As COVID-19 courses through the United States, technology and automation are often touted as primarily positive forces that unlock home grocery delivery and the flexibility to work from home. But for many low-wage workers, COVID-19 has catalyzed a pernicious chain reaction that will impact their lives long after the virus has been suppressed.

Analysis from the Federal Reserve Bank of San Francisco and Brookings shows that economic downturns — such as the one created by COVID-19 — boost incentives for companies to automate tasks and jobs.1,2 These forces target jobs with a high proportion of predictable and repetitive tasks — positions occupied disproportionately by low-wage workers.3 But unlike previous downturns, this time around, the incentive to automate is amplified by the unfolding public health crisis wrought by COVID-19. Housebound consumers wary of contracting the virus through packaging or face-to-face contact have massively curtailed spending.

In response, companies are turning to technology and automation to insulate lines of business from the current pandemic — and future disruptions. Meanwhile, workers confront the double whammy of a looming recession and the “superspread” of automation imposed by the COVID-19 health crisis itself.

COVID-19’s Inconvenient Truth

On May 13, Federal Reserve Chairman Jerome Powell noted that more than 40 percent of adults in households with an income of $40,000 or less reported losing a job in March 2020.4 “Nonessential” jobs in restaurants, bars, hotels and retail led the first wave of furloughs and layoffs.5 The mass job cull that many “future-of-work” commentators predicted would stem from “exponential” growth in artificial intelligence and automation was instead precipitated by the wild card of a pandemic.6 And the losses stacked up in record time: In May, the real unemployment rate spiked to 23.9 percent.7
As the pandemic cut its path across the U.S., some low-wage workers experienced an uptick in demand for their services. A 30 percent surge in e-commerce created the need for 235,000 additional workers at Walmart, and 175,000 at Amazon.8,9,10 Grocery delivery provider Instacart announced plans to hire 300,000.11 The U.S. administration, invoking the Defense Production Act of 1950, deemed meatpacking, which employs half a million, “critical infrastructure,” obliging workers to continue production.12 Many frontline workers contracted the highly contagious COVID-19 as they toiled in close quarters with one another, or in repeated direct contact with the public. Grocery stores, fulfillment centers and meatpacking plants soon turned from job incubators to breeding grounds for the virus.13 At one point, a single pork plant in Sioux Falls, South Dakota, accounted for the largest cluster of infections in the U.S.14

The Dawn of Minimum Service

Faced with a COVID-19-fueled recession, businesses are searching for ways to guarantee “minimum service” in advance of the next large-scale disruption. Previously, companies focused on automating processes and tasks to supercharge productivity. In a post COVID-19 world, the “essential-ness” of a good or service — and reliance on a low-wage worker to deliver it — could be used to justify massive investments in automation. Automation that shields workers from sickness while ensuring the delivery of critical goods and services could initially be welcomed by workers and the public at large. But minimum service will also be used as a way of carving out competitive advantage. If a competitor’s operations are crippled by labor shortages or stay-at-home orders during the next pandemic or disruption, companies that invest in automating processes now are likely to come out faster — and perhaps stronger — as the economy rebounds.

As the U.S. emerges from the throes of the pandemic, automation is most likely to sweep through industries that suffered operational or reputational disruption during the COVID-19 crisis. Paradoxically, the U.S. will need to implement technology and automation to buoy productivity gains — and the economic recovery. But the full-scale automation of complex systems will be costly, and only companies with the deepest pockets — or access to the most advanced technologies — will prevail.

The Superspread of Automation

The pandemic created an overnight unmet need for “contactless” delivery of groceries and takeout that upholds social distancing. In China, autonomous vehicles and delivery have been used to transport food and medical supplies to medical professionals and consumers.15 The rapid spread of COVID-19 in the U.S. has allowed Aptiv to test autonomous delivery in Las Vegas.16 Companies from Ford to Waymo are sticking with their long-term bets on autonomous technologies. Meanwhile, early survey data shows that post-pandemic consumers are less likely to use buses, subways and trains as they emerge from lockdown, which could lead to the normalization of autonomous technologies and their widespread adoption by wary consumers.17

Given its frightful performance during pandemic, food production is likely to see further waves of automation. The U.S. produced twice as much food in 2020 as it did it 1970, with 55 percent fewer workers.18 Despite this record increase in productivity, during the COVID-19 pandemic, nearly 10,000 meatpacking workers contracted the virus, and more than 30 died.19

In the pandemic’s wake, meatpackers are searching for ways to automate production lines to reduce worker infections and maintain minimum service. Major advances in robotics, image recognition and machine learning will allow more automation of meatpacking. Major producers such as Tyson, Pilgrim’s Pride and Costco are investing heavily in automation to ward off disruption caused by the virus.20

The Post-COVID-19 Future of Work

Warehousing and logistics, another locus for the spread of the virus, could see major structural changes as well. To ensure minimum service, many stay-home orders excluded warehouses and logistics facilities, resulting in COVID-19 infections.21 Now, companies such as Gap and Walmart are speeding up the use of robots and warehouse automation to limit contact between workers.22

The economic and human toll left in COVID-19’s wake shows how we may benefit from a more automated workforce that protects workers and promotes a maintenance of minimum service. The pandemic foisted a sudden and jolting experiment on companies and workers from which we have yet to fully emerge.

The great irony, of course, is that while many were once petrified of the labor-displacing effects of automation and new technologies, the pandemic has altered that calculation. Now, companies will be more likely to invest in automation as a way of instituting resiliency against present and future disruptions. And increasingly, they will be asking: “How can automation accelerate the recovery and protect us from future disruption?”