

# The Future of Work: Pivotal Decisions for Society

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## Abstract

Technological and social change is inevitable, and a smart society should shape its future, ideally through broadly-based and well-informed discussion. Technology is likely to unravel the ‘work trilogy’ (of task, pay, esteem) and we have the option to construct new socially-relevant alternatives, to take a laissez-faire approach, or to resist and attempt to maintain the status quo. Technology may reduce traditional employment opportunities, and its impact depends on the social response to maintain an egalitarian society. How do we as a society, agree on and progress towards the future society we desire, particularly as our politics tends towards shorter time-frames and personalities, rather than substance and long-term goals?

## Introduction

It’s virtually impossible to predict the future, but it is possible to influence the future, and it’s desirable for us as a society, both as the Royal Society and as Australian society, to formulate some plausible future scenarios of work in society to help identify what we should strive for. One of the key objectives of creating future scenarios is to focus attention on causal processes and decision points (Kahn & Weiner 1967; Durance & Godet 2010) – but it remains surprisingly difficult to construct useful scenarios and to focus discussion on the opportunities that arise and the consequential decisions that are needed. Too often participants restrict themselves to technical predictions, rather than offering insightful scenarios, and in turn, inadequate scenarios fail to stimulate productive discussion or to motivate pivotal actions. Worse, many predictions remain too narrow, too technical, and too limited. Thus for instance, Ken Olsen, founder of the computer giant Digital Equipment Company (1957-98), told the 1977 meeting of the World Future Society in Boston that he saw

“no reason for any individual to have a computer in his home” (Anon 2004), clearly failing to foresee how computer hardware would change, how new applications and networks would be created, and how people and society would adapt to new opportunities. So the challenge for the Royal Society and the four Academies is to elaborate a series of insightful scenarios, and to provoke discussion about those scenarios that help to gauge possible consequences and societal preferences, in order to inform public policy and to motivate key players towards appropriate action (Vanclay et al. 2006).

## Scenarios

One of the important steps in formulating scenarios is a broad environmental scan (Lowry & Baughman 2011) in an attempt to detect any emerging disruptive technologies (Carvalho et al. 2013). The challenge is to make such scans sufficiently bold and broad. Too often, such scans are too narrowly confined within disciplinary fields. Two examples from my own field of forestry are instructive. Poplar plantations abruptly

ceased to be viable in Australia when BIC disposable lighters disrupted the market share of wooden matches in 1973, coupled with the introduction of a disease in 1974 (*Melampsora laricis-populina* poplar rust), neither of which was anticipated by the plantation industry. Again in the early 1980s, the advent of the laser printer led to a dramatic shift in demand from conifer-based pulp (for tear-resistant paper used in high-speed line printers), to eucalypt pulp for its smooth finish better suited to laser printers. The forest industry did not anticipate either of these extra-sectoral disruptive technologies, a major shortcoming since a typical plantation crop at that time took 25 years to mature. Other sectors have also been blindsided, notably Kodak, the 133-year-old photography giant that filed for bankruptcy in 2012, after failing to respond adequately to the advent of digital photography (Lucas & Goh 2009). Clearly, to facilitate insightful scenarios, environmental scans need to be broad and multi-sectoral.

A challenge for environmental scans is that it is notoriously difficult to predict the pace of change. One might predict that the clumsy industrial-looking domestic power sockets used in Britain (BS1363 adopted in 1947) and South Africa (BS54, originating as BS317 in 1928) might be ripe for replacement with a more compact and common standard, but such progress appears glacial. In contrast, the dramatic transition from Sputnik (the first artificial satellite) to Apollo's men on the moon took about a decade, as did the transition from 'brick' phone (the brick-sized 'mobile' phones of the early 1990s) to the smart phone. Admittedly, the space race was propelled by the cold war and a presidential commitment (Kennedy's "man on the moon" speech of 1961), but the smart phone revolution was consumer-driven. And the smart phone was not just an improvement in

telephony, but also revolutionized other channels of communication (e.g., Facebook), photography (cf. Kodak's bankruptcy), position-finding (e.g., Google maps) and many other applications. It is likely that few, if any, futurists during the heyday of the brick-phone could have predicted the utility or ubiquity of smartphones just one decade later. The clear implication is that it is near-futile to predict technological progress, and more fertile to compile a series of plausible scenarios that stimulate discussion regarding options and consequences.

In formulating scenarios, breadth and utility is all-important. Intra-sectoral predictions are often blindsided, and inter-sectoral predictions tend to misjudge the pace of change. Whilst technological change is relatively straight-forward, the societal and political responses to changes are more complex and may have a substantial impact on the uptake and consequences of change. Thus it is important that the scenarios offered inform and provoke responses concerning social and political implications of change, especially in the present context surrounding the future of work.

## Challenges

In recent times, work has served society in three ways: it completes tasks, it supports families, and it gives the worker a sense of purpose and self-esteem. For many workers of our generation, it may seem that these three aspects are inextricably intertwined, but this has not, is not, and will not always be so. One need not look far in our society to find families who are supported by social security rather than by a worker within the family. It is not hard to find individuals who find satisfaction in life through their volunteering or hobbies, rather than through their work. And an increasing number of tasks are now completed by automaton rather than by

workers, a trend that will surely accelerate. It is easy to assume that work is the linchpin of modern society (Jones 1993), but closer examination suggests that this will not continue, and has probably been the exception rather than the rule. It is not hard to find examples where tasks are completed in ways other than through paid manual work – communal ‘barn-raising’ is an example from recent history that still persists in Amish society, and the modern equivalent, open-source software, is still alive and well (cf. Linux). So one scenario that we should consider is that the future of work will mean that most tasks can be done autonomously, and that our social and political challenge is to find other ways to provide family support and individual satisfaction. Perhaps the real challenge facing our society is to acknowledge that the “work trilogy” of task, pay, and esteem, can be disaggregated, and to ask whether it is a good social investment to require people to undertake tasks that can be done more safely and efficiently through automation.

Some pundits predict that some 40% of current jobs may become redundant in the foreseeable future (Jones 1991; Rifkin 1995, CEDA 2015). Whilst this may be perceived as a threat to our existing society, it can also be viewed as an opportunity: it is the boring, repetitive and dangerous jobs that most under threat, and freeing people from that drudgery should be liberating, individually and collectively. Throughout the history of humanity, societies have often responded to new opportunities with a blossoming of art and culture, so if managed skilfully, the new opportunities of automation could foster a new renaissance. Automation will not mean fewer tasks or less output; instead it will mean that tasks are completed more quickly, efficiently and safely, autonomously, so it should stimulate rather than depress the

economy, provided that we find an appropriate way to share the benefits. Loss of 40% of existing work could lead to a society in which a 20-hour working week is the norm, where workers enjoy 20 weeks annual leave, where we commence retirement at age 40, or in which 40% of the population live in poverty – and the social consequences of these various options are enormous. Our present government seems blind to this possibility, and is still promoting an increase in retirement age, so public discussion of some insightful scenarios should be a priority.

The Luddite reaction could be canvassed amongst other scenarios: such a scenario might advocate legislative and financial instruments to restrict new technology and imports, and subsidies to maintain existing labour-intensive activities. Recent experience in the automotive industry could inform this scenario. An alternative scenario might take a liberal market-based approach, and suggest a levelling of the playing field by refining taxation, shifting the tax emphasis from workers (e.g., payroll and income taxes) towards services (e.g., GST) and finite resources (e.g., fossil fuel tax). At this point it is worth observing how alarming it is that our status quo, like comfortable old slippers, detracts from the crux of how to create the society we desire, and leads us towards the minutiae of fine-tuning an existing tax system – rather like re-arranging deck chairs on the Titanic. It is tempting to assume that our current social security system and taxation system are central to our society, and it is easy to forget how much, and how rapidly, taxation and social security can and has changed (Steinmo 1996; Ey 2012). But we should not be diverted by taxation, and should remember that taxation should serve the needs of our society. The key question is to imagine the kind of society we wish to create in a post-work era, and it is salutary to

remind ourselves that democracies have substantially re-shaped themselves in recent times, for instance through the abolition of slavery and apartheid, through equality for women (both voting and wages), and other far-reaching reforms. We should be confident that our society can accommodate the technological and social changes we canvass, so should be bold in considering how we wish to reshape our society for our children. And we should be mindful that the failure to anticipate future challenges is implicated in the collapse of societies (Diamond 2005), so we should be bold and provocative in promoting our discussion.

Luddite and market-based scenarios have been mentioned, and it is appropriate also to suggest some aspects of an optimistic and progressive scenario. Such a scenario might address emerging problems with drug abuse and have a strong emphasis on building self-esteem through education and community engagement. Most Australians value our secure and egalitarian society, and don't want Sydney to become Johannesburg-by-the-Sea, so we must devise innovative ways to manage income distribution and essential services as our society evolves. It's likely that technology will further reduce physical activity associated with work and increase leisure time, so our society should encourage physical activity (perhaps through public transport, cycle paths, walking tracks) and cultural pursuits (museums, theatre, libraries, adult education). Conservatives may dismiss such suggestions, but the evidence suggests that social investments offer strong economic payoffs (Temple & Johnson 1998).

### Conclusion

The Royal Society and the four Academies have opened an important and timely debate, but have left several key issues unattended:

- Technology is likely to unravel the 'work trilogy' (task, pay, esteem): do we facilitate this unravelling and construct new socially-relevant alternatives, do we take a *laissez-faire* approach and wait to see what happens, or do we resist and try to maintain the status quo?
- If (as has been predicted) technology extinguishes 40% of current jobs, how should our society respond: is it more socially sustainable to propose 20-hour working weeks, 20-weeks annual leave, retirement at age 40, or 40% unemployment?
- Can innovation and entrepreneurial activity create sufficient new jobs, and if so, how do we bring innovators, entrepreneurs and investors together in a productive and durable way?
- How do we as a society, agree on and progress towards the future society we desire, particularly as our politics tends towards shorter time-frames and personalities, rather than substance and long-term goals?

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Received: 26 September 2015

Accepted: 9 October 2015

