Machines made the modern world – if we're not careful they could break it

The Machine Age explores humankind's fractious relationship with machines

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Humans have always had a fractured relationship with machines. A tool is an extension of muscles, always under the control of the individual. Tools can never replace humans in the job market: a row of tools can't make a car.

But machines can make things on their own, and therein lies their promise and threat: the promise of multiplied productive power versus the threat of human redundancy. This has been so ever since the Industrial Revolution. And the story is not yet finished.

My new book, *The Machine Age*, tells three stories, each with a happy or unhappy ending. The first is the one just introduced. Machines increase productivity – output per input of energy – promising a return to Paradise where, "neither Adam delved nor Eve span".

But what about the redundancies which would follow machines taking over human tasks? The factory would be filled not by inert tools but by busy robots, and soon offices and retail shops would resound to their whirring. What would be left for humans to do if practically all their tasks could be automated? And who would pay their wages?

The technological enthusiasts respond by urging us to think of machines complementing human performance, not replacing it. In 1997, the IBM computer Deep Blue beat the world chess champion Garry Kasparov over six games of chess. If a machine could beat the best human in a game as mentally demanding as chess, what future could humans look forward to, other than one of growing unemployment?

But it then turned out that computers plus humans could beat humans or computers on their own, so computers would not replace humans but enhance them! The threat of redundancy was lifted, and so far, at least technological unemployment is minimal.

A more sinister possibility is opened up by the spread of surveillance technology. The promise of shedding a light into dark places, dating from Plato's famous allegory of the cave, was visualised in Jeremy Bentham's famous design for a Panopticon in 1786.

This was an ideal prison system, in which a central watch tower could shine a bright light into all the surrounding cells without the prisoners being aware of being watched. This would reduce the need for prison guards, since the prisoners, aware of being continually surveilled, would police themselves. Why should not schools, hospitals, workplaces, streets – all of society – be run on these lines?

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The idea of building an ideal society based on a prison was made flesh in both Nazi Germany and Communist Russia. These 'utopias' failed, but Bentham's hopes live on.

Today's technology offers a power of surveillance only dreamt of by the most powerful autocrat in the past. It operates not through searchlights but through digital tracking and recognition systems into which we are all slotted, willingly or not, through our dependence on computers for everyday services like shopping and banking.

Just think – no more need for guessing what you might be up to: every desire would be anticipated by Big Seller, every potential mischief nipped in the bud by Big Brother. And all this is happening now. Every day improved surveillance devices are being rolled out and installed to ensure the consumer and political behaviour desired by a commercial platform or a state. China leads the way, but the surveillance society is catching up everywhere.

But there is a third possible story even more dreadful than the first two. This involves not unemployment nor zombiedom, but physical extinction. Our planet has always been threatened by natural disasters – the dinosaurs were probably extinguished 60 million years ago by an asteroid hitting the earth. Now we can create machine-made disasters.

In 1947, two years after atomic bombs were dropped on Hiroshima and Nagasaki, leading scientists created a Doomsday Clock to monitor threats to humanity from unchecked scientific and technological advances. The clock was set ticking at seven minutes to countdown in 1947.

In January 2020 it was set at 100 seconds, its closest ever to countdown; in January 2023, following outbreak of war in Ukraine, it was reduced to 90. Again, we see a vastly increased saving power intertwined with a vastly enhanced destructive power.

Most of us have heard of the Luddites, the handloom weavers who in 1811 started smashing the power looms being installed in factories. The most famous English economist of the day, David Ricardo, wrote, "the substitution of machinery for human labour is often very injurious to the interests of the labourers". Before we allow machines to take over our future, for better or worse, we must have a long pause for reflection, though I doubt we will get it.

The Machine Age by Robert Skidelsky is out 2 November (Penguin, £25). You can buy it from The Big Issue shop on Bookshop.org, which helps to support The Big Issue and independent bookshops.

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