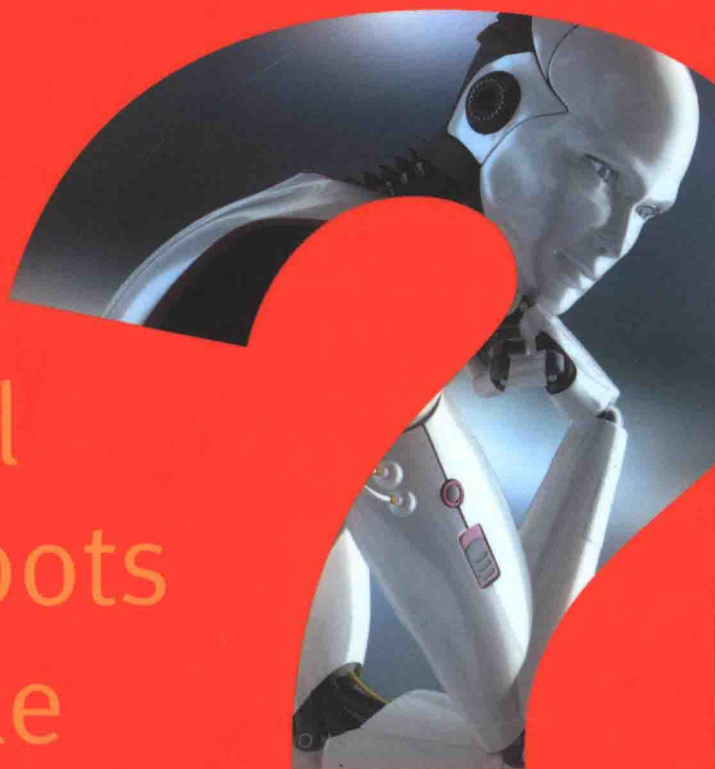


Nigel M. de S. Cameron

will
robots
take
your
job?



"A compelling and cutting-edge book, packed with intellectual energy. A must-read for all who care about the future: leaders, political and others, and yes, economists."

Nagy K. Hanna, author,
Visiting Professor, and former Chief Strategist at the World Bank

"Nigel Cameron has a refreshingly honest answer to the question of whether robots will take all the jobs: we don't know. Politicians are used to dealing with uncertainty, yet in this case they seem paralyzed. His brief, bracing book persuasively argues that a risk-based approach to policymaking is the best response."

Tom Standage, Deputy Editor, *The Economist*

"Nigel Cameron injects vital insight and urgency into the technology debate, and his book should be a wake-up call to policymakers and influencers around the world."

Christian Guy,
former Special Adviser to British Prime Minister David Cameron

The trend that began with ATMs and do-it-yourself checkouts is moving at lightning speed. Everything from driving to teaching to the care of the elderly and, indeed, code-writing can now be done by smart machines. Conventional wisdom says there will be new jobs to replace those we lose – but is it so simple? And are we ready?

Technology writer and think-tank director Nigel Cameron argues it's naive to believe we face a smooth transition. Whether or not there are "new" jobs, we face massive disruption as the jobs millions of us are doing get outsourced to machines. A twenty-first-century "rust belt" will rapidly corrode the labor market and affect literally hundreds of different kinds of jobs simultaneously.

Robots won't design our future – we will. Yet, shockingly, political leaders and policymakers don't seem to have this in their line of sight. So how should we assess and prepare for the risks of this unknown future?

Nigel M. de S. Cameron is President and CEO of the Center for Policy on Emerging Technologies

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Will Robots Take Your Job?

A Plea for Consensus

NIGEL M. DE S. CAMERON

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Will Robots Take Your Job?

New Human Frontiers series

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Change Our Minds?*

For three little boys, my youngest grandchildren, who
I trust will lead long and blessed lives among the
machines in the world of their economic possibilities:
Euan Cameron, Gideon Robison, and Lincoln Balmer.

To strive, to seek, to find, and not to yield.
Alfred Lord Tennyson, "Ulysses"

We are being afflicted with a new disease of which some readers may not yet have heard the name, but of which they will hear a great deal in the years to come – namely, technological unemployment. This means unemployment due to our discovery of means of economising the use of labour outrunning the pace at which we can find new uses for labour.

John Maynard Keynes (1931)

Exactly how bad is the job situation going to be? An Organization for Economic Cooperation and Development study concluded that 9% of American jobs are at risk. Two Oxford scholars estimate that as many as 47% of American jobs are at risk. Even the optimistic scenario portends a serious problem. Whatever the case, it will need to be possible, within a few decades, for a life well lived in the U.S. not to involve a job as traditionally defined. . . . The case for “this time is different” has a lot going for it.

Charles Murray (2016)

A short book on a complex and controversial topic is a rather dangerous thing to write. But the questions addressed here, at the meeting point of science, technology, and society, are questions for all of us, and we can't avoid them.

I've been concerned about the question of the future of jobs for many years, and in the past have made efforts to convene discussions among policymakers and other leaders. Until three or four years back hardly anyone was prepared to talk; and despite the fact that there is now a discussion taking place, at least on the fringe of public life (evident in the appearance of a spate of new books, and quotable quotes from the likes of Bill Gates, Larry Summers and Charles Murray), things have not changed that much. Political leaders still skirt the question and its enormous implications.

My personal interactions have been instructive.

A few years ago, I sat down for lunch on a sunny Menlo Park day with two partners from a global law firm who work with clients in Silicon Valley. There were

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various things on my mind, from the wine to how we get Washington more focused on innovation. But that was not the conversation they had planned. “When,” asked the top guy, “are we going to come up with innovations that create jobs rather than destroy them?” You could have knocked me down with a chip.

Shortly after, I was back in Washington and having dinner beside a top official in the US Department of Labor. I asked who on her team was working on this issue. No one, she said, and changed the subject.

The Washington think tank I lead convened a discussion some time back that involved AFL-CIO (the US labor union network) and a leading government economist, together with technology guru Marshall Brain. I asked someone from AFL-CIO who was working on this issue. When he replied no one, I gently suggested that perhaps they should all stop what they were doing and re-focus here. When we did convene the discussion, the labor union participant seemed little concerned. I tried to goad him by talking about self-driving trucks. What if, in ten or fifteen years’ time, the Teamsters, the truck drivers’ union, end up with precisely no members? Soon after, I was involved when a UK institute took a similar initiative in London. Once again the labor union point of view was very

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much in line with the conventional wisdom. It seems that even labor leaders are worried about being labeled Luddites.

More recently, an invitation came to address a group of economists at the World Bank. I walked into their den with trepidation. What I found interesting was that after I'd finished no one informed me that "economics" tells us all will be well (as we sometimes hear from the techno-boosters). Of course, as we shall see, some of the most important economists in history have been among those raising the alarm. Slowly, the issue is creeping into mainstream discussion.

Again recently, I was invited to join in a fascinating conference on what the world will be like in 100 years' time. The letter of invitation, from former Brazilian President Cardoso, made the beguiling point that a child born today may well be alive in 100 years' time. Those of us with children or grandchildren need to think a very long way ahead if we are to focus on their interests and likely futures. There is nothing "academic" about the question. What do I advise Euan, and Lincoln, and Gideon, and my other grandchildren to plan for in their future careers? We discuss these issues as academics, thought leaders, politicians, business people, technologists, civil society representatives. But also as workers ourselves. And as parents and grandparents.

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What does the future hold for our children, and their children?

We have been raised, those of us in the developed world, at a time of unprecedented prosperity. Our communities include poor people as well as those who are better off. And our global community includes hundreds of millions who remain extremely poor as well as broad disparities between those who merely get by and those who have recently been called the 1 percent. What are the implications of the coming disruption for the grave economic divides that currently slice up the human race into groups of haves and have-nots?

We look to the prospect of a prosperous future for the global community, powered by the amazing combination of hard work and imagination that has brought us from primitive times through agricultural and industrial societies to the brink of a new world in which digital technologies are set to drive a fresh economic and social order for the species. No question, the core element in that new prosperity will be the relief of many from the laborious work that has in past centuries been our only human way to sustain ourselves. First we made basic but powerful tools, then we harnessed animals, then the Industrial Revolution engaged steam power and a rash of inventive machines – and the rest is indeed history: industrial development spreading around the

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globe, and the very rapid extension of the digital revolution, enabling near-universal access to knowledge through the internet and bringing hundreds of millions of still-poor people into the global knowledge economy through mobile technology.

And so, the development of a new tech “species,” our latest tool, offers to lift the burden of work from our shoulders and deliver unprecedented prosperity. Perhaps the pace and complexity with which it develops will leave us, increasingly, with little to do, as we move into what Norbert Wiener memorably termed a “slave economy.” With the fading of the significance of labor in producing value, the dramatic shift of economic power to the owners of capital will test the capacity of our democracies to develop new models of distribution. It may also lead us into a wholly unprecedented situation, depicted by Keynes as the emergence of a “new leisured class,” with fundamental challenges for human society as our time is freed up for activities no longer tied to earning our daily bread.

Of course, this may be an exaggeration, or describe a state of affairs that lies only far in the future. But what seems clear, even on a cautious reading, is that labor markets will face turbulence as waves of “rust belt” structural unemployment hit jobs built on skill sets at both the top and the bottom of the scale, and as, we

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trust, new jobs emerge, forcing workers to adapt and retrain. What also seems clear is that there is a risk, a non-trivial risk – one that thinkers from Larry Summers to Charles Murray have begun to flag, and anticipated by economists from Ricardo to Keynes – that while new jobs will undoubtedly emerge we are in the process of a fundamental shift that will leave the “full-employment” economy behind. We need to reflect on the implications of such a potential shift for labor markets, income and wealth, and for our use of time. Whatever our personal take on the likelihood of such a prospect, we need to make our best efforts to be prepared.

While that’s true of us as individuals, a special weight of responsibility rests on the shoulders of the leaders, political and other, who take decisions on our behalf and that of the global community. Their absence from this discussion is remarkable and somewhat alarming. It needs to end.

Nigel M. de S. Cameron
Washington, DC
September 24, 2016

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Needless to say, like other colleagues in the Center for Policy on Emerging Technologies network, they bear no responsibility for the views I have expressed – although some have helped sharpen the arguments and all have contributed to my thinking since C-PET was established back in 2007. Ana Goelzer invited me to speak on this matter at a TEDx in Porto Alegre, Brazil. Most recently, I'm grateful to my colleagues at the University of Ottawa's Institute for Science, Society and Policy – director Monica Gattinger in particular – where I was able to work on this project for part of my time as Fulbright Visiting Research Chair in Science and Society in 2015–16.

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