

## The future of work

Technology is enabling us to achieve remarkable things, yet it's rendering many jobs obsolete. How will the world of work change over the coming years? Andrew McAfee, Co-Director of the Initiative on the Digital Economy at the MIT Sloan School of Management, explores the possibilities ahead.



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Voltaire once claimed that “work saves us from three great evils: boredom, vice and need.” A few years ago, Gallup conducted a study of ‘global desires’ and the results were unambiguous: ahead of family, democracy or even religious freedom, people wanted a job – ideally with steady hours, a regular pay cheque and all-round stability. But in the years to come, this is going to be challenged. Already, the average amount of time that people spend in jobs is going down, the number of career transitions is going up, unemployment is on the rise globally and the waves of disruption hitting every industry are accelerating.

We can't predict exactly what work will look like in the future or the specific types of jobs that will exist for the next generation. Technology is moving at

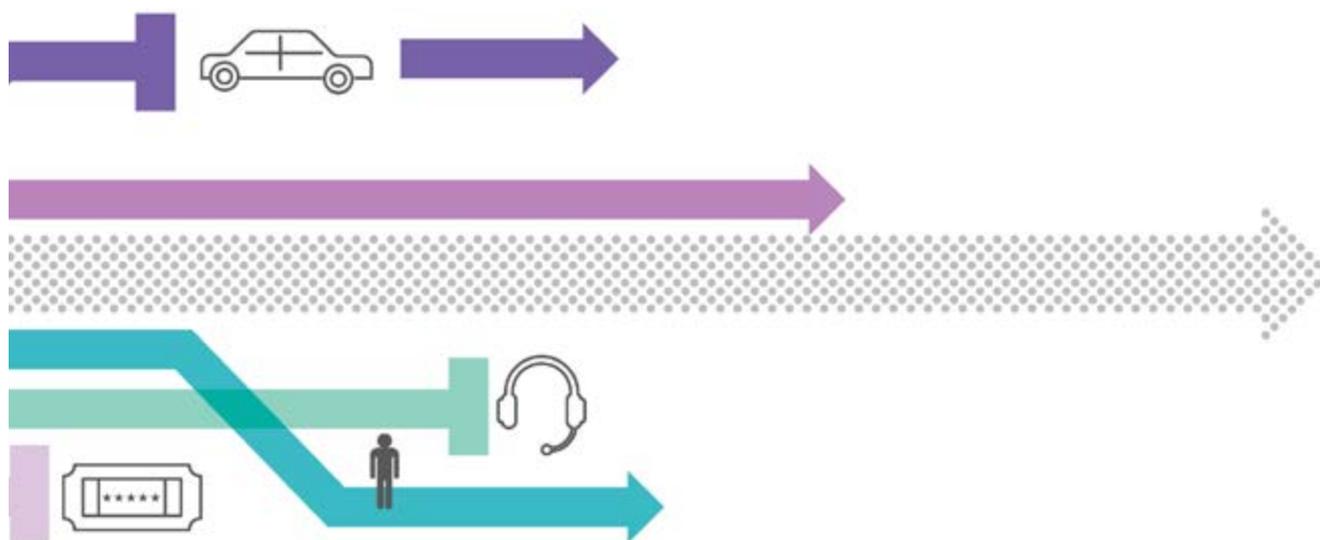
such a rapid pace that it would be impossible to try to – recently a robot was placed in a company's board of directors, something that would be considered science fiction even five years ago. What is clear, however, is that we are witnessing a Second Machine Age, in which income and employment opportunities might be squeezed for the short-term, but will raise earnings in the long-term.

Since the Industrial Revolution, automation has had a heavy impact on employment that involves routine physical work; this is now intensifying and on top of that we're seeing technology's effects on many other areas, including information processing. Looking ahead, it's estimated that almost 50% of the current jobs in existence will become automated, even in the ‘white-collar’



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occupations, which have traditionally been resistant to automation.

These changes are not merely a phenomenon of the post-recession years, nor are they showing up in just one or two economies where they might be expected. Essentially, capital has been invested in technology – leading to greater automation – as opposed to labour. Over the coming 10 years, we will face huge, tectonic forces of globalization and astonishing technological progress – forces that must be confronted and embraced if we are to ensure economic opportunity and inclusiveness for all.

We can already see the signs of various disruptions that will take place. On one hand, jobs including physical labour are going to become increasingly automated on a global scale. If you look around Chinese factories today, most of the workers have repetitive manual tasks. This arrangement is currently economically viable because the wages are so low. As those wages are increasing and technology is getting cheaper, we see China becoming one of the world's biggest purchasers of robotic equipment. Coming from the world's second-largest economy, this will be a huge disruption. On the other hand, computers are becoming so advanced in terms of human interaction that the services sector will be increasingly handled by intelligent systems.

Humans won't be rendered obsolete, but services companies will probably be staffed by a small number of capable employees to handle the strangest requests, with the rest handled automatically.

With technology racing ahead and leaving some people behind, we have two choices: either to try and stop progress, or to figure out what we need to do to help those who are being displaced. Both employers and educators have already realized this, and focus is increasingly being placed on innovation, and this is very encouraging. Change of this magnitude is always a painful process for workers, but technology also acts as a facilitator for new ideas and employment options.

Moreover, labour productivity driven by innovation is going to accelerate substantially in the years to come. There are innovations that we could not have predicted 10 years ago; we are already bearing witness to incredible advances, from vehicles that drive themselves to robots that can understand and converse with us, and many of these developments are so recent that they have yet to diffuse throughout our economies – it takes time for society to adapt and integrate them into its business models. Imagine what the next 10 years could offer, as we readjust even faster. We definitely need to rethink the social contract that our societies' offer to workers, but trying

to protect existing jobs at this pace of innovation is a deeply flawed idea.

It seems we're heading into a world that is going to be relatively light on work – we will simply employ fewer people. The temptation is there to see this as a losing battle. And yet conceptually speaking, this is exactly what we should be trying to do: to create a world where the idea of 'enough jobs to go around' is no longer required, a world free from drudgery and toil. We will soon be able to eliminate those dull and repetitive tasks we don't like doing, and achieve the goal of more wealth and abundance with less work. Creating a phenomenally plentiful, technologically sophisticated economy that can supply all the goods and services that we need, making them widely available to everyone, is what we should be aiming for. And, as far-fetched as that may sound, this is the world that we could quite feasibly build – not in the science fiction of the 24th century future, but in the next 50 years.

While it's true that the consequences for labour seem – and are – pretty serious at the moment, it is vital that we don't attempt to put the brakes on technological progress. We are standing on the edge of a singular point in human history, and we should be profoundly heartened and optimistic about that. Technological progress has always generated new, exciting opportunities for humanity. There isn't any reason for us to expect otherwise for the future ■