

Erik Brynjolfsson and Andrew McAfee:
The Second Machine Age: Work, Progress, and Prosperity in a Time of Brilliant Technologies

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Throughout history, people have predicted the end of work, but so far it has never materialised. Is this time different? In their book *The Second Machine Age* Erik Brynjolfsson and Andrew McAfee argue it is. Machines already beat people regularly in chess and in the near future they will drive our cars, educate our students, or do Amazon's logistics. The authors call this the second machine age. The first machine age, the industrial revolution, fundamentally transformed the world of the 19th century. In a similar way, the infinite re-combinations of computers and robots will transform our society.

Lao Tzu allegedly said, 'Those who have knowledge, don't predict. Those who predict, don't have knowledge.' Indeed, the authors show that some predictions about the new age have proved remarkably wrong. Until recently, for instance, most experts believed that computers are bad at pattern recognition and good at routine tasks. Today it seems hard problems (computing a strategy for chess) are easy for computers, but easy tasks (found in the care or service sectors) are surprisingly difficult. In general, however, the frontier of things that machines can do is shifting rapidly. Automatically generated contents in newspapers or machines grading students' essays are just two examples of what intelligent machines can do. The world seems at an inflection point. The authors invoke Moore's famous law that computer power doubles every year and find exponential growth confirmed in many dimensions of technological progress.

Sceptics wonder why this has not transformed into higher growth rates in recent years. Indeed, freely available content

and cheap replication make it hard for many economists to see the profitability of it all. And yet, there is massive positive change even if its traces are more difficult to measure. First, the internet, Brynjolfsson and McAfee argue, has increased well-being by much more than growth in GDP; so much, in fact, that the second machine age needs a different metric to think about social progress. The authors estimate that intangible assets would add another 2 trillion to existing capital assets in the United States alone. Second, it will take time for people realise the full potential, just like in the first machine age: it took several decades from the invention of the steam engine to using it in transportation and construction. Third, modern information technology lets people increasingly obtain access to the world's stock of knowledge. Options multiply. This is good news.

The bad news is that the benefits are not evenly spread. Sure, consumers benefit enormously, but the majority of employees will lose. Skill-based technological change puts a huge premium on college degrees and creates job losses, especially in routine blue- and white-collar occupations. Technical change can be relentless. Photo company Kodak, which in its heyday employed nearly 150 000 people, filed for bankruptcy in the same year that Instagram, employing just 15, was sold to Facebook for USD 1 billion. Upswings in the economy are creating fewer and fewer new jobs, the share of labour in GDP is on the decline in recent years, and even within this share, the spoils are distributed more and more unevenly. We are experiencing the rise of what they (and others) call the superstar economy.

The dynamics of the superstar economy can be described in many ways: the Matthew effect ('For unto every one that hath shall be given ... but from him that hath not shall be taken even that which he hath.'), a winner-takes-all society, or, more prosaically, the dominance of power laws. One J. K. Rowling sells a multiple of the

number of books sold by her closest competitors; those competitors sell a multiple of the sales of their closest rivals, etc. These effects are hard to deny. Even if the authors refute simplistic fallacies, they are remarkably ambivalent about the possibility of what Keynes famously called technological unemployment. Granted, voluntary unemployment might be a society's ultimate goal, freeing human potential from menial occupations, but this would require a very different social contract from the one we are seeing nowadays.

It is hard to predict in which domains the comparative advantage of humans will survive. Skills complementary to machines, such as engineering or data analysis, will probably be in higher demand. 'Nerd is the new sexy', as they say (though I suspect that it is, by and large, nerds who say that). To rather race *with* than *against* the machines the authors suggest a laundry list of short-term policy recommendations: teach children well, use technology, improve matching on the labour market, more infrastructure, etc. In the long run, the authors recommend more controversial tools such as basic income schemes or labelling products with a high percentage of human input.

All in all, this is a very easy, sometimes gripping, even alarming read. The authors' fluid writing style, combined with a nice batch of anecdotal and systematic evidence, will appeal to a huge readership in and beyond academia. In some ways, the book is remarkable, especially given its provenance at MIT. It seems that the recent crisis has truly shaken mainstream economics and opened up cracks for heterodox thinking. Talking about technological unemployment seemed to be close to blasphemy only a few years ago. In this sense, the book is a welcome game change that allows the public discourse to talk about the really important issues of our time. The problem is, many economists tend to be ill equipped for these purposes.

In the same way economists have long defined away the problem of inequality as none of their business, job scarcity has, by and large, been a temporary or government-related issue. In some sense, this has changed. The new rise of automation has created a lot of scholarly interest, much of which is referenced in the book: David Autor, Daron Acemoglu, Joseph Stiglitz, and Lawrence Summers to name but a few. The diagnosis coming from this research seems sound—as far as I can judge—even if somewhat partial. Most examples come from technology enclaves around MIT and Stanford. It is a bit alarming that many of the aforementioned authors even use the same case studies, which questions the generalisability of these findings. A bit of a long-term perspective would also sometimes be consoling. Perhaps the largest transformation of labour markets so far was not the industrial, but the neolithic agricultural revolution, which essentially made everyone work for endless hours on the fields, only to barely survive on a highly unbalanced diet of mono-crops.

Whereas the diagnostic part of the book is fascinating, the sections about policy recommendations are disappointing. They basically don't go beyond the litany of ideas found in any econ 101 textbook. Looking at some policy recommendations in more detail fully reveals a kind of helplessness that is usually only seen in a rabbit shortly before being gobbled up by a snake. When it comes to schooling, the authors first criticise the tendency of educational institutions to be too lax and not make students work enough, before then praising Montessori schools for letting pupils decide themselves what they are best at.

More generally, the book shows the kind of lop-sided thinking that cares much more about allocation than distribution. However, the main issue has been, and always will be, the problem of distribution. Doing away with unemployment benefit

systems and job agencies takes away (legally defined) unemployment, but it does not take away underemployment, inequality, and poverty. In this sense, the recommendations found in the book are fairly limited. If social scientists like Karl Polanyi are right, the first industrial revolution generated a new kind of welfare model. Back then higher growth did also not turn automatically into benefits for everyone, and perhaps it would have never have done so, if not for better organisation and more solidarity among workers. If contemporaries of the industrial revolution had recommended something akin to what Brynjolfsson and McAfee suggest, we would still have Speenhamland (British 18th-century poor laws) instead of the modern welfare state. In this sense, the new revolution, assuming that there is one, will only benefit everyone if it is accompanied by fundamental changes in the social contract.

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Colin Crouch: *Governing Social Risks in Post Crisis Europe*

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This book expands on Colin Crouch's earlier work on the tension between capitalists' need for consumer spending and their preference for market principles in the sphere of work. At the book's core is the diagnosis of a conflict contemporary capitalist democracies face. How to reconcile labour market flexibility with high levels of consumption, if labour market flexibility implies uncertainties that undermine consumer confidence? Accordingly, labour market flexibility has the potential to seriously threaten the stability of consumer capitalism, but it also is an indispensable prerequisite for economic performance. This diagnosis, in its broad contours, is

compelling. In a similar form, it has served as the basis for Crouch's earlier analysis of 'Privatised Keynesianism'—a short-term solution to the consumption-flexibility dilemma whose unsustainability has become apparent in the Great Recession.

A central component of this book is an encompassing analytical scheme that maps different policy approaches to the dilemma. This scheme, which readers familiar with Crouch's work will recognise, is an admirably lucid condensation of a vast literature in comparative labour market research. In essence, it suggests that societies can resolve the consumption-flexibility tension (a) if some workers are flexible while others consume; (b) if people consume irrespective of uncertainty; (c) if public policies reconcile flexibility with security. Within these broad approaches, societies have quite different options (e.g. more 'exclusionary' or 'inclusive' ones). This makes the scheme rather complex: overall, it lists 19 different ways to address the tension. This complexity is the price to be paid for an exhaustive but still pretty elegant heuristic tool that will be tremendously helpful in mapping and comparing labour market strategies across time and space.

Besides doing just that, Crouch analyses the central hypothesis that societies mainly relying on markets as a governance mechanism experience more inequality and insecurity than those in which the state and trade unions have a stronger role (p. 50). This is, of course, not exactly a daring hypothesis given the wealth of research in political sociology and comparative political economy on precisely this question. More intriguing is Crouch's underlying contention that '[r]elationship to the risk/uncertainty mix is a classic class relationship because it is very closely related to relationship to property ownership' (p. 13). What he means by this is a growing importance of wealth as a prerequisite to benefit from the opportunities of financial capitalism. In post-industrial societies, he ar-