

# SMART CHAIN

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# THE CONNECTED KITCHEN

Advancements in cooking technology are making back-of-house operations more efficient than ever.

BY DAVINA VAN BUREN

# Keeping Up in the Kitchen

Technology is helping to address the quick-service industry's most pressing challenges.

A successful quick-serve restaurant must be forward-thinking, adaptable, and financially savvy, all while the myriad of industry challenges grows ever longer: security, demand for more complex tastes and flavors, speed and efficiency, rising real estate costs, and food safety, to name a few. But the experts agree—the No. 1 challenge facing the industry right now is labor.

First, the economy is good and the number of people looking to go into the restaurant industry as a career is declining. “Turnover is high, which drives training costs,” says Edward Nunn, business development manager for **Hatco Corporation**. This means a restaurant could potentially invest a considerable amount of time and money into training an employee, only to have him or her leave when a “better” job comes along.

Second, rising minimum wage requirements in some municipalities have added to some companies’ bottom lines. “Increased labor costs driven by changes in labor laws have been well documented,” Nunn says.

Kitchen technology is helping to address these challenges. And though nothing is perfect, the consensus is that the earlier that brands adopt these technologies, the better. “Whether [technology] helps or hurts the bottom line depends on where you are on the technology adoption curve,” says Bob Dellert, vice president of national accounts-foodservice for **Alto-Shaam**. “If you are a leader in technology, it helps your day-to-day. If you are a late adopter or non-adopter, you certainly are struggling.”

To tackle the labor issues, many quick-serve restaurants are turning to automation. Many of the functions that once



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required culinary skill—or at least a person to keep an eye on things—are now performed by computers. “Having more automated equipment, such as programmable ovens, is helping to fill the gap where employees traditionally were,” says Jordan Robinson-Delaney, marketing leader for **Ovention**.

With machines performing tasks such

as prep work, cooking, and food safety checks, this frees up valuable payable hours for more guest-facing tasks. “This can be as obvious as direct contact with the customer while they are dining to keeping the environment clean and inviting,” says Brad Davis, group vice president of the **Middleby Corporation National Accounts**.

Quick serves are also streamlining their processes for mobile ordering and digital kiosks. The days of phoning in an order are long gone. Today’s clientele—especially millennials and Generation Z—appreciate the ease of ordering through apps and unmanned kiosks that require little to no human interaction. “Mobile technologies have not just increased sales through higher average tickets when you are interfacing with an app or a kiosk,

but they've also freed up staff from repetitive tasks, such as credit card swiping," says Kimberly Eros, product strategy and insights manager for **Henny Penny**. "In-store kiosks are a great example of how technology can free up service counter staff so they can focus on other high-value tasks."

In the back of the house, it's all about having multifunctional equipment that

basis while being profitable."

Along with the demand for smaller equipment, quick-service restaurants will need to produce more food faster. Eros predicts that equipment speed will become a key criterion in selecting prep, cooling, cooking, and holding equipment. "Executives, owners, and operators want to increase throughput in smaller spaces, while continuing to offer consis-

**North America.** "Competitive menu offerings in the quick-service segment are a must; however, the current kitchen space might not allow the addition of equipment needed. The versatility of a combi oven is a solution. The variety of cooking methods from roasting, grilling, frying, baking, steaming, finishing or reheating, slow cooking, or nighttime cooking without supervision opens the door to endless



takes up as little space as possible. "Higher real estate costs translate into smaller kitchens," Eros says. "Today, the average size of a restaurant is 1,375–4,250 square feet, with the lion's share of space being devoted to kitchen and storage. In the future, 1,375 square feet may be considered the maximum viable size in dense urban areas." This means smaller equipment with flexible technologies will be selected over large equipment with limited purpose.

"Instead of having to run multiple types of cooking appliances, combi technology allows operations to accomplish many types of cooking methods in a very small space," says William J. Buck, national corporate chef for **RATIONAL USA**. "Intuitive cooking equipment with push-button control technology and versatility allows operations to see an ROI through labor, food costs, and energy savings. All in all, this allows quick-service operations to enhance their food offerings, as well as their quality and consistency on a daily

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tent quality food at the pace expected by guests," she says. Feeding more guests in smaller spaces will necessitate speed and efficiency.

Intuition and speed are just the start of what today's cooking technologies can do. One of the most popular pieces of equipment in contemporary kitchens is the combination oven. "A misconception about combi ovens in the industry is they are complicated and hard to use," says Thomas Stegmaier, president of **Eloma**

menu and recipe possibilities."

To accommodate the need for speed and efficiency, microwave ovens have become much more acceptable as a cooking medium. "Not only for frozen or reheating products, but actually cooking food products," says Angelo Grillas, director of marketing for **Electrolux**. Smoking and sous-vide equipment continue to evolve as well. "Foods can be cooked with extreme precision on a sous-vide setting without being vacuum-sealed, enabling quick-serve and fast-casual operations to use a technique, like sous vide cooking, without adding an immersion circulator or a classically trained chef," says Christine Butchko, marketing manager for **Winston Foodservice**. "The advantage is being able to translate down what is typically considered a fine-dining technique to a far more accessible menu application."

Andy Coniglio, corporate chef for **Welbilt**, also sees applications for sous-vide cooking in quick service. "Sous-vide cooking brings consistency to product and



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helps accelerate the cooking process during service,” he says.

Butchko adds that staging is another process that can dramatically reduce ticket times. “CVap Staged burgers, for example, can be cooked three times faster than burgers that are cooked from fresh or frozen patties.”

Speed ovens and induction are two popular technologies on the market today, but for almost opposite reasons. “When programmed, speed ovens are simple to use and highly efficient,” Nunn says. “They deliver consistent results and thereby drive customer loyalty by boosting predictability.” Conversely, induction cooktops and woks facilitate action stations that enhance the perception of freshness and customization.

“Although induction cooking technology is not new, the application has become more diverse and controls have developed that have improved the func-

tionality in busy kitchens,” Davis says. “Menus can be developed that allow for rethermalization and holding at precise temperatures essential to delivering a consistent quality product.”

The rise of induction cooking has also increased demand for stainless steel cookware. “Over time, stainless steel cookware has always been seen as the gold standard,” says Terri Mayer, category manager of smallwares and countertop equipment for **Vollrath**. “Cooking on stainless steel is flavor neutral and will not change the flavor of the food. Stainless steel induction compatible cookware is one of the fastest growing cookware categories.”

Kitchen technology also helps accommodate another trend: the demand for complex tastes and dietary restrictions. “Increasing labor wages and customers demanding fresher and healthier menu options are currently very prominent challenges for quick-serve restau-

rants,” Buck says. “Appliances with cooking intelligence is a way to battle both of these challenges, by giving operators the ability to produce high-quality and healthier foods automatically with minimal supervision.”

As globalization takes hold and customers demand cultural experiences through food, customers are demanding more complex flavors and refined presentations. “The quick-service and full-service segments are being challenged by evolving customer taste trends, increasing interest in diverse ethnic cuisines, and the desire for constant change,” Grillas says.

Cultural and regional cuisines that embrace freshness and health are on the rise, and the popularity of “foodies” with disposable income and huge Instagram followings is changing the way quick serves do business. “Restaurants need to self-invent themselves over and over again and adapt to food trends and special diet needs,” Stegmaier says. “It looks like the chicken pot pie from yesterday had to make room for sushi.”

In addition to helping address the practical and psychological aspects of the industry, technology is allowing restaurants to make giant strides in food safety. “Automation of repeatable tasks in the preparation and cooking of food will be the key to profitability for foodservice providers in the future,” says Don Hawkins, group vice president of the Middleby Corporation Emerging Chains. “It’s also the key to enhanced food safety and on-demand meals.”

As more restaurants embrace farm-to-table, local, and other fresh service concepts, the possibility of introducing pathogens increases. “Safety precautions and standards have greatly been impacted by the awareness of food borne illnesses and how that can ruin a company,” says Cheyenne Raida, account representative for **XLT Ovens**. This means that technology in the food-safety realm is one area where companies are increasingly willing to invest. “There is a large emphasis on food safety and eliminating the human factors. Our biggest customers focus on food safety in order to steer clear of any chances of creating any food illnesses.”

Advancements include bacteria-detecting sensors, automated hands-free transferring of food products into and out of cooking equipment, and Wi-Fi-enabled kitchens that record information, such as HAACP logs. “There are a few large chains out there that are moving pretty quickly toward that,” Dellert says. “I think in the next five to 10 years, even small little operations will be using this idea of a

environment,” says Chris Bartley, director of global chain sales for **ACP**. “No business wants their POS system and customers’ financial information exposed to hackers through a connection to a piece of kitchen equipment.”

In kitchens of the not-too-distant future, equipment will be linked and able to communicate using real-time data. “Equipment will be linked so it can com-

ordering kiosks and touch-button, automated equipment.”

Hawkins sees a similar trend. “Ghost kitchens for delivery that reduce the cost of construction will become more popular as we seek better delivery options.” Cooking machines will be able to send a message to a service technician in advance of a breakdown, and at the end of the day, will be expected to clean and sanitize themselves before going into sleep mode.

As multiculturalism takes hold, the appetite for new and exciting menu options will only increase, making technology an increasingly important part of quick-serve kitchens. “This is putting more pressure on equipment suppliers to provide more durable, longer-lasting equipment with same-day service if needed, with low-cost repairs,” Bartley says.

But restaurant operators should make sure to do their research about exactly which technologies will work best in their establishments, paying special attention to how incorporating one element affects timing and other kitchen operations. “The incorporation of newer technology always comes with a price tag,” Raida says. “A restaurant operator needs to understand how incorporating this technology would impact their bottom line instead of looking at the initial investment in products with cutting-edge technology.”

Grillas offers this advice to restaurateurs considering instituting new cooking technologies: “Always build for the future. The future comes faster than we think sometimes, so build to allow today’s technology to be customized for use in the future.”

To some, this world of robotics and automated cooking may seem cold and impersonal, the exact opposite of the warm and inviting image most restaurants want to portray. But Grillas isn’t worried. “Culinary creativity is the most important asset of any quick-service or full-service chain corporation,” he says. “Stifling a chef with technology to dumb-down culinary recipes is counterproductive. Chefs are still critical players in the whole experience.”



Alto-Shaam

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connected kitchen. You’ll know exactly what every piece of equipment is doing during your operation.”

While there is no arguing the benefits of early detection of possible pathogens, these connected kitchens are far from perfect. “There are still stumbling blocks with regard to security that need to be addressed when implementing internet-connected equipment to a commercial

communicate and can give real-time data for example, the front of the house and the back of the house equipment communicates how many customers served and how much to prep,” says Kim Miller-Boivin, director of FIT culinary strategic accounts at Welbilt.

Not only does this help a kitchen better prepare for labor, but it also reduces costs associated with waste. “Automation will help profitability by increasing consistency, quality,” says Rich Mathis, corporate executive chef at Welbilt. “It will also help with food cost by connecting with POS systems cooking when needed.”

And that’s just the beginning. “If the labor shortage continues, having more robotics and automated equipment will have to be the solution,” Robinson-Delaney says. “The kitchens will likely be run by a couple of people overseeing the

# Engaging Millennials

The expectations of younger employees and consumers are changing foodservice kitchens.

**W**hat do politicians, marketing executives and quick-serve restaurants have in common? They all want to capture one elusive, unpredictable market: millennials.

Millennials—and Generation Z, also known as “late millennials”—account for more than half of all foodservice spend in the U.S. Known for being tied to their smartphones, shouldering staggering amounts of student loan debt while somehow still backpacking through Thailand, and being obsessed with “selfies,” millennials are an interesting bunch, because the world has never seen anything like them before.

“These is a generation of consumers that don’t relate to a world without the convenience that WiFi and mobile devices bring,” says Kimberly Eros, product strategy and insights manager for **Henny Penny**.

Like previous generations, however, they’ve been shaped by the social and political events of their time. “They felt the impact of a post 9/11 world as very young impressionable children—or were born into it—and they witnessed the Great Recession of 2008 firsthand as pre-teens, perhaps seeing parents out of work or worrying over paying the mortgage,” says Edward Nunn, business development manager for **Hatco Corporation**. “As a result, Gen Zs tend to be more independent, very conscious of value, and risk averse. This will affect the foodservice industry as much as it will any other.”

This psyche is changing the way quick-service restaurants do business. From user-friendly, touch-screen interfaces on cooking equipment to marketing through social media and online engagement, owners and restaurant managers are bending over backward to attract millen-



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nials, both as consumers and employees.

“As with any industry, it’s getting younger,” says Ann Ewoldt, director of marketing and business intelligence for **ACP**. “Younger people are going to be more technologically savvy and expect technology to provide them ease of use and speed, both as employees in a commercial kitchen and as quick-service customers.”

On the consumer side, this means restaurants must stay innovative in their approach to reaching this group. Millennials expect to stay constantly connected via digital channels, and they have a fondness for dining in and ordering carryout. “Due to this, the smartphone will play an essential role in tomorrow’s food equipment technology,” says Chris Bartley,

director of global chain sales for ACP, adding that in the future, smartphones will be directly tied to the POS and cooking equipment directly to the customer. “Soon, customers will place food orders directly on their devices before they reach the establishment or before it is delivered. A phone call or order taker will be a thing of the past.”

Social media also plays a major role in brand development, and, Bartley says, has challenged existing quick-service players by allowing non-traditional, smaller, more trendy chains a new, low-cost way to enter the market.

Somewhat ironically, this online social engagement does not translate into human interaction for the millennial. “Today’s customers—especially millennials—don’t want to wait for anything; they’d prefer to limit interactions with another person, and they want the ability to customize or personalize what they order,” says Christine Butchko, marketing manager for **Winston Foodservice**.

Of a recent panel discussion composed of millennials, she says all of the speakers revealed they eat out several times a week, if not daily.

“What keeps them coming back to a particular chain or brand is a consistent experience in terms of service and food quality,” she says. “If the food and the order-to-delivery process is consistently good, that will bring them back over a loyalty program or LTO. Front-of-house systems and apps that facilitate placing an order are key, and in all honesty, I think we are beginning to see the demise of the drive thru.”

If drive thrus are on the way out, then other trends are on the way in. “Millennials are changing the way we eat, from electronic ordering to more fast casual and less sit down, and even the emerging trend of home delivery,” says Joe Carcione, director of sales for **Nemco**. “It all goes back to how fast can you make it and still maintain the quality of casual or fine dining.” With dietary trends and increased interest in ethnic foods and fresh, local, sustainable foods, customization is also an essential element for millennial diners.



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“Millennials and Generation Z are not eating out as much, but they order in or take out more often—much more often than they’ll ever cook at home,” Bob Dellert, vice president national accounts-foodservice at **Alto-Shaam**. “That’s a big change, and I don’t see that slowing down.”

This desire for a high-quality, custom-

ized meal without leaving the comfort of home is driving the popularity of food delivery apps, like UberEats, DoorDash, and Eat24.

“We already see their preferences being catered to via online engagement apps, mobile ordering, mobile pay, and delivery. All quick-serve restaurants have already implemented or are actively developing these strategies,” Eros says. “Technology will continue to fuel the growth of off-premise eating via increased delivery options, as well as provide the pre- and post-engagement that most younger consumers now expect.”

Labor remains at the forefront of restaurant operators’ problems, and the influx of Gen-Z employees entering the workforce has pros and cons. “It’s both a challenge and an opportunity for staffing,” Nunn says. “It will be hard to attract labor, but that labor will come ‘ready-equipped’ to use programmable equipment.”

In other words, all that screen time millennials and Gen-Z staff get on their phones will serve them well in the back-of-the-house. “Quick-serve kitchens will benefit from technologically-advanced equipment that plays to the strengths of a tech-savvy employee who may also have a short attention span,” Butchko says. “Additionally, any increases in labor turnover can be addressed by using equipment that requires little training and automates as much as possible in order to help manage consistency of results and food quality.”

With all the fuss over millennials, quick-service operators shouldn’t count out the older folks’ dollars just yet. This demographic will also exert strong forces on industry trends. Don Hawkins, group vice president of the **Middleby Corporation Emerging Chains**, predicts that these two large age groups will come together to change the foodservice landscape.

“Younger people will continue to demand choice and elasticity in every choice they make,” he says. “The desires of those young people, along with an aging populace, will require foodservice operations to expand service hours and to serve breakfast, lunch, and dinner throughout the 24-hour cycle.”

# How Cooking Technology is Helping the Environment

Going green is not only good for the earth, but it's also good for the bottom line.

**E**mboldened by energy-saving technologies and consumer demand for more sustainable options, quick serves are investing in technologies that not only reduce energy, food waste, and water consumption, but also increase profits.

The sustainability trend is seen in almost every aspect of the restaurant industry, from architecture to building materials, but nowhere is it more apparent than in the quick-serve kitchen. “Reducing the footprint in the back of the house remains to be at the forefront of those designing restaurants today,” says William J. Buck, national corporate chef for **RATIONAL USA**. “Cooking appliances, which are multifunctional with built-in global cooking intelligence, can help operators reduce their capital investments when starting up and can lower overall operating expenses daily.”

One smart appliance is the induction cooktop. Operators are increasingly investing in induction cooking over traditional cooking methods, like electric and gas. “Induction is more energy efficient, saves money, and has faster recovery time with less energy wasted during slow periods,” says Becky Guentner, category manager of smallwares and countertop equipment for **Vollrath**. “Induction also allows for more consistent cooking across locations and saves on food waste.”

In turn, appliance manufacturers are responding to demand for energy-efficient products. Kimberly Eros, product strategy and insights manager for **Henny Penny**, says her company explores technologies that reduce oil waste for customers and improves holding platforms that allow customers to hold product over a longer time period without sacrificing quality, therefore leading to less food waste.



**“In America, we throw away too much stuff, and that’s an area that I think can improve with technology.”**

And let’s not forget the microwave. “By design, high-speed microwave cooking is environmentally friendly,” says Ann Ewoltdt, director of marketing and business intelligence for **ACP**. “The oven is only using energy when food needs to be cooked and the food is cooked in such a short amount of time, there are huge energy and cost-savings involved.”

Cooking smaller portions on-demand also reduces food waste, an enormous problem in the U.S. “The USDA states 30–40 percent of all food in the U.S. is wasted,” says Edward Nunn, business development manager for **Hatco Corporation**. “It’s on our mind when we design products.”

Reducing water use in kitchens has also become a priority. “Often, wastewater costs are greater than the cost of the water coming out of the faucet,” says Don Hawkins, group vice president of the **Middleby Corporation Emerging Chains**.

“By using water-free equipment to steam or hold foods, or even clean hands, the cost of water and wastewater is reduced. Savings are also seen in the construction process via reduction in the amount of water lines, valves, and drains needed.”

As kitchens become more connected, quick serves will be able to affect energy usage to an even greater extent. “In America, we throw away too much stuff,” muses Bob Dellert, vice president of national accounts-foodservice for **Alto-Shaam**, “and that’s an area that I think can improve with technology.” He says that in the future, for example, more quick serves will take advantage of technologies that allow for compaction, dewatering, grinding and onsite composting in order to reduce waste even further.