



Will big data create jobs – or destroy them?

A profound technological evolution has started, and there is no turning back.

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Last year a Hong Kong venture capital fund appointed a computer program to its board. This incarnation of artificial intelligence, an algorithm called VITAL, will vote on investment decisions alongside its five human counterparts.

It's a sign that the big data revolution is conquering territories that, until now, belonged exclusively to humans. How will this affect us? Will millions of jobs disappear? Or will this new digital landscape create new job opportunities for new types of employees?

From industrial to big data revolution

During the industrial revolution of the late 18th century we moved from hand production methods to machines with the arrival of steam and coal power. In many cases machines replaced humans; in many others, factories were swamped by humans that ran the machines. Millions of jobs were destroyed, but the new businesses created by the industrial revolution generated millions more. In fact, unemployment in Britain was less than 9.4% during the worst two years of 1840s. At the same time, industrialization led to lower prices and widespread improvement in living standards.

Today's revolution is driven by technologies such as big data. Companies need teams a fifth the size of those needed to do equivalent work 20 years ago. In 2014 Google, one of the big data giants, had 53,500 employees – a fraction of traditionalist IBM's 380,000 employees in that same year. The corporations' difference of revenue – \$66 billion for Google, \$93 billion for IBM – does not justify the difference in the size of their workforces.

Big data is leading us to a period of great restructuring in which robots will take over human jobs and automation is taken to the extreme: we have computers that write and publish articles in major magazines and robots that drive on their own. But these changes are also breaking down barriers, making it possible for new entrants to compete in industries that used to be restricted to companies capable of investing millions. Until recently, for instance, only big players with the financial power to build and maintain big infrastructures and delivery networks could compete in logistics. Now companies such as Uber, which has a big data business model, are competing by leveraging a network of drivers they work with but who are not on their payroll.

New "sharing" business models

Economies of scale are falling apart. Not only because new players are entering traditionally unaffordable industries, but also because the sharing economy is making it possible for others to find the resources they need to raise money and start a project. The video game industry, for example, has a very high barrier to entry; creating a new video game is a huge project that requires a financial investment of millions for its development. But Brian Fargo, the designer of the science fiction game Wasteland, funded Wasteland 2 not by getting investment from traditional game publishers, but by setting up a crowd-funding campaign that raised almost \$3 million.

New big data business models based on the sharing economy are also creating new types of work for a new type of worker. Uber claims that it will generate one million jobs around the world in 2015. According to a survey by PricewaterhouseCoopers in 2014, 7% of adults in the US said they were working on sharing platforms. And this figure keeps growing. Workers are attracted to the flexibility and independence that these business models provide. Younger generations prefer to be free and own their time rather than holding down 9 to 5 jobs in a company they don't care about.

New technologies are democratizing work, giving everyone who has a good idea the chance to bring it to life. It is the perfect landscape for entrepreneurs who are willing to innovate. Individual initiatives can take off and new business models can disrupt the traditional ones.

Harness technology to create jobs

The question is, will the outcome of this deep transformation generate enough jobs to replace those that were destroyed? Optimists who say yes see that big data is empowering millions of people to unlock their skills to make money in ways and on a scale never possible before. Those who say no, however, consider that the digital revolution is creating poor-quality jobs and generating inequality between the owners of the platforms and the workers.

So far, at least, the answer is not clear. We don't know where the changes caused by the digital revolution are leading us; all we know is that a profound technological evolution has started, and that there is no turning back. We have already reached a tipping point that is starting to deeply transform our societies. It is up to us to choose whether to support it and help create new jobs or whether to build obstacles to avoid change.