety management plan will help to prevent illness transmission in the first place, protecting your employees, and possibly customers too. Employees should be made aware of health policies and be given proper training. A sick log will also be useful in that management can establish when it is appropriate for an employee to return to work.

Food Preparation

Unlike food processing facilities, where HACCP is applied by looking at each end product separately, grocery stores have to deal with a wider range of products. It's, therefore, necessary to modify the traditional HACCP approach in order for it to be more applicable. Instead of focusing on the end product, you apply the "process approach", looking at the whole flow of food through your stores – from receiving to preparation to sales. You analyze any potential food safety hazards that may arise during this process and apply Active Managerial Control on each.

Regardless of the control measures you implement, there are a few that apply to all food preparation processes:

In order to prevent the transmission of illness-causing bacteria, it's essential that ready-to-eat foods are handled with appropriate utensils, and not with bare hands.

Proper handwashing is vital in all stages of food preparation.

Ill employees should be excluded from the food prepar ation process (see point above).

To prevent cross-contamination, raw foods should be separated from ready-to-eat foods.

Food displays

In food processing facilities, food is produced and stored in a controlled way. This is not always the case with grocery stores. Food displays (e.g., the fresh produce section or the in-store bakery department) could be a point of contamination, especially if exposed to consumer handling and variable temperatures. The frequent occurrence of illness-causing bacteria like *Staphylococcus aureus* and *Escherichia coli* on shopping carts are a major food safety hazard. Customers touch these contaminated surfaces and then handle these foods on display, leaving potentially contaminated foods for the next customer to pick up.

Floor plans

Grocery stores have limited floor space, and often try to maximize it the best they can. With not much room to spare, there isn't a lot of space to separate raw and ready-to-eat foods. Where there are distinct 'low-risk' and 'high-risk' areas in food manufacturing facilities, it's more difficult to separate these within the retail setting. Blurred preparation areas can lead to different types of food safety hazards:

Biological	Chemical	Physical
harmful bacteria can be introduced on food preparation surfaces, as well as the final ready-to-eat product.	improper storage of cleaning chemicals can lead to contamination of foods..	packaging materials and glass can be introduced in the food preparation area.

Pests

A grocery store, and particularly larger supermarkets, have several entry points where pests (like mice, rats, and cockroaches) can gain access. They provide an overabundance of food, water, and shelter and are therefore an ideal environment for harboring pests. Pests are attracted to foods in storage, as well as food spills and waste, and contaminate surfaces with urine, droppings, and other dirt. This is especially concerning in the in-store bakery departments. Not only are foods left open, but they are often consumed as 'ready-to-eat'.:

A proper pest management system is essential to keep these common pests from entering the premises and avoid violating local health regulations. Vendors that supply grocery stores are also regulated by the Food Safety Modernization Act (FSMA) and therefore their products have to be pest-free.

Of course, there are other factors to consider when looking at potential food safety hazards. These can be poor personal hygiene, improper holding temperatures, and contaminated equipment. It's therefore necessary to be proactive rather than reactive.

Applying the 7 Principles of HACCP in Grocery Stores

The 7 principles of HACCP are used to identify, evaluate, and control the chemical, biological, and physical food safety hazards within your grocery store.

01 **Conduct a hazard analysis —** You'll want to start by listing any potential food safety hazards related to your menu with the potential to cause illness or injury to your customer if not effectively controlled.

In the fresh foods section, this means creating a list of food safety hazards related to your prepared food offerings. It also includes how the food is stored, prepared, and cooked (if applicable), and which equipment is used. Overlooking one potential hazard could render the entire HACCP plan ineffective, even if you adhere to it diligently.

02 **Determine the critical control points (CCPs) —** Next, identify the points where hazards could be prevented, eliminated, or reduced to an acceptable level. While some processes form part of prerequisite programs (PRPs), critical control points are those processes where a control can be applied.

It's important to pay specific attention to food safety hazards that could lead to contamination (whether chemical, biological, physical). For ready-to-eat meals, go through the food preparation process—from receiving raw materials to storage, and food preparation—and identify points where food safety is likely to be compromised.

03 **Establish critical limits** — Next, you'll set the minimum and maximum CCPs necessary to maintain a safe environment and prevent, eliminate, or reduce food safety hazards to an acceptable level.

Critical limits must be based on scientific factors, guidelines, regulatory standards, experts, or experimental results and can include factors such as pH, temperature, humidity, salt concentration, etc.

04 **Establish monitoring procedures** – Going forward, you'll need to keep detailed records to ensure that the critical limits are adhered to. Ideally, the monitoring procedures are continuous and done electronically. Doing this will ensure increased accuracy, control, and visibility over the process as opposed to doing it intermittently and manually.

Monitoring a CCP is an important responsibility. Employees should be properly trained on the "why" and the "how". Once employees understand the impact of

food safety hazards (e.g., outbreaks, product recalls, business closure, job losses, etc.), they are more likely to get on board with the HACCP plan.

05 **Establish corrective actions** – Inevitably, issues will arise. You will need to create and record corrective actions to mitigate discovered hazards.

When deviations do inevitably occur, it's vital that corrective action be taken immediately:

a. First determine the root cause of non-compliance and then correct it by demonstrating the CCP is once again under control (re-examine the process if needed).

b. Establish the disposition of the product that is non-compliant.

c. Document the corrective actions that are to be taken in response.

It's crucial that you outline unique corrective actions for each CCP in advance, and list those in your HACCP plan. Instructions can include:

- *What* is to be done after a deviation happens.
- *Who* will be responsible for applying corrective actions.
- *How* and *where* the corrective actions will be documented.

06 **Establish verification procedures** – To maintain consistency and safety, establish checklists, verification, and operational routines throughout the day and week to verify whether your HACCP system is working. Also, having the management team perform routine self-assessments helps gauge overall compliance with regulatory bodies and brand standards. This also ensures your food preparation area is ready for an audit by the local health department.

07 **Establish record-keeping and documentation procedures —** Document all efforts to maintain food safety and quality, including the initial hazard analysis, the HACCP plan, the assignments, roles, and duties, to the support documentation confirming the procedures were fulfilled.

It's of vital importance to maintain proper records, particularly for auditing and inspection purposes. It allows you to keep track of raw materials, process operations, and finished products in your establishment. This will allow you to identify potential problem areas where deviations might occur.

To achieve Active Managerial Control, you would need more than HACCP principles. For a complete food safety management system, you'd also need to implement prerequisite programs—general control measures that have to be implemented in your establishment, regardless of what the process is. These will include components like personal hygiene, waste management, cleaning and sanitation, pest management, etc.

While HACCP is a foundational component of food manufacturing facilities, its principles are easily adaptable to retail food establishments.

In the past, implementing a HACCP system meant relying mostly on manual procedures, pen and paper checklists, and managerial oversight. But that model has become outdated and unsustainable, particularly for larger grocers with hundreds to thousands of locations.

Two Major Problems with the Traditional approach to Process HACCP

In the complex and dynamic operating environment of a grocery store, managers and team members face significant challenges in maintaining food safety, quality and consistency. Outdated, manual systems are no longer feasible, regardless of whether your brand operates on a local, national, or global scale.

Why is that?

1. Pen and Paper-Based Systems Are Insufficient

The conventional approach to food safety and quality monitoring is done manually via paper-based checklists and temperature logs. Staff members have to comply with these checks, not just daily, but sometimes hourly. Over time, this process becomes more difficult to maintain as there are dozens, if not hundreds, of CCPs that have to be regularly checked.

Once the initial paper-based inspections are complete, the data has to be logged manually in a spreadsheet or database if you want to perform any type of trend analysis or audit

According to Food and Safety Magazine, there are numerous disadvantages of using paper-based systems. They are labor-intensive and time-consuming, have a higher likelihood of errors, and record retrieval is inefficient.

With paper checklists, you have to deal with the following problems:

Pencil whipping

A common quality control issue, "pencil whipping" occurs when paper checklists and forms get filled out by the employee without them actually performing the task or conducting the observation. When this happens, the quality checks, meant to ensure safety and maintain quality standards, are rendered useless

Poor visibility

Managers lack transparency and visibility into the operational status and performance of their stores. This makes it incredibly difficult to maintain quality and consistency, or to highlight trends or areas for improvement. This can be damaging to the overall customer experience, as well as your brand's reputation.

Lack of accountability

Lack of accountability remains to be one of the largest drawbacks of pen and paper checklists. There is no way to verify whether the checks were completed, if it was done properly and at the scheduled time, and by whom it was done. For a grocery store chain, the problem grows exponentially—there's simply no way to ensure that every location is following procedures and following through on addressing issues.

In short, a paper-based system is costly, hinders productivity, and fails to provide real-time recording. To make matters worse, there's an even more glaring vulnerability with such a system—it has to be performed and maintained by humans.

2. Human Error and Negligence is Inevitable

People make mistakes. They forget things. They screw up.
Human error is inevitable.

Even with a perfect food safety program, humans have a tendency to throw a wrench in the best-laid plans—whether by incompetence, laziness, forgetfulness, or honest error. It takes only one employee not following the plan for the entire process to break down. Your HACCP-based food safety system is only as strong as its weakest link. Time and again, brands that employ a non-digital HACCP process inevitably run into several human-related problems, including:

Employees	Company-wide failure	Overly complex	Improper or ineffective monitoring
that don't have the necessary expertise or knowledge in key Process HACCP areas, or lack motivation to repeatedly carry out and maintain best practices;	to instill the right attitude and skills for continued system maintenance and upkeep;	HACCP systems with too many CCPs;	and corrective actions, resulting from poor company culture, training, or verification.

Most of these issues can be chalked up to some combination of human error, poor company culture, and improper guidance and management.

But why?

Because it lacks the proper mechanism to enforce it. For that, the management, monitoring, and recording of your entire food safety process must be digitized.

7 Benefits of Digitizing Process HACCP

Pen and Paper — Out. Digital Automation — In

The traditional approach to implementing and monitoring a HACCP-based program is limited and outdated. Digital advancement in technology has fundamentally changed the way things are done. Now, many time-consuming and inefficient manual processes such as paper checklists can be automated.

It's time to ditch paper-based HACCP systems in favor of IOT sensors, Bluetooth thermometers, and formidable work management and operational execution software.

It's time to go DIGITAL

What are the benefits of thinking forward and embracing the future?

01 — **Increased accountability** — Digitized HACCP processes, line checks, and checklists prevent "pencil whipping" and ensure that routine assessments and preventative maintenance are performed as expected. Automation software ensures tasks are scheduled at the right time and assigned to the right employees, it lets you see which tasks are being done, when they are done (checks are time stamped), and by whom they are done. This ensures that the food safety procedures and checks you put in place are actually followed and are being completed as expected.

02 — **Increased productivity** — Automating the process means you free up time for employees that could be better spent serving customers or running the food preparation area. In addition, managers are alerted of issues, and are able to review logs and pull pertinent information far more efficiently.

03 — **Improved visibility and control** — Digital recording allows chains to access records centrally through the cloud for any store location at any time. It provides information, metrics, insights, and trends based on your corporate hierarchy, store types, departments, and more. This gives retailers complete visibility—from minute details to company-wide processes—and enables them to make changes to their programs and ensure corrective actions are taken without having to physically visit a site—all in real-time.

04 — **Get better data and more of it** — When you go digital with checklists, and utilize Bluetooth Low energy (BLe) probes and even IOT Sensors, you not only get much more data, you get more *accurate* data. The system can then use this data to perform the most accurate analysis and detect issues and trends. By hosting all of your data in the cloud, you eliminate the need for storage space, filing systems, and physical security.

05 — **Receive alerts about potential issues** — When automated monitoring sensors notice a potential problem (e.g., an out-of-range temperature control), they act as an "early warning system", warning employees before a more serious food safety hazard develops.

06 — **Ingrains brand standards and standard operating procedures (SOPs)** — Through digitization of hourly, daily, weekly, monthly and quarterly routines, both regulatory standards and SOPs for the brand become ingrained in the store's culture. This cultivates a culture of continuous improvement and optimization focused on food safety and operational excellence— from entry-level employee to senior management.

07 — **Efficient recall management** — Whether you're looking to set up a mock recall or are in the midst of a real crisis, an automated Product Recall Management System is non-negotiable.

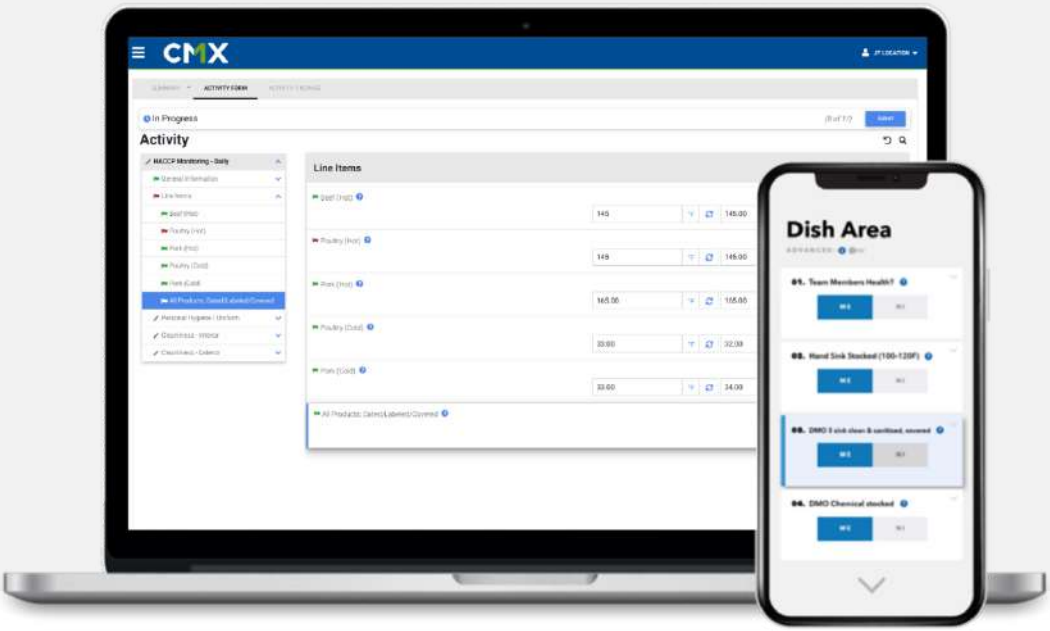
Digitizing Food Safety and Quality with CMX

When you consider the multitude of hazards and critical control points in grocery stores, coupled with the number of menu items, locations, and frequency of staff turnover you may have, you can see why digitizing your grocery chain's food safety and quality systems is a worthwhile investment.

But why go digital with CMX?

When you go digital with CMX, you'll improve accountability, visibility, accuracy, and gain the oversight needed to ensure your customer's safety, food safety, and protect your chain's reputation!

At CMX we've partnered with dozens of the leading retail food brands, providing them with the digital tools and solutions they require to ensure quality, food safety, and consistency across the board.



Digitally Transform your Grocery Operations with ActivityStudio®

CMX's ActivityStudio® makes it easy to develop and execute digital audit, self-assessment, inspection, and checklist-based Food Safety and overall Operational Excellence programs in your grocery stores.

| Phone +1 858-866-8888 | www.cmx1.com

Available as a stand-alone solution or as an integrated part of CMX1's EQMS platform, Activity Studio® **delivers the following features and benefits:**

Digitize ANY form or routine With **Activity**Studio®, there's no need for costly, time-consuming software customizations. Grocers can digitally transform all their paper-based auditing, self-assessment, inspection, and checklist programs all on their own. What used to take hours can now be accomplished in mere minutes.

An intuitive, visual form builder allows for drag-and-drop functionality to create anything from complex audit forms to simple checklists. Forms can be linked back to policies and SOPs, helping you to reinforce standard operating procedures and promote know-how in your stores.

Integrated policy management allows you to create policies, procedures, and training documentation. Leverage the visual designer, rich text editor, and document storage to publish materials to specific user groups in real-time.

Perform activities on-the-go Users can work both on and offline using a browser or with native apps for Windows, iOS, and Android. This means you can perform store audits or do daily checklists connected or disconnected from the internet. Additionally, thanks to being cloud-based, data is instantly available to other team members, and centrally for reporting and analytics once you are back online and the data has seamlessly synced.

Optimize repeatable processes in your store by using specific settings for assignments, notifications, reminders, and report distribution. This ensures workflow flexibility and operational efficiency.

Automated scheduling prevents pencil whipping and allows you to set and monitor recurring schedules for all programs and activities, making sure it's done by the right people, at the right time, and in the right way.

Bluetooth Low Energy (BLe) integrated devices such as barcode scanners, temperature probes, and digital scales allows for uniform measurements which can be traced back to the source—including users, dates, times, and locations. We definitely have our preferences (and happy to share), but the CMX1 platform is compatible with a variety of probes out-of-the-box.

IOT Solutions – CMX1 supports a wide range of integrations with sensors and sensor networks for full environmental monitoring, as an example we partner and integrate with Digi's Smartsense IOT solutions. You can get a complete picture of what is happening with your equipment and the routines you've automated, all in one simple and easy-to-use interface.

Identify repeat issues. ActivityStudio® can look back over previous activities and automatically detect repeat 'non-conformances'. You can leverage this information to detect more serious trends, and can apply certain rules that impact their ratings and post activity workflows and notifications if desired.

Powerful and actionable insights allow you to keep track of your store's analytics. With data visualization, KPIs and reports at your fingertips, you'll be able to measure your brand's performance with its defined goals and expectations.

Wait a minute... this sounds expensive and time consuming to implement!

Actually, you'll be surprised just how affordable ActivityStudio® is and how quickly you'll be able to roll it out in your grocery stores. The CMX1 platform enables your brand to completely transform your operational routines, quality, and HACCP-related procedures. And when you partner with CMX, you'll benefit from the innovation and learnings we've gained from working with leading retail food brands for more than 10 years running.

Together, we can automate your grocery store operations—to ensure your brand standards and regulatory guidelines are followed, ensuring quality, food safety, and operational consistency—which ultimately impacts customer satisfaction, growth, and profits.

If you want a digital partner that knows restaurant operations, look no further. Reach out to the expert team here at CMX today.

CMX

One platform for quality, risk & compliance

CMX is your Food Safety System Technology Partner

If you're looking for a way to improve your grocery's HACCP system, or implement a Food Safety System specifically suited to your organization – we can help.

CMX1 is a cloud-based EQMS platform trusted by some of the world's best known brands to empower lasting customer trust through consistent quality, safety and customer experience at scale.

To learn more, please visit us at:

858-866-8888

4180 La Jolla Village Drive
Suite 570La Jolla, CA 92037

Get In Touch