Automating the Commercial Kitchen – Part 2

*Making the business case for IoT, data ownership challenges,
user interface and service impacts*

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Adoption of the internet of things (IoT) technologies continues to increase progressively in commercial restaurants. From the earliest phases of experimentation and preliminary implementations to complete kitchen connectivity, more restaurant owners and operators are exploring the potential of IoT in their equipment and operations. Regardless of where your company sits on this continuum, attempts to automate the commercial kitchen are taking place throughout the foodservice industry.

In the first article of this three-part series, we wrote about how automation is driving labor efficiencies while helping to ensure food quality and safety. In this second article, we'll take a closer look at how companies are making the business case for IoT in their operations and dealing with the emerging challenges they're discovering along the way. Once again, our insights come

from an E360 panel discussion Emerson hosted earlier this year, featuring a distinguished cross-section of industry stakeholders:
- Chuck Guerin, vice president for controls of the Middleby Corporation, a leading manufacturer of commercial cooking equipment
- Jim Kleva, director of equipment engineering of Wendy's, a global quick service restaurant (QSR) chain
- Matt Toone, general manager and vice president of Cooper-Atkins, an Emerson-owned global manufacturer of high-quality thermometers, timers and wireless monitoring solutions

Making the business case for IoT

In general, the term *IoT* refers to "connected" technologies that capture data from sensors, equipment and processes to deliver actionable insights through analytics software or the cloud. In more advanced implementations, these technologies can even automate essential business functions via machine-learning algorithms or artificial intelligence.

But as we learned in the first article, any discussion of IoT implementations in QSR kitchens must be tempered with

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real-world applicability. That's why justifying a business case for IoT is critical to beginning the process of any new technology implementation. Understanding the business case for IoT starts with answering one simple question: "How serious are operators about using data?"

"We just need alerts," said Kleva, referring to Wendy's operational data priorities. "Our store managers and service technicians not only don't have time to look at data; most of them don't know how to interpret it. So data without actionable information is useless," he said.

Toone stated that data can significantly improve the quality management process by adding consistency to the ways in which food is safely stored, prepared and cooked. This includes digital pyrometers to record food temperatures, automated monitoring devices in cold-storage areas and refrigeration system monitoring — all of which can be connected to a common platform to generate alarms when temperatures or conditions fall out of desired ranges.

"With all of these inputs, we now have access to more data points than ever. And with them comes the ability to generate actionable alarms that help operators achieve their business objectives, protect their brands, and drive cost savings," Toone said.

Guerin insisted that the business case for IoT must factor in the cost of new technology investments and tie them to a specific business value. "Obviously, there's a cost to increasing automation — whether that's adding sensors, Wi-Fi networks

or the infrastructure to put data into the cloud — so we must deliver an actionable response to that investment," he said.

He went on to explain that once multiple pieces of equipment are connected and data is accumulating in the cloud, operators can act on this data by enabling remote menu downloads and providing service insights.

For Kleva, the business case for IoT and embracing operational data must address his most fundamental objective: labor reduction. "Ultimately, the goal of any kitchen automation would result in the reduction of non-customer facing positions from the daily restaurant staff," he said.

Who owns the data?

One of the most common concerns about IoT implementation is related to the uncertainty surrounding who owns the data, which could potentially be: an original equipment manufacturer (OEM), a foodservice corporation or a franchisee. And if one or more of these parties don't own this data, the question then becomes: "How can they access it to help with their own initiatives?"

Kleva alluded to some hurdles to overcome regarding data ownership. "Franchisees don't necessarily want to share their data with corporate, no less organizations outside of the corporate domain," he said. Kleva explained that franchisees recognize the value this data represents, adding: "They see their data as an asset that they're generating, and they would ideally like to be monetized for it."

Guerin offered an OEM's perspective on the matter, noting that OEM access to data enables the potential for ongoing equipment improvements that benefit all parties. "If somebody buys a piece of our equipment that utilizes a powerful algorithm to perform a key function, should they alone own the derived

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data that's coming from it?" He explained that in order to benefit from these insights, the OEM would need access to the original source data and the derived data.

Guerin said that OEMs can build a better business case by showing both franchisees and corporations why it is worthwhile to share their data: to create a value proposition that's based on reducing service calls and lowering service warranty costs, in addition to curbing labor costs.

Regardless of who owns the data, Toone pointed out that operator access to food safety data is imperative to help automate record keeping for compliance purposes. "For our customers, having access to three to four years of food safety data helps them ensure food quality and satisfy HACCP requirements," he said.

How important is user interface?

We know that the use of iconography and graphical user interface (GUI) design in commercial food factories is vital to ensuring equipment connectivity and proper equipment operation, and improving employee training and performance. But with the potential for having multiple manufacturers of equipment within a given commercial kitchen, it can be difficult to achieve uniformity.

Kleva explained that Wendy's has embraced this challenge. "We're never going to exclusively use one brand's equipment in our kitchens, so we customize the GUI so that it adheres to Wendy's common interface," he said. This process is applied to all pieces of equipment so employees can all share the same user experience.

Guerin said that Middleby's approach addresses equipment diversity by providing a common interface for different types and brands of equipment. "We understand that restaurant chains prefer one login to consolidate data and access information on which to make a variety of decisions," he said. He added that the Middleby Connect platform is designed with this goal in mind "because we know we're not the only equipment in the kitchen."

Toone said that equipment diversity dictates the need for an application program interface (API) strategy that would simplify

connectivity. "One of the issues we're seeing throughout the industry is that we all would like for these systems to be plug-and-play. And they're not," he said. "It's a reminder that connecting various pieces of hardware requires a supporting API strategy," he added.

Toone explained that simplifying connectivity is a key focus area within product development efforts at Emerson. "End users need to be able to hit a button, connect and be ready to go. If it's not that easy, it's just going to create headaches," he said.

Service impacts

An IoT conversation would not be complete without discussing its potential impacts on servicing. The panelists agreed that since this is an area where IoT already has a history of success in a variety of industries, it's inevitable that it will also impact the foodservice sector. However, service professionals at the event stated in the Q&A portion that, from their experience, these benefits have been slow to materialize. The panelists questioned if the lack of data, or in some cases inability to access to it, might be contributing to the problem.

Guerin said the industry needs to provide better diagnostics to service technicians through connected analytics and touch-screen controls. "Even if it's not a connected piece of equipment, it should provide more information about what has happened, and even list the steps needed to fix the issue," he said. Obviously, the best-case scenario is to give the end user enough information to fix it without having to initiate a service call.

Toone explained that the relative lack of maturity of IoT in commercial kitchens was another potential culprit. "Most of the foodservice industry is still in the infancy stage with IoT, especially compared to other sectors that are already seeing the benefits to maintenance and servicing operations," he said. He added that the pervasiveness of connected technologies in our daily lives will also help speed overall IoT adoption.

For Kleva, making the technology as customer-friendly as possible is essential, so proper alarm management and issue prioritization are key. "One of the biggest nightmares in a QSR is to be inundated with a barrage of beeping and buzzing and loud noises. We have to make these systems simple to use and above all, customer-friendly," he said.

In the final article of this series, our panelists will speculate on the future of automation in the commercial kitchen, while addressing the technical challenges related with data security and establishing industry standards for connectivity protocols.

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