Innovation and the Corporation


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Articles

Innovation and the corporation

Sally Wheeler*

We live in an era of disruption. Think of innovative disruptors like Uber and Airbnb. Disruption is our friend.¹

Innovation has become a buzzword that excites socially mobile, inner-city types; but for other Australians, creates anxiety — about job losses and insecurity ... Some old ways of doing things are becoming uncompetitive and obsolete. Disruption and change are inevitable — here and across the global marketplace. Either we acknowledge the change, or we risk being overwhelmed and disadvantaged by it.²

In this article I want to look at the tensions inherent in innovation that Sinodinos identifies above³ and suggest ways in which corporations might respond to those tensions so as to limit, or at least acknowledge, the pain that their role in innovation might bring to sections of wider society. Unlike the term ‘progress’ the word ‘innovation’ whether in supply, product, production or marketing does not necessarily signal ‘betterment’. In the first section of the article I examine our current epoch; what has been described since the 1990s as the technological revolution.⁴ Riding on the crest of the wave of globalisation and surviving the GFC with just a temporary blip for the dot com crash in 2003, the technology revolution has brought and will bring more seismic change to the key relationships and identities that underpin human existence such as employer and employee, worker and provider. Concepts such as privacy, friendship and even human attraction⁵ are falling to be reconsidered and reconfigured.

Many of the opportunities offered by the technology revolution fall to the corporate sector⁶ for commercial exploitation often following a period of

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¹ Arthur Sinodinos (then Federal Cabinet Secretary), Editorial, Daily Telegraph, 24 May 2016.
² Arthur Sinodinos (Minister for Industry, Innovation and Science), National Press Club Address (as part of Science Meets Parliament, 22 March 2017).
⁶ Of course there are also challenges around the recognition and adoption of technology by corporations. The story is not one of unqualified success. One of the most egregious
considerable state financed support. In addition to providing this financing, there is a responsibility on states to create a regulatory environment that encourages private investment in innovation, offers flexible business forms for the exploitation of innovation and an intellectual property regime that gives sufficient protection for the fruits of innovation. At the level of the individual citizen we might expect the state to support educational and cultural policies that enable and encourage individuals to acquire the necessary skills and maintain their skill base so that they can participate in an innovating economy. There is an obligation on the corporate sector to recognise the power over wider society that it wields as a hugely powerful economic force and take steps to mediate the possible consequences of the exercise of this power. I unashamedly take, as both a starting position and as a given, the idea of the corporation as an actor with societal responsibilities for which it should be held responsible.

In the second section of the article I look at the principles behind responsible innovation (‘RI’) which is a governance concept derived from the public, as in state or quasi state, governance of science particularly the life sciences in state funded or part state funded institutions such as Universities and public/private partnerships. It currently, like much of the innovation literature, says very little about the position of the corporation and its associated publics. I suggest adapting RI so that it becomes the vehicle by which corporations manage their obligations around the consequences of innovation. The corporate sector has in some senses already accepted this obligation through the adoption of practices such as CSR, sustainability programmes and other voluntary initiatives although I argue, in the third section of the article, that these responses are inadequate both to address the core requirements of RI and the current populist pressures on the corporate examples of a failure to adapt to innovation surrounds Kodak and its maintenance of its traditional chemical and physical approach to film in the face of digital photography: Henry C Lucas Jr and Jie Mein Goh, ‘Disruptive Technology: How Kodak missed the digital photography revolution’ (2009) 18 Journal of Strategic Information Systems 46, 46–55. 7 See Mariana Mazzucato, The Entreprenuerial State: Debunking Public Sector v Private Sector Myths (Anthem Press, 2015) where the level of state support behind what we commonly think of as purely private sector innovations, eg, GPS, touch screen technology and Google’s algorithmic search prowess, is revealed.

sector. Instead I offer an alternative way forward that is both a more
democratic and a more constructive means of engagement for the corporate
sector.

Section 1: Opportunities and challenges in the
technology revolution

There is a sense in which describing the current period of innovation as the
‘technology revolution’ is a gross misdescription. Innovation has underpinned
and ushered in all previous eras of change; the arrival of steam power and the
first wave of mechanised production; electricity which facilitated the era of
mass production; the automation of production through the use of electronics
and information technology, and the digital revolution which creates blurred
lines between physical, digital and biological worlds. There are plenty of
subsets of change within this narrative that have required human adaption
such as the rise and fall of Fordism and the migration of production to lower
cost regulatory regimes under globalisation. There are also many other areas
in which we can see technological innovation driving change — for example
gunpowder, nuclear weapons and now drones are three revolutions in warfare
that have reshaped our ideas about military conflict.

The significance of the current period, whether we see it as the 4th
industrial revolution13 or the fifth Kondratiev wave,13 is its scale and its speed. The
relative ‘good life’ (things are often good though when viewed through the
misty eyed lens of nostalgia) of post WW2 affluence14 based upon
automation was swept away by the pain of globalisation for certain segments
of society. However many of those made jobless by the relocation of
production activities subsequently found employment in the service sector
which expanded expeditiously not least because of the contraction of the
space/time dichotomy under the conditions of globalisation; in other words
global markets and global production allows for 24–7 consumption which in
turn needs to be serviced. Deregulation of many professional occupations and
activities together with rampant outsourcing of service provision under
neoliberal new public management ideology saw huge growth in earnings
potential for lawyers, accountants and management consultants,15 very steep

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Geneva (Switzerland). Schwab has the three previous revolutions as steam power, assembly
line production and the development of mainframe and personal computing.

13 Schumpeter named the long 45–60 year economic cycles of expansion, stagnation and
recession linked to innovation that Kondratiev had identified as Kondratiev waves, in his
honour. According to this approach we are in the fifth such wave: steam power; iron
railroads and steel; electrical engineering and chemistry; and oil and cars are the four earlier
ones. The fifth is computers, software, telecommunications equipment, and, ultimately,
biotechnology: Chris Freeman and Francisco Louçã, *As Time Goes By* (Oxford University
Press, 2016).

14 Lawrence R Samuel, *The American Dream: A Cultural History* (Syracuse University Press,
2012) 42ff. Interestingly for the purposes of this paper Samuel describes how in 1949 35 per
cent of American teenagers expected to hold ‘professional’ class jobs even though labour
force studies indicated that only 10 per cent of those participating in the economy were
employed in this job market segment: at 67ff.

15 David H Autor, ‘Why are there still so many jobs? The History and Future of Workplace
rises in corporate profits and the growth of a corporate bonus culture and unchecked remuneration for corporate executives.

What this latest wave of innovation promises is a scaling back of both professional employment and service sector employment opportunities as those functions are taken over by machines. Those who fought back from the disenfranchisement of globalisation into some form of waged employment sense defenestration on an even grander scale and in a much shorter time frame than in previous periods of change. For example in 2003 it was suggested that driving a car through traffic was a task that was not readily automated because the skill level required could not ‘be accomplished by machines following explicit programmed rules’. However within 2 years of this claim the first iteration of a driverless car appeared. The disappearance of employment opportunities forms a backdrop to populist disquiet about societal inequality, increasing corporate wealth and declining corporate tax contributions that are seen as inappropriately small. This populist disquiet, as I explain in Section Three of the article, creates a threat to the legitimacy claim that corporations make. The general acceptance of this claim is a necessary requirement of doing business successfully.

There is a major reconfiguration of employment currently underway and this will intensify as the traction of developing artificial intelligence (‘AI’) systems, advances in robotics and other technology applications increases thus rendering some employment roles redundant and others deskilled. The World Economic Forum singles out white-collar office and administration jobs as the most likely to be lost in the immediate future through automation and disintermediation. Healthcare as an employment sector will be impacted in the future by the development of ‘caring robots’. The general service sector faces a similar challenge from robotic developments. In Australia one in 12

18 For a populist account which pulls together a huge range of contemporary sources, see Martin Ford, The Rise of the Robots (Oneworld Publications, 2015).
jobs are located in the manufacturing sector. They have survived globalisation because of the high skill levels embedded in those employees. They will be challenged by the evolution of 3D printing. Despite much emphasis being placed upon job replacement occurring at lower salary levels and particularly in developing economies, even traditional professional roles such as doctors and lawyers will be replaced in part by automated machines for a wide range of tasks that were previously considered core to their professional competencies. AI systems can already infer diagnosis, read x-rays, assess transactional risk and deal with document discovery. They will become more sophisticated and be able to assume more complex tasks. A recent study by the McKinsey Global Institute found that ‘currently demonstrated technologies could automate 45% of the activities people are paid to perform’. The latest predictive evidence available for the technology revolution points not only to the extinction of some employment opportunities and so the creation of a large cohort of unemployed and under employed people but also to wage stagnation and the driving down of wages, particularly for those already in low waged unskilled employment, under conditions of technological advancement. We can take Tesla as an example. Tesla is an energy company that has diversified to manufacture electric cars in a non-unionised car plant in Fremont California. It has developed new battery systems and a pan-US charging network to facilitate its cars. To construct its cars Tesla uses robots maintained and augmented by its human workforce. It aims to make 500 000 cars in 2018, an increase of 495 per cent on its 2016 production figure. Tesla employees earn less per hour than other

23 Committee for Economic Development of Australia, Australia’s Future Workforce (June 2015) 101.
27 Daron Acemoglu and Pascual Restrepo, ‘Robots and Jobs: Evidence from US Labour Markets’ (NBER Working Paper No 23285, 2017). They offer the suggestion that one additional robot in industry per 1000 workers reduces wages across the economy by 0.5 per cent.
28 There is a counter narrative to this and Tesla is used to illustrate that as well. It is that the advent of robotic manufacturing means an end to labour cost arbitrage; robots will replace low cost workers and production will move back to sites of consumption thus lowering transportation costs. Livesey presents a fascinating account of the possibilities for this but there is nothing appearing yet in the relevant economic data to suggest that this will become a trend. Tesla is building on its energy background and novelty in construction location plays well for a new product to shake up years of petro-diesel dominance from better known manufacturers such as GM: Finbarr Livesey, From Global to Local: the Making of Things and the End of Globalisation (Profile Books, 2017).
manufacturing workers in the same locality and work under considerable time and physical pressure to keep pace with their robotic co-workers while Tesla has a market capitalisation of more than USD50 billion.30

Technological developments are profoundly changing our understanding of what is and what will be the function and nature of employment. It is likely that several part-time jobs will be required to assemble a living wage in parts of the economy. The nature of the skills required to get and keep a job are in constant flux. Bauman in his discussion of the move from a production society to a consumer society under the conditions of globalisation and migration talks of the ‘redundant worker’ and ‘human waste’.31 The ‘redundant worker’ is one that is judged to be unneeded by the current standards of usefulness; a person that can be done without. Something that is redundant is also something that belongs in the category of ‘refuse’ or ‘waste’ and so these people become ‘wasted humans’. Bauman’s concepts have considerable traction still in the era of swift technological innovation. Just as he described a society plotted across a mobility spectrum from tourists possessing the freedom to move at will and to vagabonds wishing to relocate to sites of affluence but being excluded,32 the technology society will be plotted across a spectrum from those with transferable or developing skills able to take advantage of emerging opportunities to those who are replaced by robots and AI systems. Being ‘redundant’ has not only a financial connotation for individuals and wider society but also a huge social impact on those who are ‘redundant’. Work is a source of dignity and self-esteem for many, deprived of this people become socially homeless. Irresponsible innovation risks removing part of life’s fabric with consequent pain and disruption for those affected.

Kurt Vonnegut’s Player Piano33 not only seems particular prophetic and apt at a distance of some 65 years but only sums up the ambivalence of professional society34 towards our current state. For those yet to become redundant in Bauman’s terms, applications of technology which involve competitive advantage through information asymmetry, for example Uber and Deliveroo, are attractive. They offer transport and sustenance flexibility that did not exist before and, unless one is affected by their socially undesirable outsourcing of risk through the use of a business model which creates new

34 David Seed, Mankind vs Machines: The Technological Dystopia in Kurt Vonnegut’s Player Piano’ in Derek Littlewood and Peter Stockwell (eds), Impossibility Fiction: Alternativity — Extrapolation — Speculation (Rodopi, 1996) 11–24.
categories of the self-employed worker, they are potentially efficient options which support a busy urban existence. There is much that is attractive in proposed technological solutions to grand challenges and wicked problems\textsuperscript{35} such as climate change and hunger,\textsuperscript{36} not least the amelioration of the social discomfort and unrest they will cause if not checked.

However there is also much to fear on the technological journey even for those of us that see ourselves as part of it. Emerging technologies such GM food and genetic engineering engender fear provoked by feelings of loss be that loss of control, income, identity or power. Airbnb, a much less emotive subject than GM food, threatens to restructure the conventional rental market to the detriment of would be long-term tenants. People fear being left behind or excluded.\textsuperscript{37} New technologies fall into an institutional void where everyone including many of the innovators themselves are playing catch up.\textsuperscript{38} There are few agreed structures or rules to deal with them. Reskilling to be able to take up new generation jobs\textsuperscript{39} in areas like computing and green engineering requires employer financial commitment as well as employee desire. Neoliberal governments obsessed by the rhetoric of choice, particularly in a time of austerity, are likely to see this as primarily the role of the corporate sector.

Innovation is not something that happens in a vacuum of passive behaviour. Corporations (in addition to states,\textsuperscript{40} obviously, but the focus in this article is on corporations) have choices about which innovations they adopt, how they adopt them and when they adopt them. These decisions have consequences for their employees, their investors and wider society. As Schumpeter asserts ‘those people [who participate in Creative Destruction] cannot close their ears to the cries of those about to be crushed when the wheels of the new era roll

\textsuperscript{35} ‘Wicked’ was first used as a descriptor by Rittel and Webber meaning ‘malignant’ or tricky’. A wicked problem is one that cannot be set out in a contained form with a solution. With wicked problems the definition of the problem is interlinked to the choice of solution. The example used by Rittel and Webber is poverty where the solution might sound in economics, health or education or some combination thereof depending on how the problem of poverty is formulated, see Horst W J Rittel and Melvin M Weber, ‘Dilemmas in a General Theory of Planning’ (1973) 4 Policy Sciences 155, 160–1.

\textsuperscript{36} The potential power of innovation through collaboration and connection is reviewed in a series of case studies in Philip Auerswald, The Coming Prosperity: How Entrepreneurs are Transforming the Global Economy (Oxford University Press, 2012).


\textsuperscript{40} A potential state solution that ameliorates the adverse effect on employment and wages is the provision of a universal basic income. This idea is currently being discussed in a number of states with Finland in the midst of a trial: Kate McFarland, Finland: First Results from pilot Study? Not Exactly (10 May 2017) Basic Income Earth Network <http://basicincome.org/news/2017/05/finland-first-results-basic-income-pilot-not-exactly/>. The idea has a long pedigree and was suggested as an antidote to the consequences of automation in the United States in 1964 by a group of distinguished American liberal academic economists and scientists, see the discussion of the Ad Hoc Committee on the Triple Revolution provided by the November issue of that year’s Monthly Review.
over them'. In Section 2 I look at the idea of responsible innovation (or as it is sometimes referred to as research and responsible innovation) that has emerged recently from the scientific research community in Universities and EU science governance policy in particular. For the corporate sector this will require bringing new structures or at least, less formally, dialogues and inquiries into new places and levels within the innovation process and forming new partnerships with civil society. I explore these in Section 3.

Section 2: The concept of responsible innovation

The current UN Sustainable Development goals and the top ten emerging technologies of 2016 as identified by the World Economic Forum are listed below. There are few direct synergies between them. Perhaps this should not surprise us. The development goals emerge from the challenges identified and agreed on by states whereas the World Economic Forum is a loose amalgamation of business, academic and political and community leaders. Obviously these bodies do not necessarily share the same agenda.

The point of this comparison, however, is to demonstrate that innovations are often interdependent on each other in that the development of technology in one area might eventually lead to its development and application in another area. If a particular technology stalls in the development process then a raft of as yet unidentified opportunities might be lost. There are no simple

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solutions to any of the development goals but much innovative technology has unforeseen consequences which may or may not be desirable and dual-use possibilities (innovation which has benefits but could also be used for harmful purposes, for example nuclear fission). The unforeseen consequences problem is particularly pertinent early in the life cycle of new technology. The early stages of development would be the ideal time to limit or at least reshape a technology to avoid social and environmental problems but these effects are often not known or simply unexplored at this time. When they do become known, either through usage or because a technology has become more visible and there has been more engagement around it, it is often too late to reshape it as it has been invested in, both socially and economically.

The establishment of a systematic and inclusive discourse around technological innovations and their possibilities for further development would not solve these issues, but it would lessen the likelihood of entrenched positions occurring and make interventions at an earlier stage more plausible. This discourse would bring focus to issues such as the location of the responsibility to explain risks and the identity of potential beneficiaries. Different groups will have divergent agendas around innovations as they bring different interests to the space; for profit corporations are likely to be focused on economic value and their approach to value creation will not be the same as the primarily social value focused NGOs and 3rd sector organisations. This difference of focus accentuates the need for a value based discourse process.

Innovation has become an open and democratised system with successful innovations often being based on a network of actors and information sources rather than a single author. This reflects the far from linear path that lies behind innovation; multiple business sectors from basic scientific research through finance, production, marketing and retail are required to progress innovative ideas. The rise of social media and the availability of the internet means that information in the innovation space can spread quickly and easily and individuals can collaborate with each other without being physically co-located. Changing patterns of employment mean that many individuals would prefer to work as self-employed or in short-term portfolio careers rather than remain with one employer for their whole working life.

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Firms now set out deliberately to capture innovation from a range of sources outside their own R&D hubs; user generated ideas, ideas banks, employees and the voluntary sector. This involves adopting a model of firm organisation that moves away from traditional hierarchies and leadership chains to one that offers support and focus for ideas. Crowd funding of innovation is becoming popular, as are innovation markets where those offering and requiring innovative solutions can meet. Innovation brokers offer services to link potential innovators to corporations to allow information sharing and development to take place. Complete development within a user community also occurs, for example software such as Linux or Mozilla. However within this open system of innovation corporations are still the largest and most multi-functional actor. They are the most likely vehicle through which life changing technologies reach wider society whether they act as financier, developer or producer or all three. While taking steps to mirror this openness, the corporation is the most obvious place to anchor the idea of dialogues around responsible innovation practices. 

Innovation nestles in a basket of regulations that cut across the various stages of practice; clinical trials, product liability regulations, environmental standards and regulations and health safety protections for workers for example. These are essentially state or supra-state interventions that are about the governance of risk and risk management rather than evaluating the innovation proposition against a particular standard or standards. Responsible Innovation (‘RI’) offers an engagement that is less hierarchical and more inclusive than these structures and is evaluative. RI has its roots in ELSA (‘ethical, legal, and social aspects’ of emerging sciences and technologies) with other earlier influences being Constructive Technology Assessment and Bioethics. ELSA was a top down concept first introduced in 1994 by the EU Framework Programme as a way of framing these issues in the context of EU funded research, particularly in the area of the life sciences. Other
national funding councils adopted the label to frame the activities that they wished to see research surrounded by. The focus of ELSA was on bringing the humanities and social science research communities into discussions about scientific and technological research. This is not to say that there have been no dialogue spaces under these processes. There have been some notable ones but they have always been under the direct aegis of government or a government-funded entity.61 This limits their ambit as genuinely exploratory processes. Both ELSA and CTA are more concerned with a limited number of predefined ethical and societal issues grafted on to scientific or technical research processes62 to be discussed as possible constraints that need to be assessed or managed than they are with creating dialogue.

Responsible Innovation emerged from a similar governance background to ELSA in that it first appeared in the 7th EU Framework Programme63 and then again in the 8th,64 more usually called Horizon 2020. What makes it distinctively different from its predecessors is that it is presented within those frameworks as a concept with which to embrace the possibilities for positive contributions in dealing with the world’s wicked problems across the entire innovation process.65 The focus of RI is on changing the way in which innovation, and the research that underpins it, is executed both in terms of process and outcome so that it achieves a demonstrable environmental and/or social benefit in micro and macro terms assessed and decided upon democratically through a positive process of engagement between all those who are in its affected ambit.66 This requires the actors involved to take responsibility for the impacts of their work.67 Von Schomberg, once an academic and now a relatively high profile Science Policy officer at the European Commission and science commentator, is the source of the most

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61 See the history of public dialogue on emerging science and technology provided in Kathy Sykes and Phil Macnaghten, ‘Responsible Innovation — Opening UP Dialogue and Debate’ in Owen, Bessant and Heintz, above n 50, 85, 87–94.
67 Bernd Carsten Stahl et al, ‘The Empathic Care Robot: A Prototype of Responsible Research and Innovation’ (2014) 84 Technological Forecasting and Social Change 74, 74–85, where the authors provide a pretty sobering example of a care robot and terminal illness through the medium of a radio play.
widely cited definition of RI. He describes it as a ‘transparent, interactive
process by which societal actors and innovators become mutually responsive
to each other with a view to the (ethical) acceptability, sustainability and
societal desirability of the innovation process and its marketable products (in
order to allow a proper embedding of scientific and technological advances in
our society’).68

The forward looking nature of RI and its focus on embedding discussion of
societal benefits and needs means that is pulling perspectives of care and
responsiveness, in a future sense,69 into innovation design, processes and
outcomes. These perspectives are very different from the ones of
accountability and risk management that ELSA and CTA centred on.70 RI
requires us to confront questions of motivation, appropriateness and
consequence in innovation while at the same time recognising the range of
perspectives and identities that broadly based dialogues will expose. Owen et
al suggest that to do this effectively we need to see RI as housed in an
integrated framework of four dimensions which corporations, as the lead actor
in innovation, commit to facilitate. The four dimensions are ‘anticipation’,
reflection’, ‘responsiveness’ and ‘deliberation’.71

In anticipation mode we might work through the intended and possible
unintended impacts of innovation thinking about its resilience and effect on
the future research agenda more broadly. The reflection mode encourages
consideration of the purpose of innovation and the motivation behind it. These
are both cognitive dimensions in a way that responsiveness is not. There is a
sense in which these are not new exhortations; commentators have been
questioning the link between technology design priorities and social utility for
some time.72 What is different about RI in this context is that these
exhortations are going across the whole process and end product — a long
way beyond just design principles. The responsiveness trope points to the

68 René von Schomberg, ‘Prospects for Technology Assessment in a framework of responsible
research and innovation’ in Marc Dusseldrop and Richard Beecroft (eds), Technikfolgen
where von Schomberg makes an impassioned plea for innovation to focus on the ‘right
impacts’ which he sees defined in the Treaty of the European Union, art 3; in broad terms
balanced economic development around equality, sustainability, social protection, a high
level of employment and an increasing standard of living for all. See also René von
Schomberg, ‘A Vision of Responsible Research and Innovation’ in Owen, Bessant and
Heintz, above n 50, 51–83.

69 In a piece written several years ago I used the work of Hans Jonas on technology and ethics
to ground the idea of unlimited obligation to future generations in circumstances where we
cannot know the limit of our actions: Sally Wheeler, ‘Climate Change, Hans Jonas and

70 See Jack Stilgoe, Richard Owen and Phil Macnaghten, ‘Developing a Framework for
Responsible Innovation’ (2013) 42 Research Policy 1568, 1570 where the authors suggest a
revised definition for RI that captures more clearly the idea of future projection of
consequence rather than backwards assessment of risk expressed as ‘RI means taking care
of the future through collective stewardship of science and innovation in the present’.

71 Richard Owen et al, ‘A Framework for Responsible Innovation’ in Owen, Bessant and
Heintz, above n 50, 38–9.

72 See, eg, the preface to D Norman, Turn Signals are the Racial Expressions of Automobiles
(Diversion Books, 1992) where the author comments that ‘modern technology seems to exist
solely for its own sake’. Norman, one of the first movers in the human-centered design
movement, goes on to set out the credo of user experience.
range of innovation and its trajectory being informed by what comes from the anticipation and deliberation dimensions. Deliberation is the foil for the other three dimensions. As a process it should ensure that a range of perspectives from a widely drawn group of informants is available. Conclusions may or may not emerge from the process. There will be no attempt to drive through suggestions based on what might be considered by some as smart or desirable policy outcomes but it will instead identify areas of consensus, contestation and competition. The content of these dialogues is structured by the demands of the other dimensions. Section three considers how these dialogue spaces might be opened up.

Section 3: The listening corporation

2016–17 has been a time of global political turmoil not seen since the 1960s — for example waves of strikes and demonstrations in South Africa and Columbia — and unexpected political events such as the United Kingdom’s vote to leave the European Union after over 40 years of membership and the election of a political outsider, Donald Trump, as US President. Other European states — Austria, and the Netherlands for example — have flirted with far right political movements in a way that is not unlike the engagement that took place in the early years of the 1930s and there has been a rejection of anything seen as the political hegemony be that right or left — recent national election results in France and the United Kingdom reflect this. Much of this unrest has been fuelled by a populist backlash set against the broad themes of perceived income inequalities, economic insecurity, austerity policies, and value systems that are thought to belong to liberal elites. These value systems are under attack not because of what they contain particularly but because they are seen as belonging to those who have escaped the effects of globalisation and the GFC and are likely to survive the current technology revolution emerging from it with either an increased, or at least not diminished, standard of living and because they signal change. Change for those who are already, or fear that they are about to become, wasted humans has to be resisted.

Corporations are caught up in this backlash too. Any accommodations they might have made in the era of globalisation to maintain their social licence

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74 The operating definition of populist in this setting is taken from Mudde: ‘a thin-centred ideology that considers society to be ultimately separated into two homogeneous and antagonistic groups, ‘the pure people’ and ‘the corrupt elite’ and which argues that politics should be an expression of the … (general will) of the people’: Cas Mudde, *Populist Radical Right Parties in Europe* (Cambridge University Press, 2007) 23. See also Benjamin Moffitt, *The Global Rise of Populism: Performance, Political Style, and Representation* (Stanford University Press, 2016).


are fast evaporating. They are suffering a serious and sustained challenge to their organisational legitimacy and specifically within that construct, their moral legitimacy.\textsuperscript{78} What a challenge to a corporation’s moral legitimacy means is that a significant section of society no longer sees the corporation as valuable and important to society beyond its ability to generate profits. Loss of moral legitimacy manifests itself in consumer boycotts, declining product or service sales as support for a corporation is withdrawn and alternative sources of supply are sought, media and popular pressure for conduct investigations and opposition from the same sources to proposed innovations. In this situation corporations lose the field position that gives them the ability to influence their environment\textsuperscript{79} in terms of regulatory structures and they expose themselves to potentially lasting reputational damage.

The populist judgment is that the corporate sector is part of the establishment that has caused economic pain through a variety of illegitimate means. Policies of financialisation,\textsuperscript{80} subprime lending\textsuperscript{81} and the general mis-selling of financial products are seen as evidence of corporate greed. The decisions of individual business executives are thought to be the cause of the GFC\textsuperscript{82} and these individuals are vilified as having escaped largely uncensored\textsuperscript{83} while others, completely unconnected to the finance industry, bear the brunt of austerity politics.\textsuperscript{84} The definitional differences of fraudulent conduct (LIBOR for example) and aggressive business practice or poor decision-making (short-termism for example) are largely lost on a popular audience.\textsuperscript{85} In the years following the GFC, financial recovery has seen global index values reinflate to pre-crisis levels and corporate profits increase expeditiously while wages have remained static and social welfare nets have tightened.\textsuperscript{86} The attacks of activist shareholders on corporate pay are not just

\textsuperscript{78} Corporations can access, according to organisational legitimacy theory, three forms of legitimacy; pragmatic, cognitive and moral. Of these three, moral legitimacy is the one that requires positive thought and action within society and so it is the one that corporations wish to maintain most: Mark C Suchman, ‘Managing Legitimacy: Strategic and institutional approaches’ (1995) 20 Academy of Management Review 571, 571–610.


\textsuperscript{80} For a variety of definitions of ‘financialization’, see Shaun French, Andrew Leyshorn and Thomas Wainwright, ‘Financialising Space, Spacing Financialization’ (2011) 35 Progress in Human Geography 798, 800–4.


\textsuperscript{84} Robert Goldman and Stephen Papson, Landscapes of Capital (Polity Press, 2011) 64–104.


about the competition between dividend income and executive compensation, they are also about addressing the threat to corporate legitimacy posed by pay differentials.\(^{87}\) Strategic avoidance of corporate tax has become an issue for some multinational corporations such as Apple, Google and Amazon\(^{88}\) (there is also a clear link between these corporations and innovation) and for the global accountancy firms such as PWC, Ernst and Young and KPMG who design avoidance schemes often in consultation with the revenue authorities of the relevant states. Tax evasion and corporate involvement in political corruption revealed by the Panama Papers\(^{89}\) emphasises the synergy between business and government and has added to the legitimacy crisis.

The Edelman Trust Barometer for 2017\(^{90}\) provides clear support for these populist views and endorses the sources of discontent. It reports that trust in the four institutions of Government, the media, business and NGOs has declined. Only 37 per cent of those surveyed report trust in CEOs and 29 per cent trust in government. The most cited complaint about business is that innovation is moving too quickly with insufficient time being spent on explaining its context particularly on any downsides that might result from its adoption. This builds on one of the findings of the same survey in 2016;\(^{91}\) that influence has become inverted; it is no longer about authority and it is instead now exercised on a peer-to-peer basis. This means that corporations need to engage with employees and others through dialogue to move past fear and uncertainty and re-establish legitimacy. This fits exactly with the model of responsible innovation set out in Section 2.

The usual response from the corporate sector to legitimacy crises or to loss of reputation is to use CSR policies to re-establish standing and trust. The choice of focus, design and longevity of corporate social responsibility interventions rests with corporate managers. Strategic CSR interventions allow corporate managers to present a corporation to the external world in a particular way. CSR becomes a form of chiaroscuro;\(^{92}\) certain practices are pushed forward for scrutiny, awards even, while others are to remain firmly in


Thus, there is no requirement that there be a link between the activities that caused the loss of legitimacy and trust and the CSR strategy adopted to restore the same. CSR is a top down, often reactive and defensive, intervention that serves as a risk management strategy for the corporation in coping with existing, but also evolving, social pressures. Much of its content is orientated towards achieving measurable global standards, the requirements for which are predictable year on year and attainment of which allows benchmarking against competitors for commercial advantage.

CSR, it seems, is unlikely to deliver legitimacy in circumstances where what is required is a framework for innovation practice that embodies anticipation, reflection, responsiveness and deliberation. CSR does not produce new norms, it does not manage uncertainty and it does not set up proactive dialogues. It is an instrumental practice that reflects the status quo or, in some circumstances, creatively deflects the consequences of the status quo. Responsible innovation needs trust to be created and maintained in a dynamic process of engagement that looks beyond the economic and enhancing the economic to the moral and ethical future. This requires a corporate social responsiveness rather than responsibility; a democratic exchange where corporations move away from their board rooms and managing executives simply imposing their agreed position by means of their greater economic and social power to a situation in which there is an open and critical dialogue. What should result is a position of shared understanding and trust.

Key to creating these democratic exchanges is an idea of inclusion, shape and purpose. On the inclusion point much of the RI literature focuses on stakeholders coming together. Stakeholder is a term that has a rich but
contested history in corporate law. Opposition to it as a nomenclature comes from the descriptive force that the stakeholder literature gives to the term. Stakeholder theory asserts that stakeholder interests are derived from the corporation and so are consequently subsumed into it.\textsuperscript{101} Stakeholders in the corporate literature are those that have a stake in the corporation and presumably its success.\textsuperscript{102} Stakeholder theory ignores the tensions raised by multiple identities and competing positions. All citizens have an interest (albeit not necessarily a shared one) in innovative practices and products and their possible effects but not all citizens have a position on the success or otherwise of the corporation. Stakeholder has to be clearly used in a much wider descriptive sense in this context, perhaps reverting to its original political usage around the idea of citizen engagement. One suggestion, which also goes to the heart of purpose, is that the inclusion of the word dialogue signals the required openness to the position of others\textsuperscript{103} and a desire to achieve collective goals as opposed to confrontation inspired by competitive pressure and the pursuit of self-interest.\textsuperscript{104}

Parties to dialogues around innovation have to trust each other and this may well mean exposing vulnerabilities and weaknesses. Information that is given out has to be valid and relevant and the dialogue has to be structured and adhere to the promised structure in the sense of meetings, virtual contributions and consultations and decision time frames taking place at agreed times and remaining open for agreed time periods.\textsuperscript{105} In terms of what results there may well be differences between different groups and group composition and views may change over time but that merely emphasizes the difference between a one-way dissemination strategy and an effective dialogue. There are obvious asymmetries of power and knowledge between those who represent corporate interests and other dialogue participants and indeed knowledge and understanding may well be stratified across non-corporate participants. Engagement may not take place evenly across the RI process; there may be


\textsuperscript{105} This is an abbreviation of the preconditions that Kaptein and van Tulder suggest: Kaptein and van Tulder, above n n 104, 211–13.
more stakeholder interest at the idea generation or at the commercialisation stage. Corporations might find that they become ring holders in these situations and that they have to take a proactive and committed role in building dialogue communities to tease out these differences between stakeholders and help maintain their commitment.  

Callon et al, when thinking about how to make democracy in a representative political sense in a technical and specialised world, suggested hybrid forums where questions from different domains — the ethical, the political, the economic and so on — would be posed and answered by a range of actors from different backgrounds with different skills bound together by their desire to be involved. Some of the most pertinent observations and difficult questions came from those without expert knowledge suggesting that uncertainty or fear of misfortune erodes apprehension of or undue respect of the expert. This plays also into the observation referred to above that popular trust occurs currently only at the level of peer to peer.  

The corporate sector may take heart that from what we know of stakeholder processes conducted in the not unrelated field of environmental decision-making, intensive processes where stakeholders have access to technical and scientific resources produce results rich in new analysis and ideas.  

**Concluding thoughts**

The corporate sector is always responsible for the business risk-business reward calculation behind innovation in process and product terms. In the latter stages of the innovation journey it may well be the sole bearer of development costs. RI as a practice adds to those costs in a variety of ways. If stakeholder engagement occurs in a meaningful way it takes considerable time and the outcome will not necessarily be a positive one. Relations with existing and potential investors may be disrupted if innovations that have been discussed and consulted upon do not materialise or do not materialise within the stated time frame. Engagement creates the possibility of knowledge leakage and therefore the decrease of competitive advantage.

However we might see these costs as the price of corporate legitimacy as well as the price of successful innovation. We know that concerns come from the uncertainty that surrounds innovation. Questions such as how an innovation is to be managed in relation to unanticipated risks, equitable access to its benefits and transparency about possible hazards and limitations are all questions that of considerable significance for corporate reputation. How corporations handle issues of trust and social justice are core issues for the success of innovation and the legitimacy of corporate actors. RI offers a methodology for fostering a feeling of mutuality and ownership through adoption for innovation.

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107 See Callon, Lascoumes, Barthe, above n 104, 18–21, 80–92.


109 Lee and Petts, above n 50.