ComplianceMate™

Turning Food Safety and Operational Data into Bottom-Line Boosting Business Intelligence

From top-line revenue to bottom-line performance, a Food Safety Management System that works like a data engine to turn food safety and quality logs into true business intelligence can produce otherwise unobtainable business benefits.

The right technology can turn raw temperature data and checklists into competitive advantage by equipping foodservice operations with the business intelligence they need to react faster, make better decisions, and save costs.

Few foodservice organizations associate food safety and operational data with business outcomes like increased revenue, more effective workforce management, or competitive advantage in the marketplace. However, that's only because the paper logs and checklists commonly used to capture and track food safety, quality, and operational practices end up *trapping* incredibly valuable data in an unusable form.

The sheer amount of the data can be staggering. A restaurant chain or grocery provider with hundreds of locations can generate nearly tens or hundreds of thousands of data points *every day*, drawn from temperature logs of all cold-holding equipment and every entry on every checklist completed across the enterprise. When captured via pen-and-paper methods, all that precious data remains stuck in file cabinets, largely ignored until destroyed or the health inspector visits.

The wealth of data that foodservice operations already routinely collect could be put to astounding use. This requires a digital data engine, a food safety management system (FSMS) that can collect, aggregate, process, and analyze all those records previously captured on paper.

Such a platform works by using equipment like automated temperature sensors and digital workflows (checklists) that feed into a larger data platform. Once the data is processed, the platform can produce role-specific dashboards that gives leaders *exactly* the information they need *exactly* when they need it. With the true wealth of their data transformed into genuine business intelligence, foodservice operations will be poised to perform at a level previously impossible or prohibitively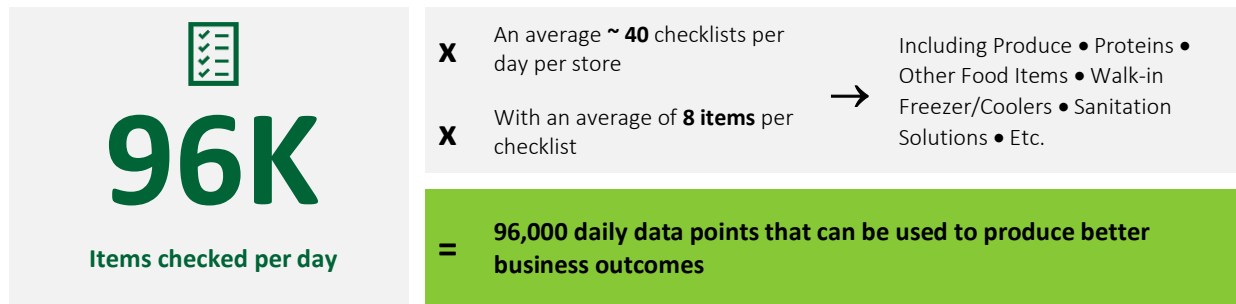 difficult. This paper will detail many of the ways business intelligence drawn from food safety and operational data can strengthen your business operations.
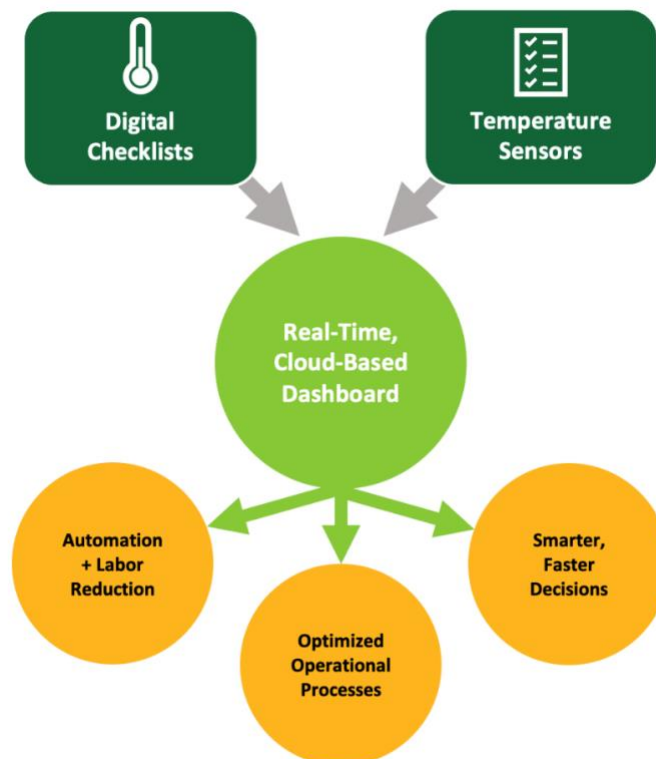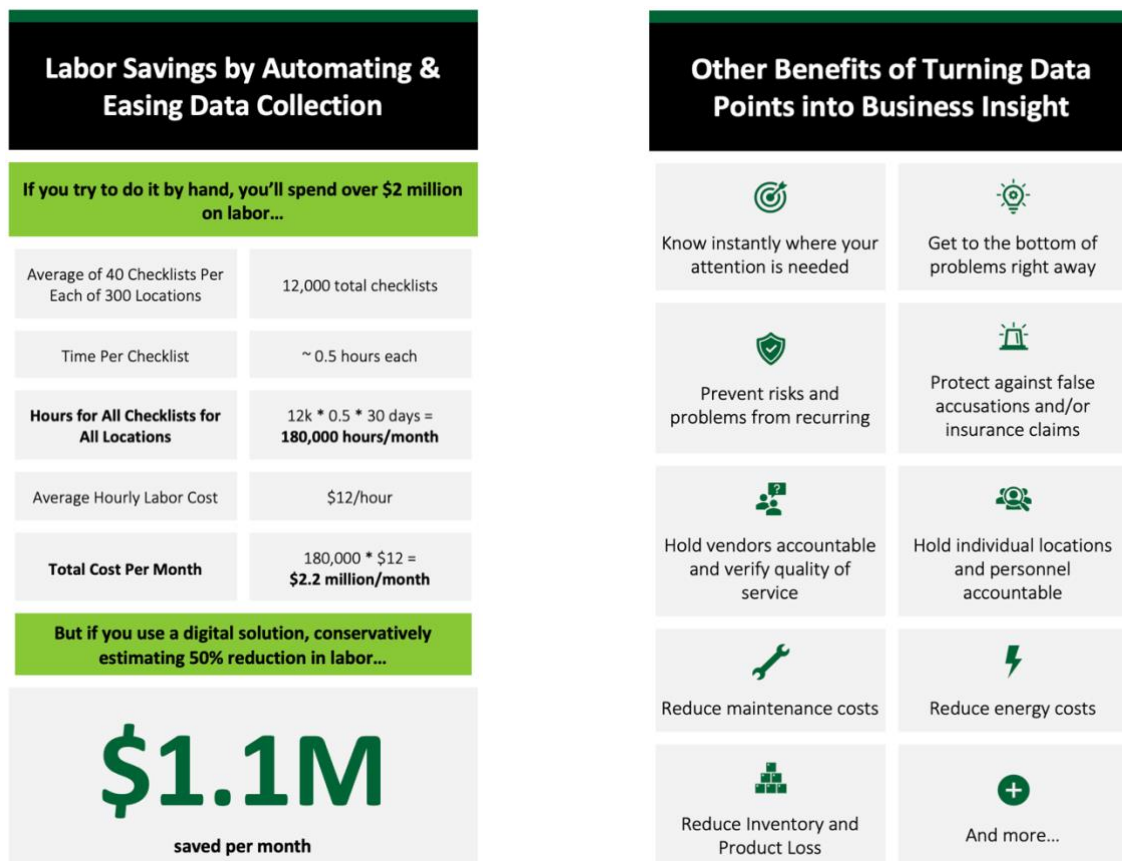
With the Right Digital Data System, You Could Be Saving Millions of Dollars

Your organization produces more data than you know.

A Grocery Store Chain With 300 Locations

96K

Items checked per day

x An average **~ 40** checklists per day per store

x With an average of **8 items** per checklist

→ Including Produce • Proteins • Other Food Items • Walk-in Freezer/Coolers • Sanitation Solutions • Etc.

= **96,000 daily data points that can be used to produce better business outcomes**

Then, that data can translate into bottom-line benefits in multiple ways.

Labor Savings by Automating & Easing Data Collection

If you try to do it by hand, you'll spend over $2 million on labor…

Average of 40 Checklists Per Each of 300 Locations	12,000 total checklists
Time Per Checklist	~ 0.5 hours each
Hours for All Checklists for All Locations	12k * 0.5 * 30 days = **180,000 hours/month**
Average Hourly Labor Cost	$12/hour
Total Cost Per Month	180,000 * $12 = **$2.2 million/month**

But if you use a digital solution, conservatively estimating 50% reduction in labor…

$1.1M

saved per month

Other Benefits of Turning Data Points into Business Insight

Know instantly where your attention is needed

Get to the bottom of problems right away

Prevent risks and problems from recurring

Protect against false accusations and/or insurance claims

Hold vendors accountable and verify quality of service

Hold individual locations and personnel accountable

Reduce maintenance costs

Reduce energy costs

Reduce Inventory and Product Loss

And more…

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Effortless Proactive Alerting

Know instantly where your attention is needed.

There is no way to solve a problem you don't know about, and the greatest dangers to any foodservice operation are the risks and threats that remain invisible to owners, executives, and managers. By gaining insight into food safety and quality assurance, organizations can shine a light that reveals gaps and warning signals in their operations.

Routine food safety and operational data can offer that insight when paired with automatic proactive alerts that generate when certain thresholds are met or exceeded. For example, a single piece of equipment whose internal temperatures fluctuate over time can indicate imminent failure, enabling operators to fix or replace it *before* it breaks down at the worst possible moment (losing inventory).

That means operators can know exactly which location, piece of equipment, worker, or situation needs their attention at any moment – with the Food Safety Management System (FSMS) that is generating business intelligence doing all the work in the background. As a result, greater data can ensure organizational leaders know that action is required before regulators, health inspectors, or customers do.

"With more detailed information, leaders [are] even better positioned than before to act on and enforce our safety and quality standards."

The Vice President of Safety
at a multinational foodservice and support services company

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Immediate Root Cause Analysis

Get to the bottom of problems right away.

Knowing there's a problem is only half the battle. Next, operators and leaders must determine *why* there's a problem. Effective root cause analysis can enable operations to diagnose and treat the actual issue, be it malfunctioning equipment, undertrained or poorly performing personnel, process failures, sourcing issues, or something else entirely.

"**It's data collection that's key**," says Dr. Hal King, cofounder and managing partner of Active Food Safety and author of *Food Safety Management Systems*. However, he cautions that "**root cause analysis becomes difficult or impossible without enough data**."

"We had a store that was having a fluctuation pattern in the dressing cooler that holds condiments," says the co-owner of a management firm that owns dozens of restaurant franchises. "We were about to replace the equipment, but we noticed a pattern." He says the data helped them to narrow the situation down by looking at timeframes; they could then use their operational experience to hypothesize the cause and test it by having that location's management team take different steps until resolved.

True Business Intelligence Is Digital-Dependent.
Analog data isn't enough.

The most important factor in generating this kind of business intelligence is the daily execution of a digital food safety management system that uses automation, smart tools, and cloud-based monitoring and alerting functions. This requires a solution that allows foodservice operations to always manage and monitor food safety from any cloud-connected device, because an FSMS is the only way to:

Produce data of sufficient quantity *and* quality	Capture data in real-time, when still actionable	Prevent user error and falsification	Render all data searchable down to individual locations

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Improve Risk Mitigation
Prevent risks and problems from recurring in the future.

Once you know what you're dealing with, what matters most is your response to the situation. Here too, good business intelligence enables leaders to make better decisions that decrease both costs and risks alike.

Consider the case of a national restaurant chain with several locations battered by a hurricane. In the aftermath of widespread power outages, they were able to send in managers to determine how to best preserve inventory. Unfortunately, that could be simultaneously labor-intensive and potentially hazardous to the managers, depending on local conditions.

With remote sensors continuing to relay temperature data, however, they wouldn't necessarily have to hand-inspect every location to know where to allocate dry ice or take other measures. That can prevent them from buying supplies they don't need or spending time on sites that don't need it. "**We can use the data from the sensors to triage the situation and make data-driven decisions where to take action**," says their divisional director of operations.

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Generate A Credible Historical Record
Protect against false accusations and/or insurance claims.

If the worst-case scenario were to hit, and the operation were to be accused of a foodborne illness outbreak or some other safety lapse, substantive internal data would enable the operation to make smarter decisions in the aftermath. For example, they would be better positioned to decide whether to contest the claim, try to settle it, or take other action.

One small quick service chain discovered the power of data in this regard first-hand. They had faced a potential nightmare scenario when the health inspector came calling after a consumer named them as a possible culprit in a foodborne illness incident.

However, they used a digital food safety system that not only recorded temperatures but – thanks to a digital checklist system – also maintained a record of whether all HACCP protocols were followed before, during, and after that consumer's visit. "**Everything that touches food is in the system**," says their Executive Chef. "**Since we were able to show [the inspector] all cooling and line check logs, ComplianceMate wiped us off the list of possible sources of the foodborne illness**."

![ComplianceMate™]

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Know When Vendors Are At-Fault

Hold vendors accountable and verify quality of service.

"**One of our vendors told us that our equipment was fine**," says a quick-serve restaurant franchisee, "**but we were able to pull a week's worth of data showing the refrigeration equipment hadn't been properly calibrated. We were able to prove it was their issue and not ours**."

Here too, *data protects*. A constant performance history can prove – or disprove – vendor assertions that otherwise couldn't be challenged. *Digital* data collection is critical here. Seeing genuine patterns requires *a lot* of data points, and the data's integrity must be unimpeachable and uncontestable. Automated sensors and digital checklists can gather data throughout the day – in the case of remote temperature sensors, every five minutes – with no or limited human intervention required. There's no fudging automated data the way workers can "pencil whip" pen-and-paper checklists.

The same thing happened at the Hawaii site of a nationwide chain of family-style restaurants. "**From day one, the temperatures just weren't working**," says their associate director of QA & food safety. Worse, the problems had attracted the notice of the local health department, which mandated that they hold all food with time as a control. After $72,000 in refrigeration repairs, and the vendor insisting the problem wasn't on their end, the restaurant installed a system that could monitor temperatures remotely. "**Then we were able to go back to the vendor that originally installed the equipment and confirm to them that it was not functioning properly**."

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Identify Who Needs Further Education

Hold individual locations and personnel accountable.

One of the biggest obstacles to food safety and operational excellence is the lack of visibility into which personnel and locations are meeting their commitments and which need additional training or guidance. "**Before, we had zero accountability in the restaurants**," says the associate director of QA & food safety for the Hawaii-based restaurant.

It's not just restaurants. The director of food protection at a multi-state grocery store operator notes that more data means they can see "**who's doing well and who's doing poorly so we can follow up and work towards maintaining better compliance**."

Specifically, their data collection system lets them see where each store stands in percentage completion of quality and safety checklists. Some locations perform all checks all the time, but others don't. With enough information, patterns can reveal themselves. For example, completion rates might vary according to who's in charge of a given shift. There's simply no way to know that without a data engine that can produce the necessary business intelligence.

The key here is the ability to access hierarchical views, so that organizational leaders can see data at all levels: organization-wide, regional, location-specific, and down into individual workers.

Data Can Improve Food Quality Too.

Food-related data can also be used to improve quality. By storing and preparing foods at optimal temperatures, organizations can improve food quality and yield. For example, if ice cream is kept too cold, ice crystals can form and reduce its creaminess. Similarly, the crispiest fresh cut fries start with potatoes soaked in cool – not cold, not warm – water to draw the starch out. Monitoring and responding to temperature and operational data can ensure every dish is always maximally delicious.

Get ahead of problems and reduce costs.

Perhaps the most important way that turning raw food safety and quality data into usable business intelligence benefits foodservice operations: it opens new avenues of cost savings. Many organizations in foodservice – restaurants in particular – operate on relatively thin net profit margins, which often fall between 3% and 5%.[i] Low margins can make operations in this sector particularly vulnerable to disruption like the COVID-19 pandemic. Consequently, investments that can cut costs without sacrificing quality can pay for themselves. Many of these cost savings can come in areas that many operators would otherwise overlook, because the savings are only possible given enough real-time, cloud-accessible data.

The Cost of Maintenance

To start, a data-rich business environment lets foodservice operations see the road ahead rather than staying fixated on the rearview mirror. Historically, most organizations track and react to *lagging* performance indicators and data points. That forces restaurants into a "break-fix" mindset where they fix problems only after some protocol or equipment has broken down. By focusing on leading, forward-looking indicators instead, it becomes possible to get ahead of the curve and begin predicting outcomes. It can also equip maintenance staff with information *they* need to identify required parts or tools before arriving at the location, to determine the best course of action, and ultimately to minimize downtime.

In foodservice, this applies directly to the most critical equipment any kitchen uses: freezers and coolers. Temperature sensors can help operators spot equipment malfunctioning (or running warmer than what it should) so that they can take proactive action – perhaps cleaning the condenser coils or scheduling other maintenance – *before* they face equipment failure. It can also help organizations understand if they're making the right equipment buying decisions. Shifting from reactive to predictive or proactive maintenance can ensure, as ARC Advisory Group puts it in a study of maintenance protocols, "resolution prior to failure," which in turn can significantly reduce both equipment downtime and the total cost of ownership. Their findings are summarized in the chart below.[ii]

Impact of Data on Equipment Maintenance
Source: ARC Advisory Group

Maintenance Approach	Description	Relative Cost Impact
Reactive	Equipment run to failure and *then* repaired	10X costs when failure occurs
Preventive	Equipment serviced at fixed times or cycle intervals	2X maintenance costs
Predictive	Operators or AI monitor data to generate pre-failure alerts	**Unscheduled downtime approaches zero**

The Cost of Inventory Loss

It's not just the equipment that's at stake: so is the inventory stored within. Without data-based predictive alerts, many foodservice operations are blindsided when equipment fails, resulting in enormous financial losses.

Most commercial operations can expect some form of catastrophic failure (meaning all inventory would ordinarily be lost) once every three to five years. An automated FSMS that monitors temperatures can alert operators to before product has to be discarded. Even if equipment fails, inventory can be saved, potentially saving thousands or tens of thousands of dollars.

No wonder one study found that for every $1 invested in reducing food loss and waste, organizations save $14.[iii] The ROI speaks for itself (see the table below for an example ROI of an FSMS that prevents product loss).

The ROI of Digital Food Safety

For more detailed information and analysis on the financial dimensions of an FSMS investment, download our white paper on this question at www.ComplianceMate.com.

The Cost of Energy

Automated temperature monitoring also presents the potential to control energy costs as well. Given that restaurants use approximately 2.5 times more energy per square foot than other commercial facilities, that can make a big difference over the lifespan of the facility.[iv] Specifically, *Science Daily* reports, "Advanced sensors and controls have the potential to reduce energy consumption of buildings by 20-30 percent."[v]

That's because over- or underloading machines can cause energy usage to spike, at which point efficiency plummets. Monitoring can help operators to maintain optimal settings over time.

"**When you spend $60,000 to $70,000 for a piece of equipment, saving $10,000 to $20,000 on energy or maintenance over the course of its service life is significant**," Dipak Negandhi, senior engineer, Unified Brands and a member of the North American Association of Food Equipment Manufacturers (NAFEM) Technology Liaison Committee, told *Foodservice Equipment & Supplies Magazine*.[vi]

Example Inventory Loss/Retention ROI Calculation

Step 1	Step 2	Step 3	Step 4	Step 5	Step 6
Determine hardware cost based on number of cold-holding units.	Determine annual subscription based on the total number of sensors.	Determine product value based on amount of inventory stored.	Determine the average failure rate of the cold-holding equipment.	Amortize the preventable inventory loss according to the failure rate.	Compare aggregated costs over time vs. aggregated savings.
4 locations ~ $3k	20 sensors ~ $2,500	Avg. $7k per unit = $28k	Typically, 60 months	~ $467 per month	**ROI achieved in 12 months**

Start with an Assessment

Generating the kinds of outcomes described in this paper is very achievable for virtually any operation that deals in food product (or, indeed, any product that relies on temperature controls and quality checks). That said, there are several key components that must be put into play.

1. You must have a system that can capture a greater range and quantity of data than human workers can do on their own.
2. That system must be able to aggregate and relay that data to all stakeholders in the organization, as opposed to trapping the records in file cabinets or backrooms at individual locations.
3. The system must offer sufficient automation and smart AI features to be able to translate raw data into usable, actionable insight.

However, the system alone is only part of the story. Through all three steps, policies, procedures, and processes must align to support the effective and consistent collection and use of that data.

- Personnel, including managers, must be trained on these procedures, and must be reliably following them.
- When corrective action is needed, they need to know what to do and when and how to do it.
- Then, they must actually *do* it.

Unfortunately, most organizations simply have little to no insight about how well or consistently their food safety or quality processes are followed at individual locations or between individual workers. *Most* locations probably follow *most* guidelines *most of the time*, but which locations? Which guidelines? How much is "most"? How often?

The place to start is an assessment or audit of people and processes to gain a clearer picture into internal operations and identify areas of opportunity. This information can both help organization correct problem areas and set the stage for the successful deployment of a FSMS that can function as a data engine. When you know what's needed, you can tailor the solution and its implementation to those needs.

Conclusion

Ultimately, access to good information is key for foodservice operations to perform at peak.

Producing appropriate business intelligence puts you in front of problems. Leaders can then make decisions from a position of insight founded on credible, supported evidence. With access to high-quality, otherwise-inaccessible data, business leaders can make smarter decisions that protect against crises, save costs, and more.

The system can then be configured to generate automated alerts to draw attention to problem areas, helping users to triage and prioritize potential problems, turning information into action.

With such a system in place, while workers focus on preparing the safest and most satisfying meals and serving customers with style, the data-procuring technology that hums in the background can give executives the tools to know exactly – and even predict accurately – what they should do next.

More than that, investment in operational and food safety technology is how modern organizations position themselves for market leadership. The information and intelligence gathered is key to better decisions, lower costs, more profit – and competitive advantage today and into the future.

About ComplianceMate

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ComplianceMate™ provides the world's leading patented temperature sensor software system used to ensure regulatory compliance and operational efficiencies. The principal product offering has streamlined HACCP compliance checklists and cooler monitoring for all types of foodservice and related industries across multiple continents. With wireless temperature sensors and automated workflows, customers can view the certified data to make evidence-based decisions about operational processes. Organizations achieve improved audit scores and see a rapid ROI in just months.

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