

# NASCIO 2016 State IT Recognition Award Nomination

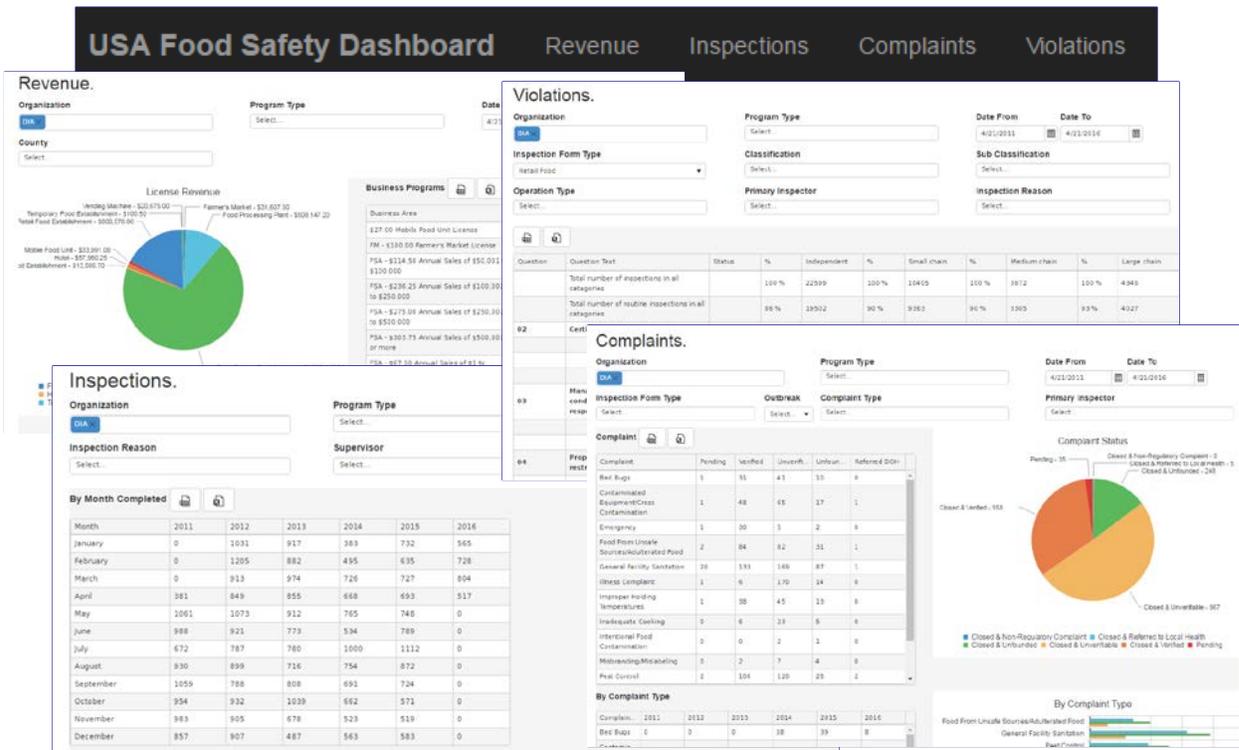
Category **Cross-Boundary Collaboration and Partnerships**

State **Iowa, with Kansas and Minnesota**

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Project initiation and end dates **February 2015 – November 2015**



## Executive Summary: Food Safety Executive Dashboard

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Clean, uncontaminated food is something most Americans take for granted, no matter where or what they eat. Food in the U.S. is part of a complex \$1.24 trillion ecosystem that touches all levels of the economy and spans local, state, and federal jurisdictions. Equally complex is the web of federal, state, and local standards that regulate it. The U.S. Department of Agriculture (USDA) and the U.S. Food and Drug Administration (FDA) set guidelines for food regulation; however, each state is responsible for establishing and enforcing its own specific Food Code. Indeed, the largest sector of the food industry is retail sales (i.e., sales at restaurants, grocery stores, and convenience stores) that are entirely regulated at the state and local levels. Enforcement of food safety requires multi-faceted collaboration to ensure that policy is applied consistently across jurisdictions and across a wide variety of commercial venues involved in production, distribution, sales, service, and consumption of food. Ensuring the safety of the food supply is by definition a shared, collaborative responsibility.

In 2014, the Iowa Department of Inspection and Appeals (DIA) installed a Government Off-The-Shelf (GOTS) system, USAFoodSafety, to support food regulation in the state. As part of the implementation, the system was modified to create an Executive Dashboard. This was to provide better information to the various jurisdictions using the system, so they can identify where there were greater risks to address in the food regulation. 14 municipal and county-level organizations, including six multi-county consortia in Iowa, use the Dashboard to provide real-time visibility, trending, and analysis into the food safety process, both within and across jurisdictions. The Executive Dashboard portal provides instant and absolute insight into food safety metrics, enabling public health officials to identify potential quality hazards in the food supply chain and to pro-actively address them. This is a level of business intelligence that most food safety programs accomplish (at best) on an annual or ad hoc basis. In Iowa jurisdictions, the Food Safety Executive Dashboard identifies risk on a daily basis.

In addition to the 14 local organizations, Iowa DIA also collaborated with Minnesota and Kansas in designing the Food Safety Executive Dashboard. They are both licensees of the base GOTS software and benefit from the GOTS code-sharing. Iowa DIA also collaborated with the non-profit National Agribusiness Technology Center (NATC) for coordinating the Executive Dashboard modification to the GOTS software.

This nomination is submitted by Iowa, representing collaboration between Iowa DIA and 14 local/county jurisdictions; the Kansas Department of Agriculture (KDA); the Minnesota Department of Agriculture (MDA); and the NATC. It will ultimately impact state-level Food Safety programs in the 13 other states who share the GOTS software: Alaska, Arkansas, Illinois, Iowa, Kansas, Maine, Minnesota, North Dakota, Pennsylvania, South Dakota, Vermont, West Virginia, and Wyoming.

We believe the project is exemplary of Cross-Boundary Collaboration and Partnerships; serves to improve quality processes across jurisdictions; has immediate and pervasive significance for food safety within our state and beyond; and has had an immediate, measurable, and highly visible process on food safety processes across all jurisdictions.

## Concept

*Key Point: The project addresses an important dilemma in public service and/or encourages civic engagement.*

Food Safety is an important public service issue impacting citizen health. The Dashboard benefits citizens by providing access to inspection reports; benefits food producers and restaurants by encouraging best practices; and benefits government program managers with access to data that enables them to allocate finite staffing resources to focus efforts where they will have the most beneficial impact on the quality and purity of food produced or sold in Iowa. Citizens can access information about inspections at [a public portal](#). The Food Safety Executive Dashboard is available to State and local government food inspectors, allowing multiple jurisdictions to collaborate on contamination issues.

Identifying where the greatest risk exists results from a risk assessment with the Hazard Analysis and Critical Control Points (HAACP) in food production. For example, a high-risk sushi bar will be inspected more frequently than a low-risk coffee shop; a sprouting firm more frequently than a produce stand. Iowa modified its Food Code in 2014 and instituted structural program changes to align with FDA recommendations. These changes impacted both public servants, e.g., food inspectors, and all commercial parties involved in food production and sales. The quality of the food chain, of course, impacts citizens across the state and beyond. As a point of reference, Iowa is home to 27 of the largest 100 food manufacturers/processors in the U.S., with food production valued at \$32 billion annually.

*Explain the process from genesis to design to implementation. Provide background on why the initiative is needed, context for the environment in which you are working and support as to why the initiative is the best solution.*

The public policy background is the Food Safety Modernization Act (FSMA) of 2011, frequently termed the most sweeping reform of food safety laws in more than 70 years. Iowa in turn completed a significant overhaul of its Food Code and successfully implemented USAFoodSafety across all state/local jurisdictions in January, 2014. The genesis of the Food Safety Executive Dashboard derives from DIA's desire to begin leveraging previously unavailable data points and to use them to affect performance, both internally and within the community of workers involved in food production and food service.

The goal of the Dashboard project was to provide immediate access to highly granular data on food safety, i.e., metrics on revenue, inspections, violations, and complaints. Drill-down access to key performance indicators (KPIs) in turn would allow DIA and local organizations to more accurately assess the effectiveness of specific programs, procedures, and quality initiatives. The Executive Dashboard is the only solution of its type that provides this level of analytics.

*Describe the evolution and elements of the initiative (solution architecture), such as*

- *How was this initiative selected as the solution?*
- *Is the initiative part of a larger project?*

The implementation of the Food Inspection system was a 12-month undertaking focused on configuration, conversion, and statewide rollout; including training for 100+ inspectors across 20 organizations. It cost \$400,000 in vendor labor and infrastructure; the GOTS license was free. The Executive Dashboard was created as a follow-on project at a cost of \$55,000 and implemented in 2015.

## Cross-Boundary Collaboration and Partnerships

- *What project management approach was taken?*

Project management followed the configuration management protocol required by the NATC, including consolidation with other work in process on the shared software, defined release management, and stringent quality controls for all modifications to the GOTS.

- *What are the costs (people, time, dollars)?*

The \$55,000 project required no additional infrastructure or training costs.

- *How will the initiative be assessed?*

Payback occurs immediately in near real-time – the software regenerates point-in-time KPIs on a nightly basis. For example, food manufacturing sites, such as canneries and ingredients manufacturers, process large quantities of food. They are considered a higher risk for contamination or entail such widespread distribution as to greatly enhance the risk. In Iowa, the number of inspections at food processing plants has remained unchanged – approximately 550 per year. The number of inspections at retail locations, however, has fallen by 50 percent, from 2,447 (2012) to 1,271 (2015). In other words, the metrics clearly show that the workforce of 100+ certified inspectors statewide are spending proportionately more of their time on high-risk inspections than low-risk ones; one of the primary metrics for implementing the new Food Code. The metrics also show that inspectors are spending more time on the inspection process itself, i.e., they are targeting their time/energy with focus on the sanitation best practices that will have highest impact on food safety. The dashboard also tracks violations and allows for trending to inspector, local health department or state level, to assist in ensuring uniform enforcement and for KPI comparison across multiple years.

- *What efforts are made to ensure accessibility and information security?*

The system design is highly secure, starting with the use of HTTPS protocol and the strict security scan of the application by the Information Security Office. The system has a clean design allowing the user to understand how to search for information. All State of Iowa websites and applications have a consistent header with a “Sliver” allowing users to navigate to the State of Iowa homepage or search state sites for information. Developers use appropriate fonts and color contrast, and they ensure images are tagged and necessary headers used on each webpage.

*Describe to what extent the state is responsible for oversight of the initiative and outcomes of the initiative.*

The enterprise project governance process (now known as Projects and Investments Workgroup) reviews all projects at initiation; recommends approval for execution; tracks quarterly status and changes, as well as reviewing projects at closeout. This project was tracked through its lifecycle, with closeout and lessons learned information shared with the enterprise.

*Briefly outline an associated communications plan to educate users and/or promote awareness and adoption.*

The immediate user community is 100+ inspectors, 40 percent of whom are DIA staff. Within this group, primary users are 28 program staff with management responsibilities in DIA or any of the 14 local organizations. These stakeholders were able to use the functionality without additional instruction.

Involving KDA and MDA during the requirements/design phase was an early form of encouraging future adoption of the Executive Dashboard. KDA and MDA are installing the GOTS

modification in 2016. The NATC and its technical support vendor(s) promote awareness of the function as part of standard release management for the GOTS software.

### Significance

*Key Point: The project is consequential, relevant, and transformational for state government and/or constituents.*

Implementing the Food Safety Executive Dashboard provided a control panel that enables DIA to monitor the all “touch points” in Iowa’s \$32 billion food ecosystem, and to react or intervene, where appropriate. It is the ultimate form of business intelligence, directly plugged into the food chain.

*Define the scope of the initiative and beneficiaries/stakeholder groups.*

The scope of the project was to create a dashboard of food safety KPIs with virtually unlimited means of filtering data. DIA wanted the KPIs to be as real-time as possible. The state had limited funding available, however, the cost was deemed extremely reasonable for the resulting high value. The immediate beneficiaries were program managers and supervisors at DIA and the 14 local organizations. Other stakeholders included consumers who eat in Iowa restaurants/ food facilities and consumers who eat food prepared from Iowa food ingredients. Because the GOTS software is shared across 13 states and more than 50 local health organizations, they too will directly benefit from this project.

*Highlight what makes the initiative innovative and distinct from similar projects.*

Food production occurs at 807 licensed facilities. Retail food sales and service occur at an additional 20,000 locations. To our knowledge, this is the only system that enables collection of food safety diagnostics at this level of detail, available for immediate impact/trending analysis. The system accomplishes, on a daily basis, what most programs might do annually, if at all.

Of particular value is the Dashboard’s diagnostic capability. Program staff can fine-tune the electronic “dials” on the Dashboard to drill down to virtually any level of detail and identify trends and potential risk.

*Outline what successful implementation looks like and why that is important. What change will the initiative have on the nominating agency, the state, constituents?*

Iowa DIA and local organizations are using the Food Safety Executive Dashboard to positively impact health practices across the state. For example, the new Food Code requires food venues to employ at least one Certified Food Protection Manager (CFPM), as a pro-active means of enhancing food safety. In 2015, inspectors conducted 16,856 Retail Food inspections, assessing 31 specific aspects of food production and service; this constitutes 522,195 diagnostic data points. The Executive Dashboard enables program management to hone in on the 1,162 noncompliant inspections for CFPM. Identifying why the violations occur allows inspectors to provide these facilities with guidance and education to correct the problem and thereby protect the citizens of Iowa. Similarly, program management can use a virtually infinite amount of diagnostic data to help target inspections and compliance for any of the 31 quality controls.

*Describe how the initiative fits into the larger picture: policy, strategy, and goal alignment with gubernatorial priorities; IT strategic plans; enterprise architecture; agency business plans, goals and strategies; state and federal mandates; and/or NASCIO’s 2016 state CIO priorities.*

In upgrading its Food Code, Iowa desired to implement emerging best practices; align with the FDA and newly codified recommendations from FSMA; and deploy scarce/finite inspection resources as effectively as possible. The Executive Dashboard enables program officials to

monitor the effectiveness of very specific items of policy and to pro-actively respond to specific trends, thereby reducing risk of contamination. Given a finite allocation of labor (100+ staff in 14 organizations) and a broad mandate to inspect all food venues, it also allows them to deploy staff more effectively, targeting inspection assignments based on potential risk.

### Impact

*Key Point: The project leads to substantial and measureable change; it makes state government better.*

This project has enabled DIA and the local health agencies to better deploy limited resources to have the greatest possible impact on food safety across the state. This is measurable in terms of quality, both the quality of government time and the ensuing quality impact on the food supply chain in Iowa. Both are described below.

*Compare the environment before the initiative was implemented and after it was completed. How is state government better?*

The GOTS package implemented enterprise data collection, i.e., a capability for easily measuring compliance with quality initiatives at any location in the state and amassing the data into a statewide repository. This was a huge step forward for Iowa. But, the state's ability to use these metrics to pro-actively spur behavioral changes on the part of commercial business was relatively limited. The inspection process, while highly accurate, was primarily focused on the immediate venue and its compliance with the Food Code.

The Food Safety Executive Dashboard therefore provided DIA and local health officials with near-instant (overnight) metrics and total transparency into all KPIs related to the food supply chain. In terms of implementing risk-based quality control, this is an unheard-of level of business intelligence. In addition, specific mandates of the new Food Code have a graduated implementation period from 2014 to 2018. The Dashboard enables program management to more effectively monitor compliance throughout the long implementation period.

*Detail the immediate and longer term impact of the initiative. Quantitative and qualitative performance measurements are appropriate here. Address the financial and non-financial reasons why this project was worthy of the investment made.*

The impact was immediate because the Food Safety Executive Dashboard enables DIA to assess the impact of the new Food Code across the state. The underlying KPIs depict revenue, inspections, violations, and complaints in a virtually unlimited combination of quantitative and qualitative performance measurements. It also presented these KPIs in a historical context, leveraging both historical metrics (2011-2014) and newly collected ones (2014-date).

All data is instantly viewable in graphs and charts and exportable to spreadsheets or documents. As an example, DIA staff completed 5,035 inspections in 2015. On average, 44% of inspections were completed on time, 132 days overdue. This was a marked improvement over the previous year, when 21% of inspections were completed on time, with an average 311 days overdue. Inspections scheduled because of consumer complaints occur in a much more timely fashion, with 82% completed on time; average days overdue ranged from 3 to 6 days, depending on the type of complaint. This makes business sense, since inspections scheduled as a result of a formal complaint tend to receive higher priority than a routine inspection.

Daily diagnostics is unheard-of in the field of food safety. The most significant value and impact of the project is its near real-time presentation of enterprise KPIs for diagnostic purposes. The Executive Dashboard provides an interactive view into the Iowa food supply chain, as of the previous day's synchronization with inspectors working all across the state. In the same way

## Cross-Boundary Collaboration and Partnerships

that a physician might read the output of an EKG device and modify the dials to obtain more detailed information, food safety managers in Iowa can easily see and focus on KPIs related to the food supply and pro-actively address potential contamination - before it occurs.

*Describe the benefits and the impact of the benefits for both the nominating agency and constituents, such as services to constituents, operational improvements, security and/or privacy, transparency of government, and transformation of government.*

From DIA's viewpoint, the financial investment for an Executive Dashboard was well spent. The additional 13 percent investment in the GOTS base system represented the logical next step to a successful project. While USAFoodSafety automated the inspection process needed by the new Food Code, the Executive Dashboard established electronic "dials" to allow program management full and immediate access to the metrics underlying the food supply chain itself. Metrics are extracted daily and presented for program analysis, in contrast to labor-intensive analysis previously conducted on an occasional basis.

This project has immediate impact on 100+ inspectors, in terms of daily workflow. It has extended impact on 807 food production facilities and 20,000 venues across the state. Food quality in turn impacts 3.1 million Iowans who eat food purchased in the state, as well as other Americans who eat products containing Iowa meat, poultry, dairy, fruits, or vegetables. This is the ultimate cross-boundary impact.

It has enabled operational improvement in the manner in which work assignments are made, such as allowing food safety officials to more appropriately target specific sites, including scheduling follow-up inspections. Security impact pertains primarily to the safety/security of the food supply itself, i.e., the Food Safety Executive Dashboard enables program managers to better secure the food supply in their jurisdiction.

**Summary:** In terms of cross-boundary collaboration for conducting the project, the initiative crossed state and local boundaries. DIA collaborated with local health officials in designing and implementing an Executive Dashboard for use by both state and county/local officials. In addition, as a means of leveraging knowledge/best practices from other states, DIA collaborated with partner agencies in Kansas and Minnesota to evaluate the effectiveness of specific KPIs and their potential implementation at KDA and MDA, respectively, since both are licensees of the GOTS package. Finally, DIA collaborated with NATC to ensure compatibility with the GOTS software and align with implementation goals of other licensees.

The Food Safety Executive Dashboard has benefited the public in terms of improving quality and reducing risk on the \$32 billion food supply in Iowa. It has enabled program managers to fine-tune and proactively address quality issues in the food chain. And, in 2016, it is beginning to impact the food supply of all other licensees of the GOTS software.