Making Food Safer

New analytics tool helps state agencies respond to food-borne threats

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New analytics tool helps state agencies respond to food-borne threats

The word “terrorism” can evoke a visceral response often associated with images of bombs or military action. Less likely to come immediately to mind is the thought of food.

And yet, as the world’s food supply becomes more global, a safe and secure food supply chain becomes increasingly important. A food contamination event—whether unintentional or the result of a terrorist act—could quickly become a catastrophic event in our ever-more-connected modern world.

This is why researchers at the Kenan Institute’s Center for Logistics and Digital Strategy have received support from the Institute for Homeland Security Solutions to create the N.C. Food-borne Events Data Integration and Analysis (NCFEDA) tool, a food safety early-alert system.

• FOOD SAFETY SYSTEM IS COMPLEX AND DISCONNECTED

The world’s food safety system is dynamic and complex. Uncovering relationships among seemingly unrelated facts is the key to timely decision-making in response to a food-borne contamination event, Greis says.

“There are many variables, and no two food-borne disease outbreaks are exactly alike,” says Monica Nogueira, Ph.D., director of the center’s Intelligent Systems Laboratory, which develops and tests software and analytical tools to improve logistics processes and decision-making.

“There are a number of stages at which a food product can be contaminated, from the farm to transportation companies to processing facilities, distributors, and retailers,” Nogueira says. “A product like milk, for instance, is complicated because it goes into a large number of products, such as cookies, butter, and soup, so contamination can spread widely.”

Fifteen federal agencies plus a variety of state agencies and public health offices play a part in the U.S. food safety system. And under the new Food Safety Modernization Act signed into law in January by President Obama, the private sector has new responsibilities and a more active role in assuring food safety.

“There are so many people with different responses to an event, and there are currently no ways to link all the information,” Greis says. The result is a major lag time, or “latency,” between the time a case of food-borne disease is detected and the time all offending products are removed from retail, institutional, and residential shelves across the country.

“In the case of the Peanut Corporation of America salmonella contamination in 2008, nearly 10 months passed from the first report of illness to the time the last product was removed from retail shelves,” Greis says.

• BRIDGING GAPS IN THE SYSTEM

NCFEDA bridges information silos across state agencies while adding new information from the private sector and consumers. The goal is to shorten the time between identifying and responding to an event to get contaminated food off shelves much more quickly.

The tool uses interactive maps and charts to integrate many sources of information and make emerging patterns become obvious more quickly. There are also links to the latest recalls and news outlets reporting food contamination-related events.

“A stakeholder with access to the system can quickly determine if there are patterns of illness or reports in a specific area of the state. And what they’ll be seeing will be happening in near-real time, not weeks or months later,” Nogueira says.

“It looks simple but behind those computer screens is a highly sophisticated intelligence engine. It’s like a brain,” Greis says, “and it will lead to preventing illness and ultimately saving lives.”

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“The new tool provides critical capabilities for visualizing, analyzing, and integrating data for managing a foodborne contamination event in real time,” says center director Noel Greis. “It is a logical extension of the work the center already does to ensure food supply chain safety.”

NCFEDA is designed for the state of North Carolina with the intent of becoming a national model. It was developed in collaboration with researchers at the N.C. Center for Public Health Preparedness at UNC’s Gillings School of Global Public Health.
Rural N.C. town gets assist charting a path to economic growth

Like many small towns throughout rural North Carolina, Enfield is home to many historic homes with interesting architectural features. A recent study by researchers at the Kenan Institute’s Carolina Center for Competitive Economies shows those beautiful old homes may hold more value than meets the eye.

Enfield’s historic homes have been identified as “heritage assets” in a recently completed Enfield Economic Development Master Plan, a year-long research project and investigation conducted by the center with funding from the Golden LEAF Foundation.

The plan identifies Enfield’s long-term economic development goals and recommends ways to achieve them.

“This plan identifies underutilized assets Enfield can capitalize on and provides key strategies the town can use to move forward,” says Jason Jolley, senior research director.

- PLAN LEVERSAGES TOWN’S UNIQUE ASSETS

Enfield, a town of just over 2,300 residents in southern Halifax County, is one of only seven counties in North Carolina that lost population over the past decade. The recession compounded the impact of that loss, Jolley reports. Town leaders hoping to reverse that trend formed the Enfield Partnership for Tomorrow to serve as a catalyst for growth. They turned for help to the Center for Competitive Economies. It helps communities address the challenges of global competitiveness to create solutions that build on their unique assets and aspirations.

“Enfield is a small town in a great area and we want to return it to be a more prosperous community,” says Charles Guerry, chairman of the Partnership for Tomorrow and executive vice president and general manager of Halifax Electric Membership Corp. “We wanted to know what we needed to do to accomplish that.”

Center researchers took five key steps to identify Enfield’s most valuable assets and promising economic opportunities. They scanned its available economic and demographic statistics; characterized its regional industrial clusters; compiled a comprehensive inventory of workforce development assets; engaged community members in prioritizing economic development goals; and, finally, created the master plan.

The research team also conducted a retail leakage study to determine how much of the area’s retail sales dollars are spent within the area and how much is spent elsewhere.

“In studying the surroundings and talking to residents, we found an acute shortage of consumer choices for retail goods and higher-than-average prices, which drives people to other areas,” Jolley says.

“We concluded that retail expansion was a priority and that the area could support some expansion, particularly in restaurants and in general retail,” he says. “We also discovered that Enfield is home to a large number of heritage assets—historic homes that could appeal to retirees coming to North Carolina and to former residents returning to the area.”

Examples include a historic art deco Masonic lodge and theater that is being renovated into a community arts center and two historic homes that were recently refurbished into bed-and-breakfast inns. The center is helping Enfield catalog and market its heritage properties.

These are the beginning steps in a long-term process envisioned for the community, Jolley says.

“The town does face challenges and we don’t sugarcoat that. But, ultimately, we have given Enfield a strategy and actions to take in the next year to begin to expand business in the area,” he says. “These are important steps to creating jobs and opportunities to help the community move forward.”

- TOWN LEADERS MOBILIZE FOR ACTION

People often think of economic development as focused only on recruiting large new employers to a community, Guerry says. But Enfield’s opportunity lies in its unique assets and calls for other strategies.

“This plan shows us the best mechanism for development specific to our community and gives us a list of steps to take,” he says. “It is the information we need.”

Cathy Scott, executive director of the Halifax County Economic Development Corp., says the center is an important resource to help communities, like Enfield, focus on feasible strategies that result in achievable results.

“The center’s work over the years has helped support a more global vision and focus on sustainable economic development opportunities for North Carolina,” she says. “Working with small towns in overcoming structural changes in their economies is not an easy task, but their work is based on key insights that, with proper implementation, can result in measurable achievements.”

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Historic Enfield homes, like Bethany Manor above, may hold a key to the town’s economic future.
Kenan Institute goes One-on-One with capital strategist Mark Yusko

The eyes of the world focused on the United States’ fiscal soundness this summer as policymakers grappled over extending the nation’s debt ceiling. The debate heightened tensions around fiscal priorities and renewed attention on the impact of the nation’s debt on its economic future.

A Kenan Institute-hosted roundtable, moderated by TV host Charlie Rose and led by U.S. Sen. Kay Hagan, convened fiscal experts to discuss the impact of the debt crisis and propose solutions for ensuring the nation’s fiscal soundness.

The Kenan Institute speaks one-on-one with panelist Mark Yusko, president and chief investment officer of Morgan Creek Capital Management, on the issue.

Here are excerpts of that conversation.

YUSKO: One of the questions that a lot of people ask is why are we here? How did we end up with a debt crisis?

At the end of the day, the government has a source of revenue, which is taxation. It has expenses, and the expenses are for defense and roads and education and health care and all these entitlement programs.

When we set up the entitlement programs in the ‘30s, ‘40s, and ‘50s, we didn’t have a lot of people drawing on them because the baby boomers, all born in the ‘40s to ‘60s, were young. So, the idea of paying for someone’s retirement was no big deal because it was way out in the future.

Now, the first boomers are turning 65, in January of this year. So suddenly these liabilities, these promises we’ve made for the entitlement programs, are starting to stack up. If our revenue base is declining, meaning we have lower taxes, and the economy is growing less quickly, so there are less taxes, suddenly you find yourself in a big deficit position.

We have a $1.6 trillion deficit. I put emphasis on the word “trillion” because most people don’t really understand a trillion. If you and I spent $1,000 a second for the next 31.7 years, that’s a trillion. So we’ve reached a level that is very dangerous.

KENAN INSTITUTE: Are there solutions to the debt crisis?

YUSKO: The easiest way to solve the problem is growth. If we can grow the economy faster than 2 percent, we can generate more tax revenues and increase our assets for the government to pay its liabilities. The way to do that is to lower unemployment and to increase small business development. The way to increase small business development is to give them tax incentives.

We know that the bulk of new jobs are created by small businesses. We know that large businesses actually are net cutters of jobs. So let’s give the benefits and the advantages to the small business owners and let’s encourage banks to lend. For example, if you are a bank that got federal money, maybe there’s a stipulation that some of that money has to go into small business lending to further growth.

KENAN INSTITUTE: How can we get around the political gridlock?

YUSKO: There are solutions but they are different than the current policymakers seem to be focused on. I believe what we really need to do is put the partisanship aside and say, ‘Today, what outcome do I want for my grandkids?’ or in my case, my seven-month-old. What outcome do I want?

We need to think critically about how we can encourage education instead of cutting education. Can we spend money on incentives for innovation and technology instead of cutting R&D budgets? Can we focus on lending to small businesses instead of lending to big businesses? Can we focus on tax policies that make sense for the whole populace instead of one segment of the populace that pays a much lower tax rate than everybody else? I think it’s doable.

KENAN INSTITUTE: What role can the Kenan Institute play in this debate?

YUSKO: I think another piece of the solution is to have organizations, like the Kenan Institute, that are fostering discussion about these issues, that are actively engaged in putting ideas and capital together for economic development. That’s the key to our future.