McKinsey Global Institute

The future of work after COVID-19

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The pandemic accelerated existing trends in remote work, e-commerce, and automation, with up to 25 percent more workers than previously estimated potentially needing to switch occupations.

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Special Report

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The COVID-19 pandemic disrupted labor markets globally during 2020. The short-term consequences were sudden and often severe: Millions of people were furloughed or lost jobs, and others rapidly adjusted to working from home as offices closed. Many other workers were deemed essential and continued to work in hospitals and grocery stores, on garbage trucks and in warehouses, yet under new protocols to reduce the spread of the novel coronavirus.

This report on the future of work after COVID-19 is the first of three MGI reports that examine aspects of the postpandemic economy. The others look at the pandemic's long-term influence on consumption and the potential for a broad recovery led by enhanced productivity and innovation. Here, we assess the lasting impact of the pandemic on labor demand, the mix of occupations, and the workforce skills required in eight countries with diverse economic and labor market models: China, France, Germany, India, Japan, Spain, the United Kingdom, and the United States. Together, these eight countries account for almost half the global population and 62 percent of GDP.

Jobs with the highest physical proximity are likely to be most disrupted

Before COVID-19, the largest disruptions to work involved new technologies and growing trade links. COVID-19 has, for the first time, elevated the importance of the physical dimension of work. In this research, we develop a novel way to quantify the proximity required in more than 800 occupations by grouping them into ten work arenas according to their proximity to coworkers and customers, the number of interpersonal interactions involved, and their on-site and indoor nature.

This offers a different view of work than traditional sector definitions. For instance, our medical care arena includes only caregiving roles requiring close interaction with patients, such as doctors and nurses. Hospital and medical office administrative staff fall into the computer-based office work arena, where more work can be done remotely. Lab technicians and pharmacists work in the indoor production work arena because those jobs require use of specialized equipment on-site but have little exposure to other people (Exhibit 1).

Exhibit 1

Work arenas vary in overall physical proximity.

Overall-physical-proximity score by work arena (based on human interaction and work-environment metrics), score out of 100

Note: Occupations were assigned to work arenas using O*NET data.
Source: O*NET OnLine, Employment and Training Administration (ETA), US Department of Labor; US Bureau of Labor Statistics; McKinsey Global Institute analysis

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We find that jobs in work arenas with higher levels of physical proximity are likely to see greater transformation after the pandemic, triggering knock-on effects in other work arenas as business models shift in response.

The short- and potential long-term disruptions to these arenas from COVID-19 vary. During the pandemic, the virus most severely disturbed arenas with the highest overall physical proximity scores: medical care, personal care, on-site customer service, and leisure and travel. In the longer term, work arenas with higher physical proximity scores are also likely to be more unsettled, although proximity is not the only explanation. For example:

- The on-site customer interaction arena includes frontline workers who interact with customers in retail stores, banks, and post offices, among other places. Work in this arena is defined by frequent interaction with strangers and requires on-site presence. Some work in this arena migrated to e-commerce and other digital transactions, a behavioral change that is likely to stick.
- The leisure and travel arena is home to customer-facing workers in hotels, restaurants, airports, and entertainment venues. Workers in this arena interact daily with crowds of new people. COVID-19 forced most leisure venues to close in 2020 and airports and airlines to operate on a severely limited basis. In the longer term, the shift to remote work and related reduction in business travel, as well as automation of some occupations, such as food service roles, may curtail labor demand in this arena.
- The computer-based office work arena includes offices of all sizes and administrative workspaces in hospitals, courts, and factories. Work in this arena requires only moderate physical proximity to others and a moderate number of

human interactions. This is the largest arena in advanced economies, accounting for roughly one-third of employment. Nearly all potential remote work is within this arena.

- The outdoor production and maintenance arena includes construction sites, farms, residential and commercial grounds, and other outdoor spaces. COVID-19 had little impact here as work in this arena requires low proximity and few interactions with others and takes place fully outdoors. This is the largest arena in China and India, accounting for 35 to 55 percent of their workforces.

COVID-19 has accelerated three broad trends that may reshape work after the pandemic recedes

The pandemic pushed companies and consumers to rapidly adopt new behaviors that are likely to stick, changing the trajectory of three groups of trends. We consequently see sharp discontinuity between their impact on labor markets before and after the pandemic.

Remote work and virtual meetings are likely to continue, albeit less intensely than at the pandemic's peak

Perhaps the most obvious impact of COVID-19 on the labor force is the dramatic increase in employees working remotely. To determine how extensively remote work might persist after the pandemic, we analyzed its potential across more than 2,000 tasks used in some 800 occupations in the eight focus countries. Considering only remote work that can be done without a loss of productivity, we find that about 20 to 25 percent of the workforces in advanced economies could work from home between three and five days a week. This represents four to five times more remote work than before the pandemic and could

prompt a large change in the geography of work, as individuals and companies shift out of large cities into suburbs and small cities. We found that some work that technically can be done remotely is best done in person. Negotiations, critical business decisions, brainstorming sessions, providing sensitive feedback, and onboarding new employees are examples of activities that may lose some effectiveness when done remotely.

Some companies are already planning to shift to flexible workspaces after positive experiences with remote work during the pandemic, a move that will reduce the overall space they need and bring fewer workers into offices each day. A survey of 278 executives by McKinsey in August 2020 found that on average, they planned to reduce office space by 30 percent. Demand for restaurants and retail in downtown areas and for public transportation may decline as a result.

Remote work may also put a dent in business travel as its extensive use of videoconferencing during the pandemic has ushered in a new acceptance of virtual meetings and other aspects of work. While leisure travel and tourism are likely to rebound after the crisis, McKinsey's travel practice estimates that about 20 percent of business travel, the most lucrative segment for airlines, may not return. This would have significant knock-on effects on employment in commercial aerospace, airports, hospitality, and food service. E-commerce and other virtual transactions are booming.

Many consumers discovered the convenience of e-commerce and other online activities during the pandemic. In 2020, the share of e-commerce grew at two to five times the rate before COVID-19 (Exhibit 2). Roughly three-quarters of people using digital channels for the first time during the pandemic say they will continue using them when things return to "normal," according to McKinsey Consumer Pulse surveys conducted around the world.

Exhibit 2

Other kinds of virtual transactions such as telemedicine, online banking, and streaming entertainment have also taken off. Online doctor consultations through Practo, a telehealth company in India, grew more than tenfold between April and November 2020. These virtual practices may decline somewhat as economies reopen but are likely to continue well above levels seen before the pandemic.

This shift to digital transactions has propelled growth in delivery, transportation, and warehouse jobs. In China, e-commerce, delivery, and social media jobs grew by more than 5.1 million during the first half of 2020.

COVID-19 may propel faster adoption of automation and AI, especially in work arenas with high physical proximity

Two ways businesses historically have controlled cost and mitigated uncertainty during recessions are by adopting automation and redesigning work processes, which reduce the share of jobs involving mainly routine tasks. In our global survey of 800 senior executives in July 2020, two-thirds said they were stepping up investment in automation and AI either somewhat or significantly. Production figures for robotics in China exceeded prepandemic levels by June 2020.

Many companies deployed automation and AI in warehouses, grocery stores, call centers, and manufacturing plants to reduce workplace density and cope with surges in demand. The common feature of these automation use cases is their correlation with high scores on

physical proximity, and our research finds the work arenas with high levels of human interaction are likely to see the greatest acceleration in adoption of automation and AI.

The mix of occupations may shift, with little job growth in low-wage occupations

The trends accelerated by COVID-19 may spur greater changes in the mix of jobs within economies than we estimated before the pandemic.

We find that a markedly different mix of occupations may emerge after the pandemic across the eight economies. Compared to our pre-COVID-19 estimates, we expect the largest negative impact of the pandemic to fall on workers in food service and customer sales and service roles, as well as less-skilled office support roles. Jobs in warehousing and transportation may increase as a result of the growth in e-commerce and the delivery economy, but those increases are unlikely to offset the disruption of many low-wage jobs. In the United States, for instance, customer service and food service jobs could fall by 4.3 million, while transportation jobs could grow by nearly 800,000. Demand for workers in the healthcare and STEM occupations may grow more than before the pandemic, reflecting increased attention to health as populations age and incomes rise as well as the growing need for people who can create, deploy, and maintain new technologies (Exhibit 3).

Exhibit 3

Before the pandemic, net job losses were concentrated in middle-wage occupations in manufacturing and some office work, reflecting automation, and low- and high-wage jobs continued to grow. Nearly all low-wage workers who lost jobs could move into other low-wage occupations—for instance, a data entry worker could move into retail or home healthcare. Because of the pandemic's impact on low-wage jobs, we now estimate that almost all growth in labor demand will occur in high-wage jobs. Going forward, more than half of displaced low-wage workers may need to shift to occupations in higher wage brackets and requiring different skills to remain employed.

As many as 25 percent more workers may need to switch occupations than before the pandemic

Given the expected concentration of job growth in high-wage occupations and declines in low-wage occupations, the scale and nature of workforce transitions required in the years ahead will be challenging, according to our research. Across the eight focus countries, more than 100 million workers, or 1 in 16, will need to find a different occupation by 2030 in our post-COVID-19 scenario, as shown in Exhibit 4. This is 12 percent more than we estimated before the pandemic, and up to 25 percent more in advanced economies (Exhibit 4).

Exhibit 4

Before the pandemic, we estimated that just 6 percent of workers would need to find jobs in higher wage occupations. In our post-COVID-19 research, we find not only that a larger share of workers will likely need to transition out of the bottom two wage brackets but also

that roughly half of them overall will need new, more advanced skills to move to occupations one or even two wage brackets higher.

The skill mix required among workers who need to shift occupations has changed. The share of time German workers spend using basic cognitive skills, for example, may shrink by 3.4 percentage points, while time spend using social and emotional skills will increase by 3.2 percentage points. In India, the share of total work hours expended using physical and manual skills will decline by 2.2 percentage points, while time devoted to technological skills will rise 3.3 percentage points. Workers in occupations in the lowest wage bracket use basic cognitive skills and physical and manual skills 68 percent of the time, while in the middle wage bracket, use of these skills occupies 48 percent of time spent. In the highest two brackets, those skills account for less than 20 percent of time spent. The most disadvantaged workers may have the biggest job transitions ahead, in part because of their disproportionate employment in the arenas most affected by COVID-19. In Europe and the United States, workers with less than a college degree, members of ethnic minority groups, and women are more likely to need to change occupations after COVID-19 than before. In the United States, people without a college degree are 1.3 times more likely to need to make transitions compared to those with a college degree, and Black and Hispanic workers are 1.1 times more likely to have to transition between occupations than white workers. In France, Germany, and Spain, the increase in job transitions required due to trends influenced by COVID-19 is 3.9 times higher for women than for men. Similarly, the need for occupational changes will hit younger workers more than older workers, and individuals not born in the European Union more than native-born workers.

Companies and policymakers can help facilitate workforce transitions

The scale of workforce transitions set off by COVID-19's influence on labor trends increases the urgency for businesses and policymakers to take steps to support additional training and education programs for workers. Companies and governments exhibited extraordinary flexibility and adaptability in responding to the pandemic with purpose and innovation that they might also harness to retool the workforce in ways that point to a brighter future of work.

Businesses can start with a granular analysis of what work can be done remotely by focusing on the tasks involved rather than whole jobs. They can also play a larger role in retraining workers, as Walmart, Amazon, and IBM have done. Others have facilitated occupational shifts by focusing on the skills they need, rather than on academic degrees. Remote work also offers companies the opportunity to enrich their diversity by tapping workers who, for family and other reasons, were unable to relocate to the superstar cities where talent, capital, and opportunities concentrated before the pandemic.

Policymakers could support businesses by expanding and enhancing the digital infrastructure. Even in advanced economies, almost 20 percent of workers in rural households lack access to the internet. Governments could also consider extending benefits and protections to independent workers and to workers working to build their skills and knowledge mid-career.

Both businesses and policymakers could collaborate to support workers migrating between occupations. Under the Pact for Skills established in the European Union during the pandemic, companies and public authorities have dedicated €7 billion to enhancing the skills of some 700,000 automotive workers, while in the United States, Merck and other large companies have put up more than $100 million to burnish the skills of Black workers without a college education and create jobs that they can fill.

The reward of such efforts would be a more resilient, more talented, and better-paid workforce—and a more robust and equitable society.

Go behind the scenes and get more insights with "Where the jobs are: An inside look at our new Future of Work research" from our New at McKinsey blog.

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