

POV:

# Automation in restaurants

The ROE of human + machine

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# Insights & implications

As the dust of the pandemic begins to settle, it's revealed a permanently altered restaurant landscape. Consumers have heightened expectations around speed, accuracy, intelligence, and automation and are more receptive than ever to the technologies that provide them. Yet most restaurant consumers still feel human beings are integral, even critical, to the restaurant experience regardless of sector or fulfillment type.

As we design more fully automated restaurants of the future), technology should be integrated thoughtfully as a strategic enhancement and extension of our employees. In the end, the highest ROE comes not from humans or machines but from restaurant experiences that balance humans AND machines in both highly visible, "on-stage" areas as well as less visible areas "off-stage".



# An appetite for automation

According to a 2021 “Global State of the Hospitality Industry” report from Lightspeed, 87% of restaurant operators believe technology adoption has been critical toward their survival during the COVID-19 pandemic. As the industry continues to feel the crunch between a staff shortage and returning guests, the same study reports that half of U.S. operators plan to use some type of automation technology to fill experience gaps in the next 2-3 years: a trend that was a weak signal before the pandemic.

# 75%

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Interaction with a human is critical when I’m at a restaurant

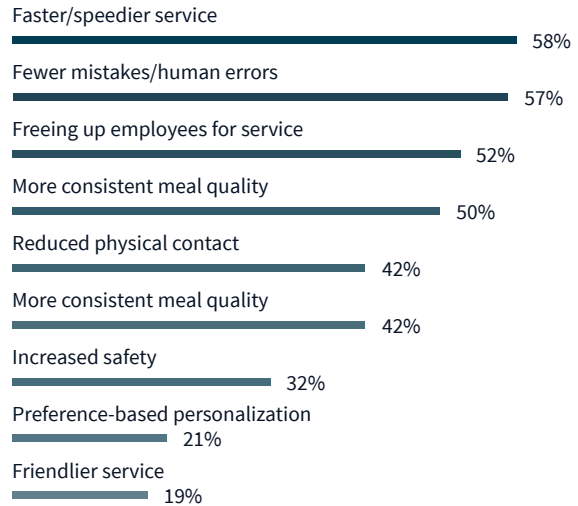
Of course, that doesn’t mean fully replace staff with technology. Seventy-five percent of consumers still feel that interaction with an employee – having a literal human touch – is critical, especially where quality is a concern: the warm welcome, the preparation of food, cleaning areas where food is made and consumed, and service at the table.

## Preference for Human vs Machine (Mean summary, n=1,002)

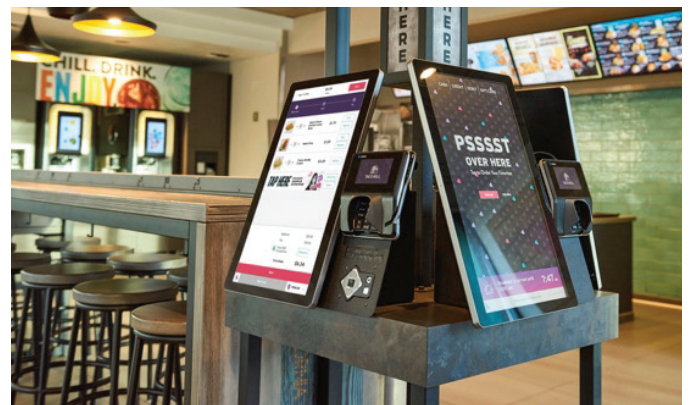


## Benefits of automation

(% Selected, n=1,002)



Though friendliness remains a service best offered by employees, consumers are most receptive to automation where speed and accuracy are concerned. Fifty-eight percent say faster/speedier service is a top benefit of automation, and 57% feel it means fewer mistakes/human errors.



Taco Bell expedites the ordering process by putting the power in consumers’ hands: through self-service kiosks

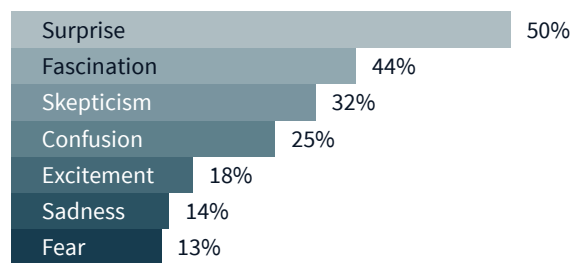
Among the generations, Baby Boomers are the most likely to expect an experience that skews more human than technology. Women are also more likely to indicate a preference for people, while younger generations and men are more likely to report feeling excited when they see more technology being used in restaurants.

# A reticence around robotics

Consumers can easily cite the benefits they get from automation, but they have mixed feelings on how it should be integrated into the restaurant. Thirty-two percent are okay with technology being used... but they would prefer not to see it. Seeing robots in the kitchen preparing their food (“off- stage”), for example, or even delivering food to their table (“on-stage”) would elicit their skepticism. The rest, who are more positive or neutral to the ideas, would range from feeling surprised to feeling fascinated.

## Seeing robots off-stage

(% Selected, n=1,002)

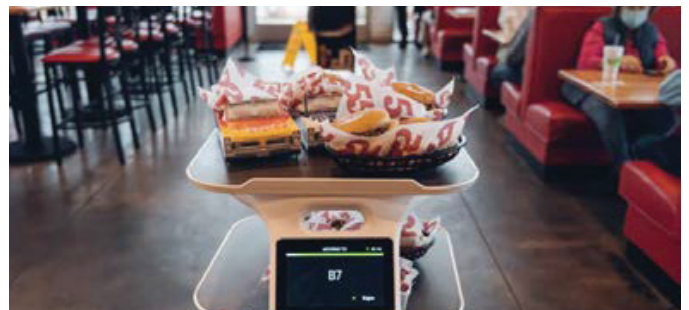
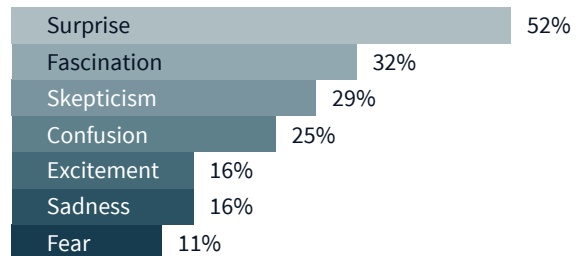


White Castle’s robot chef, Flippy, is being added to 100 kitchens – one-third of its locations nationwide

Younger consumers, Gen Z and Millennials, are more likely to feel more positive emotions – like excitement, happiness, confidence, and inspiration – if they were to see something like White Castle’s “Flippy” preparing their meal (above).

## Seeing robots on-stage

(% Selected, n=1,002)

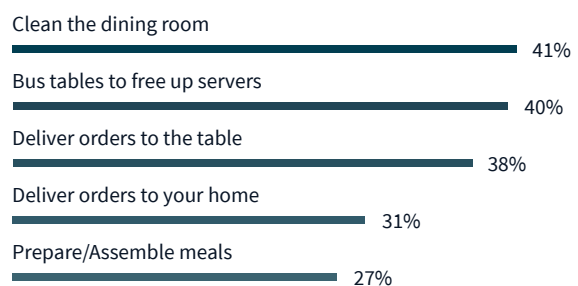


Rita the Robot, a “cobot”, collaborates with servers to deliver meals in 10 Chili’s locations and counting

Despite any reticence, many consumers are open to the idea of restaurants using robots – especially in doing simple, repetitive tasks that can free up employees for things that require more thoughtfulness or skill. Four in 10 like the idea of robots that can clean the dining room, for example, and bus tables. And, though they have conflicting feelings, 38% are receptive to “on-stage” robots that deliver orders to their table, like Chili’s “Rita the Robot” – a number driven up by high adopters in Generations Y and Z.

## Openness to Robots that...

(Top 2 box, n=1,002)



# Executions that would excite

While robots are the flashiest example of the automation revolution, there are other technologies that contribute to the fast, intelligent, and contactless experiences consumers expect – especially in the ordering, checkout, and pick-up process. More than half (52%) would do contactless payment through their smartphone (no card, no cash) – a trend that skyrocketed more than 30% between 2020 and 2021, according to Visa. Thirty-seven percent remain open to accessing menus through QR codes at the table, a solution that felt nearly ubiquitous in all types of restaurants at the height of the COVID-19 pandemic.

Other ideas that excite consumers are insulated pick-up lockers like at KFC; AI- powered, drive-thru menu boards like those at Tim Horton’s; and proximity-based push notifications. Millennials are the most receptive generation across the board.



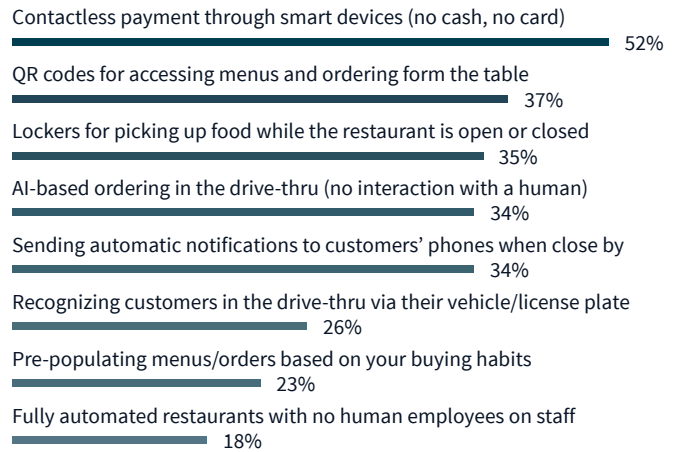
A conveyor belt and robotic arm delivers orders to heated in-store lockers at KFC, where consumers can pick up their digital orders with no contact with staff



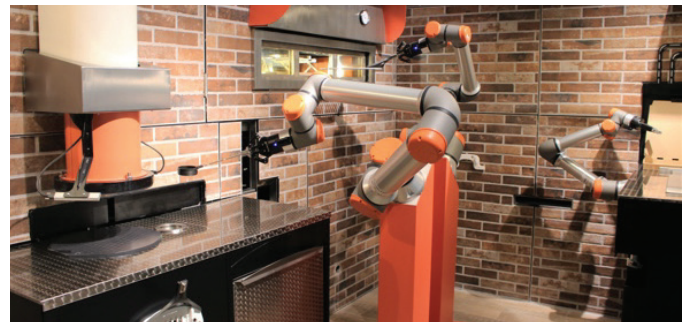
Pazzi, the world’s first fully automated restaurant, can produce nearly 80 pizzas per hour to be picked up, enjoyed on the spot, or delivered home

## Openness to different solutions

(Top 2 box, n=1,002)



While only 18% love the idea of a fully automated restaurant, they see it on the horizon (more on that later).



Tim Horton’s has rolled out digital drive-thru menus with powerful predictive selling technology that integrates with its loyalty program

# 33%

“

I get excited when I see more technology being used in restaurants (Top 2 Box, n=1,002)

# The turning tide on loyalty

The design implications surrounding this type of automation in restaurants go beyond just operations and logistics. Consumers' emotional response to human- to-human interaction creates positive brand perceptions, drives repeat visits, and ultimately results in brand loyalty. If these emotional bonds are not carefully reinforced – or worse, if they are compromised through too much technology – the long-term relationship with your brand is at risk.

Never has loyalty been in such a perilous state for the restaurant industry. The forced adoption of third-party apps like Uber Eats, Grubhub, DoorDash and Postmates has solidified new behaviors and fueled new expectations around speed, intelligence, convenience, and yes – automation. In fact, twenty-three percent of consumers now say they are more loyal to their delivery apps than to restaurants... and 38% of Millennials! Perhaps a weak signal that's indicative of a turning tide?

## 23%

“

I am more loyal to my delivery apps than to restaurants these days (Top 2 Box, n=1,002)

|            |             |            |           |
|------------|-------------|------------|-----------|
| <b>33%</b> | <b>38%</b>  | <b>22%</b> | <b>8%</b> |
| GenZ       | Millennials | GenX       | Boomers   |

## 67%

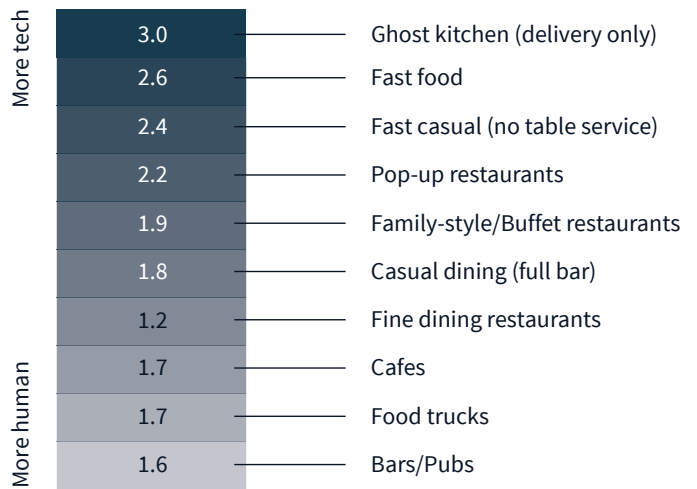
“

I am more loyal to restaurants than to any delivery app (Uber Eats, Grubhub, etc.) (Top 2 Box, n=1,002)

|            |             |            |            |
|------------|-------------|------------|------------|
| <b>57%</b> | <b>64%</b>  | <b>68%</b> | <b>73%</b> |
| GenZ       | Millennials | GenX       | Boomers    |

Consumers are also okay with varied executions depending on the type of restaurant. They expect lower-touch, speed- oriented sectors like fast food and fast casual restaurants to be on the forefront of the automation trend, with more high-touch, service-oriented sectors like casual dining and fine dining closer to the human side of the spectrum. Again, in every sector – minus ghost kitchens and pop-up restaurants – Baby Boomers tend to over-index human compared to Gen Z and Millennials.

**Human vs Machine by sector**  
(Mean summary, n=1,002)



At the end of the day, regardless of any preference they have for more human versus more machine, consumers have an innovator's mindset: 1 in 4 anticipates dining at a fully automated restaurant as soon as the year 2025. Each new technology that's introduced between now and then should be designed into the experience thoughtfully and strategically and in a way that benefits the restaurant, its human (and robot!) staff, and its new and loyal guests.

## 26%

“

I anticipate dining at a fully automated restaurant in the next 3 years (Top 2 Box, n=1,002)

# About this study

Design Solutions conducted this online study in partnership with Big Village between March 11-13, 2022. It consisted of an omnibus CARAVAN® survey with 1,002 demographically representative U.S. adults ages 18 and older.

## Resource links

**10 robots automating the restaurant industry, Fast Casual**

<https://www.fastcasual.com/blogs/10-robots-automating-the-restaurant-industry/>

**2021 Global State of the Hospitality Industry Report, Lightspeed**

<https://www.lightspeedhq.com/resources/restaurant/state-of-the-hospitality-industry-report/>

**A burger-flipping robot may be coming to a White Castle near you, Engadget**

<https://www.engadget.com/white-castle-flippy-2-100-locations-205023731.html>

**Burger King, Tim Hortons and Popeyes Will Modernize the Drive-Thru Experience at 10,000+ North American Restaurants by mid-2022, Newswire**

<https://www.newswire.ca/news-releases/burger-king-tim-hortons-and-popeyes-will-modernize-the-drive-thru-experience-at-10-000-north-american-restaurants-by-mid-2022-873496466.html>

**CES 2022: Food Tech, Stylus**

<https://www.stylus.com/ces-2022-food-tech>

**Digital payments soared during the pandemic and are here to stay, CNBC**

<https://www.cnn.com/2021/08/17/digital-payments-soared-during-the-pandemic-and-are-here-to-stay.html>

**Pazzi, the world's first fully automated restaurant, opens its restaurant in Paris**

<https://pressroom.pazzi.co/pazzi-the-worlds-first-fully-automated-restaurant-opens-its-restaurant-in-paris>

**Trends in drive-thru & fast-food hospitality, Stylus**

<https://www.stylus.com/drivethru-and-fastfood-hospitality>

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