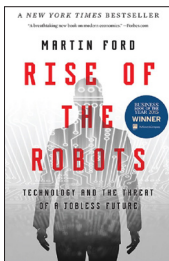


# THE IMPACT OF COGNITIVE TECHNOLOGIES ON OUR WORKING LIVES

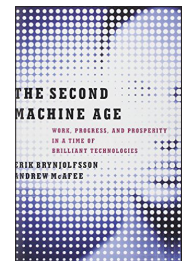
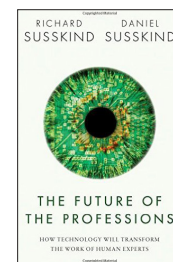
Whether we're wearing the hat of employer, shareholder, employee, parent, politician or educator, the impact of cognitive technologies on working lives is one of vital importance to the decisions we make and the advice we give to others.

Sensationalist statistics have been much quoted: In 2013 researchers at the University of Oxford estimated that 47% of total US employment is at risk from computerisation over the next decade or two, and in 2014 Gartner forecast that one in three jobs will be taken by software or robots by 2025.

But there's another side to the story, that of the potential opportunity created by cognitive technologies: the opportunity to take away the mundane and the boring and to allow humans to employ those skills that, for now at least, set us apart from computers. Skills such as creativity, emotional intelligence, and empathy.



Publishers have recognised that this is a hot topic for business leaders, politicians, and thoughtful individuals. Recent books—such as [The rise of the robots: Technology and the threat of a jobless future](#), [The second machine age: Work, progress, and prosperity in a time of brilliant technologies](#), and [The future of the professions: How technology will transform the work of human experts](#)—provide reasons to encourage both the pessimist and the optimist and have shot up the non-fiction charts.



## So how have consulting firms addressed this issue?

### Understanding cognitive technologies

Almost without fail, consulting firms are writing extensively about the impact of technology on organisations—about its impact on products, services, and business models. And many firms have material that explores the reality and potential of cognitive technologies.

Having looked at many other pieces of content before we got to it, we wished we'd started with Deloitte's online course [Cognitive technologies: The real opportunities for business](#). Although the course ran from March 14 to May 25, the content is, at the time of writing, still accessible. The material is well structured and each short video delivers, in an engaging and appropriately-paced style, relevant and helpful information. For those who prefer the written word, much of the content can be found in Deloitte's 2014 article [Demystifying artificial intelligence](#).

Accenture, in [Turn cognitive computing into business value today](#) suggests that tasks can be sorted into four activity models based on data complexity and work complexity, and that different types of cognitive solutions are appropriate for each model.

Meanwhile, for an understanding of how cognitive technologies are being applied in different industries, we recommend [IBM's collection of industry reports](#). And, for those with a very specific interest in wealth management, Accenture's [The rise of robo-advice: Changing the concept of wealth management](#).

Published June 2016, based on analysis of thought leadership published by consulting firms since the beginning of 2015.

## Immediate opportunities in automation

While many cognitive technologies are complex to implement or not yet scalable, consulting firms are keen to highlight that robotic process automation (RPA) and some types of intelligent automation are tried and tested and capable of delivering significant benefits, particularly for back-office processes. The clearest publication to date and based on conversations with suppliers and other experts is Deloitte's [The business leader's guide to robotic and intelligent automation](#). Reports on RPA from other firms are less informative, and more obviously intended to promote services around reducing back office costs.

## Back to the humans

So, there's some good work out there. But much of the discussion from consulting firms about the impact of cognitive technologies on human workmates is disappointing: There's little reference to the research that already exists and, if research is referenced, it's more often than not the headline-grabbing Gartner and the University of Oxford predictions mentioned in our introduction. As well as giving scant attention to existing viewpoints, few firms have invested in their own research to develop thinking around this issue.

McKinsey, however, states that it is currently in the middle of research, the final results of which will be released at some point in 2016. Interim results—presented in [Four fundamentals of workplace automation](#)—suggest that the firm is focusing on analysing which activities, by job type, can be automated, and what the benefits are. According to the initial article, benefits typically are between three and ten times the cost, and the ability to staff, manage, and lead increasingly automated organisations will become an important competitive differentiator.

Just two firms have already published content that we would recommend to the senior executive interested in the human impact of cognitive technologies: Accenture and Deloitte.

In runner-up position is Accenture's [The promise of artificial intelligence: Redefining management in the workforce of the future](#). Based on a survey of 1,770 front-line, mid-level and executive-level managers from 14 countries, and 37 interviews with executives, Accenture highlights optimism in the C-suite and scepticism in the ranks about the future role of AI. The report identifies five characteristics of the successful next-generation manager: she treats intelligent machines as colleagues, focuses on judgement work, does “real” work—passing off administrative tasks to AI, collaborates digitally across boundaries, and works like a designer. Accenture Strategy has published a number of shorter pieces on the back of this research including [Managers and machines, unite!](#), [A machine in the C-suite](#), and [Judgement calls: Preparing leaders to thrive in the age of intelligent machines](#).

However the worthy winner of our “if you're only going to read one thing, read this” accolade is Deloitte's [Redesigning work in an era of cognitive technologies](#). Presenting a balanced perspective and placing the societal impact of cognitive technologies—good or bad—firmly in human hands, the authors say that “leaders face choices about how to apply cognitive technologies. These decisions will determine whether workers are marginalised or empowered, and whether their organisations are creating value or merely cutting costs.”

The authors explore the unintended consequences of automation including loss of skills that are not practiced regularly, and a negative impact on self-worth. For those considering how best to apply automation in their own organisation, the “four approaches to automation” framework—illustrated by concrete examples—is particularly helpful. Automation can be used to replace the human, to automate specific elements of an “atomised” job, to relieve humans of dull, dirty, or dangerous tasks, or to empower the individual. This framework is overlaid with the competing organisational objectives of reducing cost or increasing value; the ensuing discussion helps the reader think through the potential impact on both the organisation and the individual of each option.

<i>Automation choice</i>	<i>Cost strategy</i>	<i>Value strategy</i>
<b>Replace</b>	Eliminate worker	Reassign worker
<b>Atomise/automate</b>	Accelerate work, reduce staff, possibly alienate creative workers and artisans	Create new low-cost offers, employ lower-skilled, less-experienced workers
<b>Relieve</b>	Eliminate routine tasks, increase productivity, reduce staff	Redeploy people to higher-value tasks; create more value for customers
<b>Empower</b>	Increase performance of workers	Increase workers' performance and use to enhance their skills

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For those wondering what skills they or the other human members of their workforce will need in the future, the authors propose that “the skills required to perform broadly or loosely defined jobs—skills such as common sense, general intelligence, flexibility, and creativity—and those required for successful interpersonal interactions—such as emotional intelligence and empathy—are likely to become relatively more valuable.”

## Is there anything left to say?

We see little value in further debate about which jobs will and won't be here ten or twenty years from now. However, what would be helpful is to understand how organisations can ensure that their human workforce has the skills required to work effectively with cognitive technologies. What does the increasing role of computing power mean for recruitment and development? Are there firms that are already facing up to this challenge? If so, what lessons can be learnt from organisations that are already shaping their human workforce to work effectively with new technologies?

The other opportunity we see here is to share the reality of implementing cognitive technologies, with a particular focus on the human challenges. It would be great to see a detailed exploration of the experience of firms that are leading the way. Why were pilots chosen—and, with the benefit of hindsight, might other options have been better? How were pilots implemented? How were results tracked and lessons incorporated into further efforts? Who was involved and who should have been involved? How do humans feel about what has happened? Working closely with a small number of firms who are willing to give an honest account of their experience could produce fresh insight for other senior executives. Perhaps the firm in question could actually be your own organisation—where have you added cognitive technology to your teams and what have you learnt from the experience?

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