

Horizon Scanning Series

The Effective and Ethical Development of Artificial Intelligence: An Opportunity to Improve Our Wellbeing

Transformations of Identity

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Paper submitted to the Australian Council of Learned Academies' inquiry into 'the opportunities and challenges presented by the deployment of artificial intelligence in Australia and New Zealand'

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I welcome the opportunity to provide input to the Australian Council of Learned Academies' inquiry into the opportunities and challenges presented by the deployment of artificial intelligence (AI) in Australia and New Zealand.

In this report, I offer my expertise on the following terms of reference:

- the social aspects of the 'Digital-Device-Distraction Syndrome';
- the ways in which human-machine relations are changing in an AI rich world; &
- the risks associated with the use of predictive risk modelling in the provision of social services.

I primarily approach these issues from a sociological viewpoint, drawing from key strands of research in the sociology of time, science and technology studies (STS), the sociology of the body, and other relevant social scientific fields of study.

To communicate my views, I make five interrelated points.

[1] Public and international scholarly debate around 'Digital-Device-Distraction Syndrome' tends to overlook the role society plays in shaping how people use—and are affected by—digital technologies.

In Australia and in other parts of the Anglophone world, there is a tendency to regard technology as an autonomous force in society, which inevitably leads to certain social outcomes (Wajcman, 2002). Discussions about 'Digital-Device-Distraction Syndrome' commonly exhibit this tendency as well. Digital-Device-Distraction Syndrome often presumes that the presence of digital devices will invariably cause users to become more distracted and less able to be attentive to elements of their surrounding environments (e.g., Nixon, 2017; Fritz, 2016).

This 'deterministic' way of understanding the role of technology in society, however, has been the object of much sustained criticism in the social sciences (e.g., Mackenzie and Wajcman, 1999, Guy and Shove, 2000). Scholars working in the field of science and technology studies (STS) have shown how significant cultural factors are in shaping the design, implementation, and use of various technologies.

This culturally informed account of technology is important for us to bear in mind because it can help us avoid thinking of distraction in overly simplistic terms. Instead of attributing the phenomenon of distraction in the contemporary era to the use of digital devices alone, we should pay more attention to the various social forces that produce and privilege distracted modes of being in some social contexts (Wajcman, 2008; Hsu, 2014). Doing so will give us a better understanding of how people can moderate the amount of distraction that may presently be in their lives, since distraction is as much of a social issue as it is a technical one.

[2] Increasing levels of digital device use should not be framed in wholly negative terms.

The public discourse surrounding the term, 'Digital-Device Distraction Syndrome', has a propensity to treat increases in multitasking in the digital world as a disease-causing negative consequences for individuals and society (e.g., Carr, 2010; Rosen & Samuel, 2015). Because they commonly divert attention away from more important tasks and interactions, digital technologies are thought by some to reduce productivity in the workplace, in addition to degrading the social interactions that people have with one another.

However, some of the negative impacts of digital devices are highly disputed. Sociological research has sought to temper some of the cultural criticisms of digital devices by examining the historical ways in which technologies have been incorporated into people's lives (Furedi, 2015; Wajcman, 2015). This body of work has found that many of the concerns currently expressed about digital technologies appear to echo those previously expressed about technologies that have become a rather mundane part of social life, such as the pre and early modern concern that the proliferation of printed texts would result in information overload (Blair, 2010).

Sociological research has also sought to give a more nuanced and ambivalent reading of what multi-tasking in the digital world involves. The ability to be somewhere else in the social world through a digital device does more than devalues face-to-face encounters. It also opens up new forms of social activity by transforming people's sense of time and place (Elliott and Urry, 2009; Moores, 2012). For example, there appears to be some evidence to suggest that digital devices can help people form and participate in online communities that share resources and provide social support (Baym, 2015: pp. 91-110).

[3] In an AI rich world, the distinction between human and machine has become more blurred in some instances.

Sociological research has found that there is growing overlap between human beings and machines. This is true in at least two senses.

Firstly, some technologies are beginning to take on more biological characteristics (Thrift, 2004). AI systems are increasingly able to mimic or perform humanlike functions, and this is evident in the way that some technological devices can:

- communicate and interact with humans in a quasi-human manner (Zhao, 2006; Reeves and Nass, 1996);
- enter into states like 'sleep' to pair with and complement user schedules (Hsu, 2017); &
- engage in sexual activities and relationships with human partners (Cheok et al., 2016)

Conversely, human beings are becoming more 'machine-like' such that it may be reasonable to call into question many aspects of what it means to be 'human' (Fuller, 2011). This partly refers to the ways in which much of human life has become inseparable from digital and computing systems (Jordan, 1999). It also refers to the ways in which technologies are now able to be embedded into human bodies, which tends to happen more so for specific social groups, such as the elderly, in some social contexts

(Wejbrandt, 2014).

However it should be noted that the human/machine distinction continues to persist and is socially meaningful in a variety of ways. Insofar as there have been efforts to transform how humans and machines are constituted and defined, it is best to understand these efforts as reversible, partial—and not totalizing—and context-specific.

[4] Linear and uniform models of social change about the development and implementation of AI technologies have a tendency to be flawed.

In Australia and other parts of the Anglosphere, some prominent voices have argued that the emergence of AI and robotic technologies in the 21st century is distinctive and impactful in terms of its rate of development (e.g., Hoy, 2014; Singer 2012). According to some, AI technologies now follow more of an ‘accelerative’ logic, as exemplified in the case of Moore’s Law.

Research in the sociology of time and in the field of science and technology studies has warned of the limits of this line of thought (Hsu, 2014; Rosa, 2003). How social phenomena ‘speed-up’ is now understood to be a very complex process (Wajcman, 2008; Hsu and Elliott, 2015). Acceleration tends to involve and produce many unforeseen reversals and discontinuities. The same dynamic will likely apply to the advancement of AI technologies. Some AI technologies may rapidly enter into some people’s lives but may encounter cultural resistance and transformation in other contexts.

[5] The use of algorithms in the provision of social services, including in some variants of predictive risk modelling, has implications for the types of power that people are subjected to.

Algorithms have long been utilized in organisational life to allocate resources and services. But what makes their contemporary use in the digital world unique and potentially worrisome is their ability to remain opaque and hidden. This partly refers to the difficulty of recognizing when some algorithms in the digital world are switched on and active (Pasquale, 2015). It also refers to the ways in which the inner workings of digital algorithms are commonly difficult to understand (Beer, 2009).

This feature of algorithms in the digital age has led some researchers to explore how algorithms can be made more transparent to promote fairness and/or democratic values (e.g., Diakopoulos, 2016). One emerging approach is to understand how the opaqueness of algorithms stems from different sources. According to the work of Burrell (2016), algorithms can be concealed on a number of levels: as a result of institutional secrecy, technical illiteracy, or the sheer scale and complexity of its operation.

These three sources of algorithmic opaqueness need to be considered in the use of predictive risk modelling in the provision of social services. The code of the algorithms involved should be accessible to the general public. Knowledge and training about the technical workings of algorithms should be expanded and collaborative. And a careful ‘supervised’ machine learning approach, which some predictive risk modelling programs already employ (Gillingham, 2015), may be worthwhile to pursue further.

Ultimately, the algorithmic underpinnings of predictive risk modelling need to be not only transparent to the parties concerned. Perhaps more importantly, they also need to be held socially accountable, which is a complex issue in need of further implementation and elaboration (Ananny and Crawford, 2018).

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