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## SHORT OF WORKERS, FAST-FOOD RESTAURANTS TURN TO ROBOTS

*Flippy the burger chef doesn't complain about the drudgery of grill work and never leaves the kitchen*

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John Miller, chief executive and founder of CaliBurger LLC, finds it harder to find employees these days. His solution is Flippy, a robot that turns the burgers and cleans the hot, greasy grill.

The chain plans to install Flippy in up to ten of its 50 restaurants by year end. CaliBurger doesn't intend to kick humans to the curb as a result. Flippy will handle the gruntwork, freeing employees to tidy the dining rooms and refill drinks, less arduous work that might make it easier to recruit and retain workers.

"We're a long way from teaching a robot to walk the restaurant and do those things," Mr. Miller said.

Experts have warned for years that robots will replace humans in restaurants. Instead, a twist on that prediction is unfolding. Amid the lowest unemployment in years, fast-food restaurants are turning to machines – not to get rid of workers, but because they can't find enough.

The hospitality industry had 844,000 unfilled positions in April, a record high, according to the Labor Department. That accounts for about one out of every eight jobs available in America. Employment in food service and drinking places has increased by 1.6 million since May 2013 to 11.9 million in May 2018.

If businesses were just using machines to replace workers, you would see high unemployment in the industry, said Donald Grimes, a labor economist at the University of Michigan. "But you're not seeing that at all."

The 6% unemployment rate for restaurant workers is the lowest on record, according to the Labor Department. It tops the 3.8% overall unemployment rate, yet is extremely low for an industry with notoriously brisk turnover – a full percentage point below where it stood in 2000, the last time overall unemployment was as low as it is today.

The rise of machines in theory should lead restaurants to employ fewer people per establishment. So far that's not happening, either. Nationwide, employment is up at individual quick-service restaurants, to 18.4 workers per establishment last year, from 17.4 before the recession began in late 2007.

Many restaurants are trying to do more, including staying open around the clock or delivering food. Some chains also need more employees to handle the increased demand that comes from automating tasks such as ordering.

"I've never seen the labor market this tight," said Scott Murphy, chief operating officer for Dunkin' Donuts U.S. "We spend a lot of time training people and a month later they walk out the door."

Dunkin' conducted focus groups with former employees to pinpoint the mundane tasks that made them want to leave and geared automation around that.

Workers used to create thousands of hand-written labels daily for everything from coffee to cheese expirations. Last year, Dunkin' installed small terminals that print out expiration times.

Brewing a single pot involved grinding and weighing coffee and comparing its fineness and coarseness to a perfect sample. Now, some Dunkin' shops use digital refractometers to determine if coffee meets specifications.

Automation improves consistency, shaves time off tasks, and may help ease the incessant turnover that crimps productivity and staffing across the industry. Alexandra Guajardo, the morning shift leader at a Dunkin' Donuts shop in Corona, Calif. said she's likely to stick with the job longer now than she otherwise would have.

"I don't have to constantly be worried about other smaller tasks that were tedious," she said. "I can focus on other things that need my attention in the restaurant."

Mr. Murphy said he can't see a time when a Dunkin' Donuts shop is fully automated. The company experimented with a robot barista nearly two years ago at an innovation lab in Massachusetts. The robot did fine at making simple drinks, but couldn't grasp custom orders, such as "light sugar."

The machine also required a lot of cleaning and maintenance, and at up to \$100,000 per robot, Mr. Murphy said he couldn't see a return on the investment.

Patrick Sugrue, the chief executive of Saladworks, a 95-store chain based in West Conshohocken, Pa., said technology enhancements, including self-ordering kiosks now in many of the company's locations, give him some peace of mind.

"In this market, employees will leave if they have one bad day," Mr. Sugrue said. "If that happens, having this technology in place makes it easier to deal with."

He added: "Having wait times go up due to short staffing is a quick way to kill a brand."

A 2013 study by University of Oxford economists Carl Frey and Michael Osborne found that food service occupations, including cooks, hosts and servers, ranked in the top 20% of most automatable jobs among 700 occupations examined. Additional research from The Organization of Economic Co-operation and Development said food preparation faced the highest probability of automation among 88 industries.

In past years, the fast-food industry had no pressing need to turn toward this technology because a large supply of people was willing to work low-wage jobs.

Now, the labor pool is shrinking and wages are picking up, in part because of the shortages and also due to minimum-wage increases in many states.

"There aren't as many people as there used to be looking for jobs, and it will encourage automation," said Andy Puzder, the former CEO of the Carl's Jr. and Hardee's burger chains, and President Donald Trump's early pick for Labor secretary before he withdrew from consideration.

At some point, Mr. Puzder said, more automation could lead to a dearth of jobs in the industry.

"A self-cleaning oven isn't going to replace people," he said, "but if you have several of those labor-saving tools, eventually you won't need all those workers."

It might not play out that way. Automats, the waiterless establishments of the early 20th century that combined vending machines and a cafeteria, could be considered the first fast-food restaurants, said Magne Mogstad, a labor economist at the University of Chicago. They were shoved aside by fast-food restaurants that depended on humans to function.

"Automation," he said, "may very well create demand for service with a personal touch."

Panera Bread has created approximately 25,000 new jobs over the past two years including delivery drivers and new restaurant workers to handle the extra volume coming from digital ordering. Those numbers do not include the replacement of workers that left or include people hired to staff newly opened restaurants.

The 2,000-unit bakery chain, which underwent an estimated \$100 million technology overhaul in recent years, now derives more than 30% of its orders from in-store kiosks, consumer desktops and mobile devices.

Panera can reassign cash register workers to other tasks such as delivering food to customer tables – a new level of service in the quick-serve restaurant industry. McDonald's Corp. is offering table service now too, thanks to self-order kiosks.

The extra workers Panera hired are assigned mostly to making salads and sandwiches, something Chief Executive Blaine Hurst said he can't see robots doing: "There's a craft to making food," he said, "and that's hard to replicate with robotics."

Roast beef chain Arby's installed ovens that roast the beef and then switch to holding mode after reaching optimal cook time. That allows night crews to begin cooking for the next day's lunch before leaving, eliminating the need for morning employees to arrive at 7 a.m. to begin the three-hour roasting process.

"It actually allows us to reallocate labor to other areas, such as having more dining room attendants or extra hands at the drive-thru," said an Arby's spokesman.

Wendy's Co. is using automation to eliminate one of the most undesirable jobs in the kitchen: washing the bowls, spatulas and other utensils used to prep food.

Workers at most of Wendy's 5,400 U.S. restaurants must follow six steps to run dishwashers and stop what they're doing from time to time to start new cycles. Franchisees have begun purchasing \$6,500 dishwashers that need just one press of a button and no additional monitoring, saving almost ten hours of labor per week.

Wendy's also is trying to drop the drudge of cleaning bacon grease off ovens. In the last year, the chain began installing self-cleaning ovens.

Like the others, it's not letting its workers go. In some restaurants, Wendy's has hired people as hosts to walk through dining rooms to refill drinks, help customers with kiosks and see if guests need anything more.

"This is an extremely tight labor market and finding talent in our restaurants is paramount right now," said Coley O'Brien, Chief People Officer at Wendy's. "It's a battle that we engage in on a daily basis."