



FRIEND OR FOE?


Technology can boost either resilience or inequality, depending on how much you have of it

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The COVID-19 global lockdown triggered an unprecedented experiment. Millions of professionals had to do from home what they used to do in offices. TV anchors hosted from their living rooms; IMF officials working remotely approved more than 70 emergency loans in three months; traders continued to buy and sell stocks from mountain cabins. Companies got over the fear that dispersed teams would be less productive, and many—including Silicon Valley giants—told employees not to worry about returning to the office. Teleworking was promoted to viable long-term solution from temporary fix or precarious freelancer arrangement.

Advances in technology made this global randomized trial possible. Imagine a Webex meeting over a dial-up modem. Laptops, tablets, and smartphones connected to high-speed internet connected to cloud services have kept the world going. Technology has been a resilience factor for the global economy. But for those who can't afford it or earn a living through it, technology accentuates exclusion and inequality.

Half of the US labor force has been working from home amid the COVID-19 onslaught, up from 15 percent previously, according to Erik Brynjolfsson and four other Massachusetts Institute of Technology economists. By contrast,



58 percent of households in Brazil don't even have a computer, according to a 2019 report. This is in line with recent IMF research showing that fewer than half of people in developing economies have internet access. Another IMF paper assessed how "teleworkable" various jobs are and estimated that 100 million people in 35 advanced and developing economies are at high risk of layoffs or pay cuts because their jobs can't be done remotely. These jobs are filled by mostly young, female, and less educated people who work in hospitality, food services, construction, and transportation.

In general, the poorer the country, the harder it is to telework. International Labour Organization researchers estimated that fewer than one in five workers worldwide are in occupations and live in countries with the infrastructure needed for effective working from home. That average disguises wide disparities. In North America and western Europe, the proportion is 1 in 3; in sub-Saharan Africa it is 1 in 17.

Destructive creation

In just a few weeks, the pandemic did as much damage to employment as automation was expected to inflict over decades, according to economist Daniel Susskind. In his most recent book, *A World Without Work*, he acknowledges that the fear of technology destroying jobs is as old as machines themselves—but argues that this time may be different.

The traditional argument is that innovation destroys some jobs but creates many others and frees people to do other things. The advent of automated teller machines in the 1960s, for example, didn't replace human tellers. It freed them up to do more complex tasks than dispensing cash. However, technology has since enabled online banking, which greatly reduced the need for a customer to go to a branch. In recent years, big data and machine learning have made it possible for financial institutions to have no physical branches at all.

Over time this "creative destruction" has not been favorable for people. The jobs created and lost don't necessarily match in terms of location and skills. Labor mobility is much lower than believed. Many experts agree that automation is largely responsible for the massive destruction of manufacturing jobs over the past few decades in countries such as the United States.

Susskind sees the automation trend strengthening with the rapid development of artificial intelligence (AI) because it accelerates machines'

ability to outperform human beings in more tasks. "Machines will not do everything in the future, but they will do more," he writes, observing that automation has not replaced people entirely in farming and manufacturing, but it has greatly reduced the number and quality of jobs.

Scientist robot

Automation of assembly lines is nothing new. But robots are expanding into new occupations, including health services. Mechanical arms built by the German company KUKA can sort blood samples in Denmark and speed COVID-19 tests in the Czech Republic, mixing reagents to test swabs faster and more precisely than humans.

A similar machine in a University of Liverpool chemistry lab takes it some steps further. Using AI, Benjamin Burger, a PhD researcher, programmed the machine to conduct scientific experiments on its own, mixing samples and analyzing results. It can work 22 hours a day and once carried out more than 600 tests in eight days. Burger says the machine complements his work.

"It can easily go through thousands of samples," he told the BBC, "so it frees up my time to focus on innovation and new solutions." The machine also helps Burger with social distancing and allowed the scientist to continue experiments while quarantined. But it may have made one or more lab assistants redundant.

The goal of freeing people from repetitive or taxing jobs is valid only if they can find something else to do. Can they? Are there areas in which humans don't need to fear competition? Yes: professions that require social intelligence and face-to-face interaction. Between 1980 and 2012, these jobs grew 12 percent as a share of the US workforce.

At least until COVID-19 hit. "Jobs with a high level of social interaction and less susceptible to automation are exactly those most at risk with the pandemic," Susskind told F&D in a video interview from Oxford. "Many of the scenarios in the book that might have sounded outlandish five months ago are now completely mainstream."

Calling all doctors

Some eminently face-to-face professions have been able to rearrange themselves quickly using technology. The explosion in telemedicine is a good example of agility—but also of how the process might leave some people behind.

Videoconferencing instead of visiting a doctor has been available for years. But in the United Kingdom, only 1 percent of general practitioner appointments were remote before the pandemic. After it hit, it soared to 90 percent. In the United States, one health insurer reported that online appointments jumped from 10,000 a month before the pandemic to 230,000 last April—in only one state.

This explosion did not require groundbreaking technology. Telehealth can be as simple as a Skype call. Technology facilitated a behavior change that the pandemic supercharged. For safety, patients and doctors shed long-held habits and suspicions. Recent regulatory changes helped. In the United States, doctors were allowed to bill online appointments in the same way as physical visits. Patients were no longer required to be in a health facility for a remote appointment.

Although it worked well for doctors and patients, the transition may have left some victims in its wake. An online practice will probably need fewer nurses, receptionists, technicians, and managers.

Pandemic-induced cultural change is likely to meet technological convenience in many areas, with potentially serious consequences for jobs. E-commerce does not require scientist-robot technology. More online buying in itself puts physical retailers at a disadvantage. Teleworkers can fill their caffeine craving by ordering Nespresso capsules online instead of going to chic but probably empty shops. Indeed, Nestlé reported recently that online demand for coffee pods increased 30 percent with the pandemic.

RIP office?

As long as COVID-19 remains a threat, it will be impossible to tell whether the world is seeing real cultural change or just successful contingency adaptation. The global teleworking experiment has led many to herald the end of the office as we know it. But reports of its demise may be exaggerated. What is now considered lifesaving technology has been around for years without triggering a mass exodus. While there are many potential benefits—flexible working hours, less commuting, people able to work and companies able to hire anywhere—the long-term consequences of home working are yet to be fully assessed. One obvious danger is cybersecurity: more people connected to unprotected domestic networks increase the so-called attack surface available for hackers. The impact on cities and office areas, as well as on hotels, restaurants,

shops, and other services, is hard to estimate, but it could be meaningful.

Brynjolfsson, recently named director of Stanford University's Digital Economy Lab, believes the change is more permanent and predicts expanded use of machine learning. "The question is, What parts of the economy are going to be most [or] less affected?" he said in a recent seminar. Without an effective treatment or a vaccine, the pandemic can lead to more automation because of social distancing and businesses seeking resilience. A more automated assembly line is less susceptible to outbreaks.

Economies—advanced or developing—must make technology work in their favor.

"In the UK, the incentive for automation has been suppressed by government interventions to protect workers," Susskind told F&D. "Once these protections expire, this incentive might be unleashed again."

Technology has kept the world humming but has also accentuated many fault lines: education, income, types of jobs. The solution to this dilemma is complex. Governments will be called on to spend more in the short term—helping companies keep current employees, expanding training, and facilitating rehiring—and over the long run, in particular, investing in education and broader internet access. It's a tall order even for advanced economies, but especially for emerging economies still struggling with basic needs.

Maybe the solution is inside the problem. Economies—advanced or developing—must make technology work in their favor, and governments must make inclusiveness a priority. "Innovation can create new growth and boost productivity," Era Dabla-Norris, lead author of the teleworkability study, told F&D. "Digitalization is reshaping many activities and can help workers and business adjust to this new world. The key is to create digital inclusion and then translate it into economic inclusion." **FD**

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