Submission to the Senate Select Committee on the "Future of Work and Workers"

Professor Judith Bessant,
RMIT University,
Melbourne

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I welcome the opportunity to make a submission to the Senate Select Committee on the "Future of Work and Workers".

EXECUTIVE SUMMARY

Contemporary public engagement with the 'disruptive' effects of new technologies and public discussions about the future of work are dominated by a combination of unhelpful binaries. They are binaries that set-up two stories against each other, one of technical utopia and the other of technological doom. They also accounts rely on various kinds of technological determinism that assume technology exist independent of humans and detached from the social or political context in which they exist. In short, it is a belief that says technology determines and shapes society, culture and practices and does so by relying on so-called laws like Moore's law and other trends. Critics of this view say that it is important not to forget that technology is very much a part of our culture, that technology is created and shaped by humans and subject to human control.

What is needed most at this particular point of time are ways of understanding and making sense of the transformation now taking place, that go beyond clichés, technological determinism and prediction.
This submission draws on two intellectual traditions historical sociology and co-evolutionary cognitive science to provide a big picture account of what is now happening. This is best understood in social and cognitive terms as a shift in human consciousness (i.e. in the ways we represent reality). I argue that we are now witnessing the emergence of a new a Techno-Axial age. It is similar to but different from the first Axial Age 800-200BCE that occurred across major civilisations simultaneously resulting in a modern consciousness, new forms of thinking, dramatic intellectual, creative, cultural and political shifts that remain with us today. Like that earlier age, this new techno-Axial age is global in scope. There are also a number of significant differences.

Drawing on a shorter time frame there is also value asking what lessons can be learned from earlier periods of crises like recent economic crises (in the late nineteenth century, the depression of 1930s, and the 'Great recession' of 2008). Each of these crises indicate that we largely failed to learn from each previous crisis. The reasons for continuing to make the same mistakes and our recurring failures to learn are identified along with the argument that this time around we cannot afford such failure for the stakes are too high.

Finally the submission considers the implications of that conclusion for some of the ways contemporary political and business leaders are understanding and responding to the challenges now before us.

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Introduction

Far-reaching changes are now underway that involve the end of an old order of life and of particular ways of being human[1]. That old order was shaped by conceptual schemes, socio-economic relations and practices that centred on human work. Our material and intellectual relationships with certain technologies and hierarchical patterns of unequal social and economic relationships played a critical role in sustaining an old work-life order.

The transformations we are now undergoing are literally changing our minds, the ways we think, live and relate to each other and the world. All this is changing what it means to be human. Those changes include:

- how we can now enact human action at a distance,
- how we dis-embed ourselves in time and space and
- how we outsource our consciousness in ways that sever long-standing links between human consciousness and labour, work and action.

I suggest there is value in ensuring that how we think now does not involve simply bring forward old clichés and assumptions, vocabularies and ways of interpreting into a world where those older orders of thought no longer apply.

To say we are now entering a 'Fourth Industrial Revolution' (Schwab 2017[2]), or a 'digital disruption' has become an almost clichéd part of modern conventional wisdom. Most observers e.g. claim the changes underway are 'driven' by new technologies. Globally a vast range of new technologies like mobile phones, computers, satellite-based navigational systems, social media, fitness trackers are integrated into the every day lives of increasing numbers of people.

While most people agree about the pervasiveness and scale of this transformation there is little consensus about anything else. Contemporary public debates that centre on the effects of the 'digital revolution' polarises around those emphasizing the utopian and benevolent effects of the new and emerging technology and those with a darker more dystopian view. The optimistically inclined often rely on 'Moore's law', that claims that computing power will double every two years means that by 2029 machines will have a conscience and be a thousand times smarter than humans[3] (Kurzweil 2005[4]). They say the best thing that we can do to improve the quality of life globally is to encourage faster, more efficient and more extensive connectivity and technological opportunity.'[5]

Others see darker clouds on the horizon. For Evgeny Morozov (2013[6]) the internet infiltrates more social spaces promising digital solutions that cannot help but fail. Morozov is critical of assumptions that the internet is liberatory and favours the oppressed rather than oppressors (Morozov 2011[7], see also Lanier 2014[8]). Some of this debate relates to the future of work. Official think-tanks have tried to assess the effects of 'digital disruption', a term popularised by Christensen (1997[9]) in his book on

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[1] For a more comprehensive account of this transformation process see: Bessant, J., 2018, *The Great Transformation, History for a Techno-Human Future*, Routledge

[2] Schwab, K., 2017, *The Fourth Industrial Revolution*. London: Penguin Random House.

[3] This is the idea that the number of components per integrated circuits or microchips would double every year, a projection subsequently revised in 1975 to a doubling every two years. It is not a physical or natural law, but an observation or projection that has been considered credible until now (Thackray, A., Brock, D., and Jones, R., 2015, *Moore's Law: The life of Gordon Moore, Silicon Valley's quiet revolutionary*. New York: Basic Books).

[4] Kurzweil, K., 2005, *The Singularity is Near: When humans transcend biology*. New York: Penguin.

[5] Eric Schmidt then Google's executive chairman and Jared Cohen the director of Google Ideas.

[6] Morozov, E., 2013, *To Save Everything, Click Here*. NY: Public Affairs.

[7] Morozov, E., 2011, *The Net Delusion: The dark side of the internet*. New York: Public Affairs.

[8] Lanier, J., 2014, *Who Owns the Future*. London: Penguin.

[9] Christensen, C.M., 1997, *The Innovator's Dilemma*. Cambridge, MA: Harvard Business School Press.

the 'future of work' or employment. In Australia, for example, the (2017[10]) forecast that in the next 10 to 15 years nearly 40% of Australian jobs were at risk of automation, a finding they add cautiously, based on gross, not net employment trends.[11]

All this debate reveals that while everyone agrees something is happening, there is little agreement about what that is. While something big is taking place, I suggest that too much of the discussion is framed as a binary that contrasts utopian and dystopian expectations. One reason for this is the reliance by many commentators on the belief that if we collect enough raw, empirical data it will somehow tell us what is happening or what will happen. The other problem is the way much of the contemporary talk about change, technology and 'inventing the future' relies on deterministic language that encourage particular ways of seeing technology as the 'determining' factor that has slipped clear of human choice or control.

In this way technology is assumed to play a leading if not the dominant role in shaping what happens. Technology we are told will be good for us and for global productivity because it embodies a universal rationality and is the expression of an inherently scientific rationality. Moreover, it is assumed that it generally operates in uniform and efficient ways regardless of differences in context. Technology is also said to rest on objectively and rationally determined knowledge (OECD 2017[12]). It is said to be generally 'neutral', 'independent' and uncontaminated by the vagaries of human subjectivity like power, greed, feelings or ethical ideas. These are overwhelmingly instrumental and determinist understandings of technology. It is also a way of understanding that is incongruous with how humans and technology actually works, how technology evolves and how it is used.

Neither of these approaches give us the bearings we need. I suggest that it is clear bearings that we we need rather than more 'verified facts', rather than a relying on technological determinism, or on debates framed as a choice between set binaries.

Getting clear bearings is possible if we draw on two popular traditions of inquiry.
One is a style of historical sociology (Wallerstein (eg 1974[13]), Collins (eg 1985, 1999a-b[14]), Eisenstadt, Arnason and Wittrock (2005[15]) that deals with long time and shorter periods of time.
The other tradition is co-evolutionary cognitive science and theory developed by Merlin Donald (1991, 2000:16-31, 2001, 2012: 47-76, 2014[16]) and Michael Corballis (2003, 2017).[17]

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[10] Australian Productivity Commission, 2017, *Data Availability and Use*. Canberra: Com- mission Research Paper.

[11] Others are even more optimistic: Price Waterhouse estimated for example, that 'an ecosystem based on innovation and digital technologies' will 'increase Australia's GDP by $37 billion in 2024 and $136 billion in 2034, creating 540,000 jobs' (PwC 2014, *Expanding Australia's Economy: How digital can drive the change*. Sydney: PricewaterhouseCoopers: 3).

[12] OECD, 2017, *Key Issues for Digital Transformation in the G20*, Report prepared for a joint German Residency OECD Conference, Berlin, January, www.oecd.org/g20/key- issues-for-digital-transformation-in-the-g20.pdf.

[13] Wallerstein, I., 1974, *The Modern World System I: Capitalist agriculture and the origins of the European world economy in the sixteenth century*. NY: Academic.

[14] Collins, R., 1985, 'The mega historians', *Sociological Theory*, 3(1); Collins, R., 1999a, 'The European sociological tradition and twenty first century world sociology', in Abu-Lughod, J. (ed.) *Sociology for the Twenty First Century*. Chicago: University of Chicago.Collins, R., 1999b, *Macrohistory: Essays in the sociology of the long run*. Stanford: Stanford University Press.

[15] Eisenstadt, S., Arnason, J., and Wittrock, B., 2005, (eds) *Axial Civilisations and World History*. Leiden: Brill.

[16] Donald, M., 1991, *Origins of the Modern Mind: Three stages in the evolution of culture and cognition*. Cambridge, MA: Harvard University Press; Donald, M., 2000, 'The central role of culture in cognitive evolution: A reflection on the myth of the isolated mains', in Nucci, L.P., Saxe, G.B., and Turiel, E. (eds) *Culture, Thought and Development*. Mahwah, NJ: Lawrence Erlbaum Associates, 19–40; Donald, M., 2001, *A Mind So Rare: The evolution of human consciousness*. NY: W.W. Norton; Donald, M., 2012, 'An evolutionary approach to culture: implications for the study of the axial age', in Bellah, R., and Joas, H. (eds) *The Axial Age and Its Consequences*. Cambridge, MA: The Belknap Press at Harvard University Press, 47–76; Donald, M., 2014, 'The digital era: challenges for the modern mind', *Cadmus*, 2(2): 68–79.

Historical-sociological in conjunction with insights provided by co-evolutionary cognitive science can help address questions about the major change we are now experiencing in our work, social and political lives. And , they do it in ways that complement each other. These two tradition can help us think about issues like the changes we are likely to see in productive work, in social care work, in distributive and logistical work, communicative work and symbolic and creative work, and who or what does that work.
More specifically these two traditions also provide resources that help in:

- thinking about how the processes of radical change now underway arise and intersect with particular economic practices and patterns of ownership,
- how those changes connect with and shape the different kinds and qualities of social relations,
- how those in governments and social institutions understanding and responding to the transformation taking place.

These intellectual resources can also assist in addressing questions of sustainability and justice.

Thinking in such an integrated way also entails inquiring into the relevance of existing laws, policies and social institutions. This is important if we are to embark on this change in ways that do not presume we can simply drop old mental maps and assumptions on change processes while encouraging as many people as possible to play an active role in shaping that change.

In this submission I address the terms of reference by addressing the following six questions:

1. **What is happening?**
   What is the nature of changes now underway and how can we best describe and making sense of those changes?
2. **Can history help in understand the transformations now taking place?**
   Is what we are experiencing e.g. part of a longer historic process?
3. **What can we learn from earlier periods of crisis?**
   What if anything can be learnt from earlier smaller disruptions described as crises?
4. **How well are governments, policy-makers, and experts understanding and responding to the changes?**
   What are governments saying about these changes
5. **What is the future of work?**
   What is the prospect for work, income and productivity as we have known it?
6. **How are educational institutions responding to the changes?**
   What do those in educational institutions say are the answers to questions like how and why do we educate?

1. What is happening?

The 'great transformation' now underway involves a 'fusion of technologies across the physical, digital and biological worlds' (Schwab 2017[18]). New technologies' (eg, algorithms, 3D printing…) are transforming high end manufacturing, public transport, surgery, warfare, the production and eating of food, the design and manufacture of clothing and building construction, while quantum computing holds out the promise of new and enhanced 'machine learning'.

Together, these and cognate developments are changing how human intelligence informs human action and practices like work, practices that have long been central to our lives. We are seeing 'intelligence' or 'consciousness' (like memory) being dis-embodied and outsourced in new ways that are significant for what it means to be human and that go well beyond the earlier processes of memory outsourcing embodied in libraries the printing press, books etc.

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[17] Corballis, M., 2003, *From Hand to Mouth: The origins of language*. Princeton: Princeton University Press; Corballis, M., 2017, *The Truth about Language: What it is and where it came from.* Chicago: University of Chicago Press.

[18] Schwab, K., 2017, *The Fourth Industrial Revolution*. London: Penguin Random House. Schwartz, B., 1975, 'The age of transcendence', *Daedalus*, 104(2): 1–7.

They are changes affecting how we understand the relationship between human thinking and acting. Since Aristotle, intelligent action has been understood to characterize human labour that sees us we first *imagine* doing something (eg building a bridge or growing vegetables) before we actually realize it in action that makes it happen. Two and a half thousand years later in the midst of Britain's nineteenth century industrial revolution, Marx enlarged the same idea:

> We pre-suppose labour in a form that stamps it as exclusively human. A spider conducts operations that resemble those of a weaver, and a bee puts to shame many an architect in the construction of her cells. But what distinguishes the worst architect from the best of bees is this, that the architect raises his structure in imagination before he erects it in reality. At the end of every labour-process, we get a result that already existed in the imagination of the labourer at its commencement (Marx 1970: 177-8)[19].

Closer to our own time the historian of work, Herbert Applebaum, restated this idea in his observation that 'the human mind must have some idea of things and objects to be made before it is actually created' (1992: xi)[20].

Ironically, in much of the excited commentary claiming to predict the future we can lose sight of the fact this is still the case: it is code writers, computer designers and those developing artificial intelligence who are still imagining and then making the new technologies. The difference, and it is a significant one, is that we are now designing various 'learning' and adaptive capacities into these technologies so that they in a sense become autonomous. One example of this is robotic process automation which links AI (including natural language processing, machine learning and machine vision) and automation to deal creatively and adaptively with routine and rule based financial and legal processes.

This means we are indeed witnessing a novel shift of 'human-style' computational analysis and design capacity away from ourselves to new more autonomous external 'machine' or artificial forms. While acknowledging this novelty is vital, it is equally important not fall for various conceptual fallacies and myths, including the idea that it is technology that somehow determines our actions and future. It is important not to forget that it is we humans who created all the technologies we now have and that how we did this was informed by our capacities for design, by our capacity to reflect and purposefully invent and design technologies.

To understand the scale and radical nature of the changes now underway it is useful to compare what is happening now in our Axial age with what occurred in the first Axial Age 800-200BCE.

The First Axial Age (800 -200 BCE) and the New Techno-Axial Age (1980-)

Jaspers (1953)[21] argued that between 800 -200 BCE across Europe, India, the Middle East and China we experienced a major shift in consciousness. He described this shift as the 'Axial age'.

1. The Axial Age

Jaspers argued there was evidence of a significant and simultaneous change in human intellectual and cultural history in four major civilization China, India, the Middle East and Greece in the middle centuries of the first millennia BCE. These civilizations went through dramatic and simultaneous cultural and intellectual shifts which left permanent effects in each. He called that transition the 'Axial age'. And while Jasper drew attention to this, he could not fully explain why it had happened at around the same time across a vast space.

He did however refer to the role of key roaming Hebrew prophets around the time of the Exile, the development of science and philosophy in Greece, the growth of philosophy and political philosophy in China from Confucius to the Legalists in the third century BCE, and the exposition

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[19] Marx, K., 1970, *Capital, A Critique of Political Economy*, London: Lawrence and Wishart.

[20] Applebaum, H., *1992, The Concept of Work: Ancient, medieval and modern*. Albany: State University of New York Press.

[21] Jaspers, K., 1953/2014, *Origin and Goal of History* (trans. Bullock, M.). Abingdon: Routledge Revivals.

of religious philosophy in India. Among those key developments were Zarathustraism, Buddhism, Judaism, Confucianism and Taoism (Schwartz 1975: 1-7, Bellah 2011, Armstong 2005, 2006[22]). To further support of his Axial age thesis, Jaspers referred to the writing and dissemination of canonical texts that attained a global significance:

It was in this 'Axial' age where the major traditions of religious and philosophical thought first appeared.
For Johann Arnason the Axial age can be seen as a combination of many intellectual ideas (2005: 19-49[23]). One included the distinction between an 'ultimate' and a 'derivative reality' (that is , between transcendental and mundane dimensions).

At that time we also saw the growth of complex interdependent economic systems, the establishment of forms of democratic sovereignty and government and the emergence of new religious transcendence and reflective thinking (Lerro 2000, Bellah 2011, Lewis and Bondarenko 2014, Eisenstadt 1986[24]).

People in this fourth and third millennia BCE also began producing agricultural surplus, allowing them to trade and acquire extra income which they used to build civilizations, to create art, powerful polities, city states and in time great empires that provided the conditions for ancient cosmopolitans. In these agrarian societies, markets became increasingly important as the source of wealth, which saw a shifting of the power base somewhat from priests and kings to economic actors. According to Armstrong, in these contexts many older pagan beliefs and practices that seemed to work for their ancestors no longer provided the kind of explanations and sense of sacredness people were after (Armstrong 2005; 2006[25]). It was a change moved by interests in acquiring wider perspectives and broader horizons, and by desires for new forms of spirituality that made the older cults seem inadequate for the new conditions (ibid).

Scholars who talked about the emergence of the Axial age also spoke of a complex conjuncture of socio-economic and cultural processes that occurred simultaneously in a number of locations.

The Axial age also involved the evolution of an institutionalised tradition of scholars who worked as the creators, compilers and masters of a literary canon comprising religious, philosophical, and scientific stories and representations of the world and cosmos. Those scholars roamed the landscape exchanging ideas, teaching students and leaving written and oral accounts of their scientific, mathematical, religious and philosophical thinking.[26] Eisenstadt also referred to the dis-embedding of social activities and organizations from relatively closed, traditional or ascriptive networks, involving kinship or territorial units (Eisenstadt 2011[27]). That allowed for the

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[22] Schwartz, B., 1975, 'The age of transcendence', *Daedalus*, 104(2): 1–7; Bellah, R., 2011, *Religion in Human Evolution: From the Paleolithic to the Axial Age*. Cambridge, MA: Harvard University Press; Armstrong, K., 2005b, *A Short History of Myth*. NY: Canongate; Armstrong, K., 2006, *The Great Transformation: The world in the time of Buddha, Socrates, Confucius and Jeremiah*. Harmondsworth: Penguin.

[23] Arnason, J., 2005b, 'The Axial Age and its interpreters: reopening a debate', in Arnason, J., Eisenstadt, S., and Wittrock, B. (eds) *Axial Civilizations and World History*. Leiden: Brill, 19–49.

[24] Lerro, B., 2000, *From Earth Spirits to Sky Gods: The socioecological origins of monotheism*. Oxford: Lexington Books; Bellah, R., 2011, *Religion in Human Evolution: From the Paleolithic to the Axial Age*. Cambridge, MA: Harvard University Press; Lewis, K., and Bondarenko, D., 2014, 'The axial age as cultural transformation: a dream of social order', *Emergence: Complexity and Organization*, https://journal.emergentpublications.com/article/protected_9781938158148_chapter1/#ref7; Eisenstadt, S. (ed.), 1986, *The Origins and Diversity of Axial Age Civilizations*. Albany, NY: State University of NY Press.

[25] Armstrong, K., 2005, *The Battle for God: Fundamentalism, Judaism, Christianity and Islam*. London: Harper Collins; Armstrong, K., 2006, *The Great Transformation: The world in the time of Buddha, Socrates, Confucius and Jeremiah*. Harmondsworth: Penguin.

[26] This is not to suggest such culture began then, but to say there were no classics of the kind that came out of this period.

[27] Eisenstadt, S., 2011, 'The Axial conundrum between transcendental visions and vicissitudes of their

development of 'free' economic resources which saw some people become intellectuals or prophets organized or mobilized by different social and political elites. All this in turn saw the emergence of more complex social systems, which created challenges to prevailing political and religious institutional formations.

The cumulative effect of all this was the encouragement of new forms of cultural creativity. On the intellectual level, elaborate and formalized theological, mathematical and philosophical discourses flourished, organized through various networks of teachers and students or religious leaders and followers.
The Axial age, eg saw the development by Babylonian mathematicians of early forms of algebra including the quadratic equations which were later built on by Greeks after Alexander's conquest of Babylon. This also included the assimilation of Babylonian geometry, time metrics and cosmology.

Three Greek philosophers, Socrates (469–399 B.C.E), Plato (429–347 BCE) and Aristotle (384–322 BCE) likewise continued to influence thinking about theoretical consciousness, politics and what it means to have a good life. Plato, a student of Socrates and the one who wrote down what Socrates said did much to shape the idea of the new 'theoretical consciousness' that emerged in the Axial age (Vlastos 1995[28]).

Aristotle was another figure in the first Axial age whose teaching and writing covered various topics like physics, biology, zoology, metaphysics, logic, ethics, aesthetics, rhetoric, grammar, linguistics and politics.
Philosophy in the Axial age emphasized the tensions between transcendental cosmic time and space and the mundane social and political world. This was done by highlighting what was seen as a distinction between a timeless or eternal and perfect reality beyond the world which is visible to us, and the earthly world. (It was a distinction mirrored in equivalent Jewish conceptions of history). Making that distinction between two kinds of reality led to growing reflexivity and thinking about thinking that brought with it new problems like bridging the gap between the postulated levels of reality (Eisenstadt 2011 201-217[29]).

New types of collective memory and corresponding narratives also developed. It was a time marked by a belief in a number of deities, to belief in the existence of one god and universal transcendence. New sensibilities also emerged about social injustice and inequalities that featured in agrarian life (Armstrong 2006). All this provided the background on which prophets, reformers and crusaders emerged in search of ethical ideas (eg., justice, kindness, compassion and piety), which for many became central to the idea of a 'good life' and spirituality.

In effect the Axial age saw a distinctive change in human consciousness.
According to Donald, the Axial Age saw modern human mind evolve from 'the primate mind through a series of major adaptations, each of which led to the emergence of a new representational system' (Donald 2001: 2[30]). The key concept here is 'representation': 'humans did not simply evolve a larger brain, an expanded memory, a lexicon, or a special speech apparatus; we evolved new systems for representing reality' (ibid: 3). In short, the Axial age was a key period in a larger pattern of human cognitive and cultural development. It was a time in which we saw the emergence of a 'theoretical consciousness.' It was a shift that changed how we think, represent, know and interact with reality.

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institutionalizations: constructive and destructive possibilities', *Analise Sociale*, 199: 201–17.

[28] Vlastos, G., 1995, *Studies in Greek Philosophy* (Volume 2: *Socrates, Plato, and Their Tradition*) (ed. Graham, D.). Princeton, NJ: Princeton University Press.

[29] Eisenstadt, S., 2011, 'The Axial conundrum between transcendental visions and vicissitudes of their institutionalizations: constructive and destructive possibilities', *Analise Sociale*, 199: 201–17.

[30] Donald, M., 2001, *A Mind So Rare: The evolution of human consciousness*. NY: W.W. Norton.

This is why cognitive evolutionary science contributes to understanding what happened in the Axial age and*, by implication, it helps understand what is happening now* (Donald 2001, 2014; Corballis 2009, 2017[31]).
It significant for understanding what is now taking place - as I suggest we are witnessing the emergence of a new a Techno-Axial age.

The new techno-Axial age.

We are now seeing a shift in human consciousness that is at least as profound and far-reaching as that first Axial age. Like that earlier age, this new techno-Axial age is global in scope.

Unlike the first Axial age, this time around we can roughly identify the time and place when this new Axial age began. Some of the key elements of the new techno-Axial age can be located with the English computer scientist, mathematician, cryptanalyst and philosopher Alan Turing in England in 1936 when he developed the foundations for digital computing and artificial intelligence (AI).

The techno-Axial age can understood as a cognitive revolution akin to the first Axial age. Highlighting the shift in consciousness evident in the first Axial age indicates how we are now creating and experiencing a major cognitive revolution. The case in support this was made by Donald (2014) when he identifies how new technical media is 'aimed at the mind' and argues that, 'The digital media are the new interface between mind and world' (2014: 68[32]). Not only are 'new media interconnected with the sense organs' as neural implants and robotic prostheses, they also aim their

> … sophisticated, carefully engineered messages directly at the memory systems of the brain. They actually restructure memory, changing both the storage and retrieval systems we depend upon, and they are addressed directly to the source of our experience, and aimed at consciousness itself (ibid: 71).

However, seeing the changes now underway as only a change in consciousness overlooks the comprehensive nature of the transformation now unfolding.
The overlapping effects of this shift in consciousness we are now encountering is effecting all aspects of human life. We are witnessing dramatic changes in the ways human life and activities like productive work, technical activity and play are organised, practised and reproduced. While this involves new ways of outsourcing and collecting memory, and it extends beyond that.
It involves a revolution of social relations and practices involved in reproducing life itself.

As mentioned, the first Axial Age was marked by:

- major breakthrough discoveries that invigorated experimentation, innovation and which dis-embedded humans from our older archetypal 'cycles of nature' styles of thinking.
- the consolidation of bureaucratic empires, of complex market-oriented economies and political institutions, and ushered in new attitudes and thinking that led to philosophy and religions in the West and East
- heightened curiosity and contemplation about our fate and purpose, and gave rise to questions about what is good and how the earth, cosmos and ourselves came into being (Taylor 2007a-b[33]).

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[31] Donald, M., 2001, *A Mind So Rare: The evolution of human consciousness*. New York: W.W. Norton; Donald, M., 2014, 'The digital era: challenges for the modern mind', *Cadmus*, 2(2): 68–79; Corballis, M., 2009, 'The evolution of language: the year of cognitive science', *NY Academy of Science*, 19–43; Corballis, M., 2017, *The Truth about Language: What it is and where it came from*. Chicago: University of Chicago Press.

[32] Donald, M., 2014, 'The digital era: challenges for the modern mind', *Cadmus*, 2(2): 68–79.

[33] Taylor, C., 2007, *A Secular Age*. Cambridge, MA: Belknap Press of Harvard University Press.

There are key similarities with and differences between this first Axial Age and the new techno-Axial age. These can be summarised in five theses.

1. We have now outsourced not just memory (eg., use search engines that access unprecedented amounts of knowledge and information), but also various forms of calculative rationality, robotic labour and decision-making courtesy of algorithms and robotic process automation embedded in global digital networks.

2. The revolution in consciousness is now affecting how we experience our bodies by developing and using new forms of technical-rational and digital prostheses, robots, prostheses and implants to enhance physical movement and strength, intellectual and memory functions. This also entails 'technological convergence' or a merging of technologies like nano-technology, bio-technology, information technology and cognitive science, in ways that augment '*their*' capacity to change our lives.

3. The *dis-embedding of consciousness* is rupturing the longstanding links between human consciousness, imagination and human labour (work) and other technical and creative activities.

4. We have changed many basic conditions of living in time and space. This includes the globalisation of consciousness which has occurred in ways that go further than changes in ideology or imaginaries. *It involves changes to the very nature of reality and human consciousness*.

5. It is too early to say what the new modes of consciousness or representations of reality that is emerging will be. What is clear is that the speed at which the co-evolution of human capabilities and the various ways human consciousness is now outsourced is much greater than in the first Axial age. This change in consciousness and practice raises the prospect of revising the master-servant logic that informs the traditional relationship between technology and human beings. Historically we used technology. Now some people argue we are being used by certain technologies, although this can only happen if we forget that it is humans who invent, design and engage with technology for various purposes. We often forget this. And for that reason critical theory is needed to preserve and practice critique; that is, to encourage the active use of memory to uncover what we have forgotten.

What's the use of history

The historical-sociological approaches to understanding the major transformation like that which is now taking place requires close attention to different kinds of time-scales:

- long-term historical structures (*longue durée* of structures) that is, change over time that is often unnoticeable;
- medium term of *conjunctures* (political, policy, intellectual or economic cycles); and
- short term events or episodes found in political history or human action (Braudel 2009: 181-6[34]).

We can understand what is happening now if we compare-contrast certain key features of what is now occurring with an earlier periods of global dramatic change that occurred in the Axial Age 800 BCE-200 BCE.
As mentioned key changes taking place during the first Axial Age related to human consciousness (i.e. how we represent reality).
This capacity to represent reality evolves over large time-scales. Such a historical-sociological perspective highlights similarities between the changes now underway in human consciousness and earlier major periods of change implying that we are now entering a new Axial age.

[34] Braudel, F., 2009, 'History and the social sciences: the longue durée' (trans. Wallerstein, I.), *Review*, 32(2): 171–203.

This idea of a plurality of times can also help focus on the shorter time frames (like periods of revolution or policy change, such as the French revolution or the transition from a Keynesian to a neoliberal policy frame post-1970).

Finally there is the time frame that enables the framing of events as human *practices* and actions that make up the embodied forms of our every day social life (Bourdieu 1991[35]).

To this framework of inquiry can be added the tradition of cognitive evolutionary science.

Cognitive evolutionary science

The 'cognitive revolution' began in the 1950s when mathematicians, psychologists, linguists and others turned their minds to questions of computation and human consciousness. Its practitioners developed pioneering forms of digital computation and of binary codes used in computing. Underpinning that work was the brain-is-a-computer analogy (or the computer-is-a-brain analogy) to perform their studies into the 'mechanisms' of the brain and mind or how to understand machine computation.
The new field of cybernetics promoted and depended on that technological-biological analogy.

It encouraged some people to argue that human thinking can be understood by reference to representational structures in the mind and computational procedures said to operate on those structures (Thagard 2008[36]). This project engaged early work on thinking about AI in the 1970s and early 1980s.
Ever since this 'cognitive revolution' however we have had difficulty distinguishing between myths, what is actually happening and what we take for granted (Rid 2016[37]). For this reason we need the intellectual resources of cognitive evolutionary science because it offers an interdisciplinary approach to the study of the mind and consciousness understood as the *ways we represent reality as mind and consciousness co-evolve in time*.
Like historical sociology it addresses the historical and evolutionary change that occurs over long periods of time. Rather than reducing consciousness to 'the brain' it is an approach that uses a relational or ecological understanding of mind-body, consciousness-culture.
It helps us see human cognition or consciousness as evolving in an interactive relationship between people and their environment (Varela et.al 1991[38]).

Central to this theory of the mind is:

- the idea that human consciousness is embodied,
- that our cognition depends on more than the brain itself,
- that cognition depends on our experiences that come from having a body that has various sensorimotor capacities; and
- that these individual sensor-motor capacities are embedded in biological, psychological and cultural contexts.

This cognitive evolutionary science perspective highlights the evolving inter-relations between our biology, our technologies, and cultural institutions like books, libraries, social media or Google.
It emphasizes how cognitive practices that produce cognitive processes like 'intelligence' are manifest in our technologies and ways of life.

Importantly these collective cognitive systems can also help shape human gene expression.

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[35] Bourdieu, P., 1991, *Language and Symbolic Power* (ed. and trans. Thompson, J.). Cambridge: Polity Press.
[36] Thagard, P., 2008, 'Cognitive science' in Zalta, E. (ed.) *The Stanford Encyclopedia of Philosophy* (Fall Edition).
[37] Rid, T., 2016, *Rise of the Machines: The lost history of cybernetics*. Melbourne: Scribe Publications.
[38] Varela, F., Thompson, E., and Rosch, E., 1991, *The Embodied Mind: Cognitive science and human experience*. Cambridge, MA: MIT Press.

This becomes evidence when focusing, on the relationships between the social, biological, technological and sense-making sites that make up our large cognitive *systems*. We see how each is co-evolving in relationship with each other. We see how one element (e.g our genome, our biology, our brain, our technology) is not paramount or 'causal': each relationship is a co-development.

Drawing on both the traditions of history or historical sociology *and* cognitive evolutionary science can help to understand the transition we are now experiencing, which I argue can be understood in social and cognitive terms as a shift in human consciousness.

What can we learn from earlier periods of crisis?

Many writers emphasize the role played by 'frames', 'paradigms' or 'mental mind maps'. As the philosopher Richard Rorty argued language and thought cannot 'mirror nature' because human language is not a passive nor is it a neutral vehicle for communicating and representing reality in the way mirrors 'reflect' reality. This kind of research suggests that how we understand what is happening are not so much based on 'objective' or 'rational' tracking and mapping of empirical reality. Rather, the various accounts we offer for what is taking place are products of particular intellectual models or 'mental mind maps' (Hacking 2002, North 1990)[39].

The possibility that leaders will fail to recognize what is taking place and provide effective policies has been demonstrated in the 'wilful blindness' evident eg in the actions of policy-makers and business leaders that brought about the 2008 Recession (Blinder 2014[40]). More generally many writers highlighted our ability to see what is going on around us and yet ignore it. According to the social psychologists Festinger, for many of us the more that evidence contradicts our most cherished beliefs, the stronger those spurious beliefs become. This, he argues is because we value keeping our attitudes and beliefs in a state of harmony and try to avoid any dissonance created between those beliefs and evidence that challenge those beliefs (Festinger 1957[41]).
More recently, Heffernan documented the many ways 'wilful blindness' functions so we do not see what it is we most need to notice (2011[42]). She notes that having power over resources and decision-making enables many people in positions of power to live in a bubble that protects them from discordant facts. She cites the case of Richard Fuld, who earned $22million in 2007 as the CEO of Lehman Brothers investment bank while ignoring evidence of the mounting level of corporate debt that plunged his company into bankruptcy in 2008. When Fuld was CEO of Lehman Brothers:

> … he perfected the seamless commute: a limo drove him to a helicopter flying him to Manhattan where another limo whisked him to the company's offices. Front and lift doors were timed so that Fuld could ascend to his office without encountering a single employee. Leaders of organizations inhabit a bubble of power, of which Fuld's commute is a magnificent physical representation. They're either isolated or surrounded by those desperate to please (Heffernan 2011:32).

The economist Steve Keen highlights the 'magical thinking' and irrational ways we often understand what is taking place. Too often, he argues, we rely on the 'hope that we can order the world to our liking by mere force of will, or by actions that have no logical connection to the problem we seek to solve' (2006: 4[43]). This allows for a 'radical disconnect' between what is happening, the problem and solutions.

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[39] Hacking, I., 2002, *Historical Ontology*. Cambridge, MA: Harvard University Press; North, D., 1990, *Institutions, Institutional Change and Economic Performance*. NY: Cambridge University Press.

[40] Blinder, A., 2014, *The Quiet Revolution: Central banking goes modern*. New Haven, CT: Yale University Press, Griswold Center for Economic Policy Studies, Working Paper No. 243.

[41] Festinger, L., 1957, *A Theory of Cognitive Dissonance*. Stanford, CA: Stanford University Press.

[42] Heffernan, M., 2011, *Willful Blindness: Why we ignore the obvious at our peril*. NY: Bloomsbury.

[43] Keen, S., 2013, 'Predicting the "global financial crisis": post-Keynesian macroeconomics', *Economic Record*, 89(285): 228–54.

As for learning from the past crises, Kessler's observation of the 2008 great recession are pertinent: For a small moment it seemed that the 2008 recession would provide an opportunity for reflexivity, for open and free debate about the worldview, and models and instruments that made up the modern political and economic system. We heard initial reluctant admissions from key economic policy-makers like Greenspan and Bernanke that there were problems with the intellectual edifice informing economic practice, but they failed to identify or name the substantive issues that led to the crisis (Greenspan 2008, Kessler 2015[44]). As soon as the possibility of open debate and critique was presented it was quickly shut down. Replacing that was the idea of 'market discipline' along with promises of new standards of transparency that worked to end discussion about the value of debate and revising the grand economic reform process and political system supporting it.

This is why the last major crisis, like those before it (1890-1910 and 1930s depressions), did not translate into a comprehensive open debate about how the dominant economic and political models are framed and understood. This is how the authority of the prevailing intellectual edifice informing dominant socio-economic practices continues to avoid critique and ensures the range of options remain limited and things do not change substantively (Kessler 2007[45]).

There are a few reasons why we failure to learn from earlier periods of crises.
They can be seen in the recurrent use of certain strategies by political and economic elites in their responses to the three economic crises of the last century: the depression of the 1890s, the Great Depression of the 1930s and the global recession of 2008.

I suggest there are five key elements that can provide a heuristic that is useful for determining what is happening and what actions are likely to follow.

(i) Denial strategies and uncomfortable knowledge

Periods of major crisis seem to exacerbate a disposition towards denial and wilful blindness, fear and the retreat to what is safe and familiar. Denial strategies, and wilful blindness are recurring practices used to avoid acknowledgment of what is happening and sometimes to avoid liability This observation indicates why we cannot afford to be complacent in a time of crisis or major transformation.

(ii) Reliance on economic ideas and frames

In each crisis we saw an almost complete reliance by key actors and decision-makers on a body of economic theory complete with a vocabulary and a range of schema. Many sincerely believed that the tradition or discourse of economic thought provided objective, value-free, scientific descriptions and explanations of what was happening and made obvious the relevant solutions or actions. That body of economics, however, was wrong *and*, as we now know, was implicated in creating and legitimating the conditions that created each economic crisis.

(ii) Wilful blindness and economic ideas

Each crisis saw key players rely heavily on economic theory to develop their practical, political and policy responses. While that neoclassical tradition claimed to represent the way economies and markets functioned it thwarted the ability of policy-makers to get a clear view of what was happening and to see the emerging problems. Failure to see or accurately describe those problems led to damaging responses. Added to this was the way that economic ideas and theories which helped bring

[44] Kessler, O., 2015, 'Ignorance and the sociology of economics', in Gross, M., and McGoey, L. (eds) *Routledge International Handbook of Ignorance Studies*. Abingdon: Routledge, 335–48; Greenspan, A, 2008 cited in Coll, D., The Whole Intellectual Edifice, *New Yorker,* 23 October http://www.newyorker.com/news/steve-coll/the-whole-intellectual-edifice; Kessler O., 2015, 'Ignorance and the sociology of economics', in Gross, M., and McGoey, L., (eds), *Routledge International Handbook of Ignorance Studies*, Abingdon: Routledge: 335-348

[45] Kessler O., 2007, Risk as collective forgetting? The gold standard and the politics of memory', European Political Economy Association Conference, 1-27.

about the crisis were also used to provide 'solutions'.

Wilful blindness was the first response to the failure of home mortgage markets in America and Europe in 2007 which had dire consequences for global derivatives market. The full extent of the crisis became clear by mid-2008 as all key economic variables[46] fell at a faster rate than in the early 1930s (Crafts and Fearon 2010: 286[47]). Between $5 trillion and $8 trillion 'disappeared' as the derivatives market collapsed, soaking up cash and investment capital. Governments adopted 'aggressive monetary and fiscal policies' (ibid:288). It included cutting interest rates to zero, nationalizing failed financial institutions and 'quantitative easing', a monetary policy whereby a central bank 'creates' new electronic money to buy government bonds or other financial assets to 'stimulate' the economy and increase private-sector spending and investment (ibid:288).[48] Globally, central banks and credit markets injected billions of dollars into economies to stop 'the slide'. In short, governments socialized the losses incurred by the mixture of business folly and criminal negligence displayed by the global financial sector.

(iv) Evidence of folly and criminality

Australian criminologist Russell Hogg describes the 2008 recession as the most devastating economic crisis since the 1930 Depression (2013:34). It cost the world economy $US6-14 trillion dollars and almost caused its collapse. Globally millions of people lost their jobs, their homes and their life savings. According to Hogg:

> … fraud and other individual and corporate abuses, practised on an industrial scale within the financial sector, played a major contributing role in the [2008 recession] This was criminality borne of a culture of arrogance, greed and impunity (2013 :1[49]).

We saw again evidence of wilful blindness in the lack of recognition of the major causes of the 2008 recession: that is, reckless, illegal and unethical lending and securities practices. Hogg's observations of the 2008 recession can be generalized to each of the economic recessions and depressions in the twentieth century. Valuskas described the recurrent pattern as follows:

> First, in periods of economic growth, there is a breakdown in regulatory oversight of the market, generally caused by pressure on regulators not to stand in the way of economic prosperity. The more sustained the period of economic growth, the less people see the need for regulation and the more complacent the regulators become. Regulatory complacency allows deleterious practices to develop undetected and go unpunished. The second phase begins with the onset of an economic recession, which brings with it a wave of white-collar prosecutions and calls for tighter regulation (Valukas 2010: 2[50]).

(v) Denying continuing inequality

The 2008 Nobel Economics Laureate Paul Krugman notes the rarity of seeing mainstream economists praising research about the unequal distribution of income or wealth, let along doing it themselves (2017[51]). Another Nobel Laureate Robert Lucas offers a different view, one that says questions about

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[46] eg the volume of world trade, the performance of equity markets and industrial output.

[47] Crafts, N., and Fearon, P. (eds), 2013, *The Great Depression of the 1930s: Lessons for today*. Oxford: Oxford University Press.

[48] In the US eg., the Federal Reserve Bank System held between $700 billion and $800 billion of Treasury notes in 2008. In late November 2008, the Federal Reserve began a program of 'quantitative easing' by buying $600 billion in mortgage-backed securities. By March 2009, it held $1.75 trillion of bank debt, mortgage-backed securities and Treasury notes. This figure reached $US2.1 trillion in June 2010. By October 2014 when it suspended the policy the Federal Reserve Bank System held $4.5 trillion in bonds.

[49] Hogg, R., 2013, 'Populism, law and order and the crimes of the 1%', *International Journal for Crime and Justice*, 2(1): 113–31.

[50] Valukas, A., 2010, 'White-collar crime and economic recession', *University of Chicago Legal Forum*, 1: 1–22.

[51] Krugman, P., 2017, 'Why we're in a guided age', in Boushey, H., Bradford DeLong, J., and Steinbaum, M. (eds) *After Piketty: The agenda for economics and inequality*. Cambridge, MA: Harvard University

inequality and distribution are the most poisonous to 'sound economics' (Lucas 2004[52]).

The sustained disinterest in the longstanding patterns of economic inequality in modern societies is another continuing form of economic denial occurring not just in periods of crisis but more generally. This reflects an affinity between certain arrangements that characterize capitalist societies and the descriptions economists offer to 'justify' the ways things are. This also works to deny responsibility for the harms caused by the crisis and to legitimate their opposition to addressing the distribution of wealth as a socio-economic problem.

The interests of those who own a significantly unequal share of the wealth are coterminous with patterns of ownership of various assets. That is, an interdependence exists between the major owners of wealth and the continued reliance by economic and political elites on an economic theory designed to legitimate the idea that the prevailing status-quo is normal, natural, healthy and functional, while ignoring the evidence of major inequality.

Since 2014 a strategy of denial or preferred ignorance has become increasingly difficult to defend, as a result of interventions by Thomas Piketty and colleagues (2014[53]). Piketty uses contemporary and historic long-term data to reveal the hidden patterns or structure of wealth distribution. Until Piketty, the view among neoclassical economists was that the shares of capital and labour respectively of total income were stable over time. Piketty also demonstrated that a redistribution favouring capital began in the 1980s and has accelerated since the 2008 recession, as corporate profits soared while wages stagnated (Krugman 2014: 33).

As Piketty argues, inequality of wealth does not happen by accident; rather, it is an intentional design feature of capitalism. Moreover, it can only be rectified by state policy intervention. These patterns of inequality occur when profits, dividends, interest, rents and other income from capital outstrip income or output. It is then we see an increase in the unequal distribution of wealth. Piketty also refers to the continuance of 'patrimonial capitalism', inherited wealth passed down from one generation to the next in dynastic families, a pattern in major capitalist economy since at least the eighteenth century.

Summary.

Recurrent forms of denial, wilful blindness and ignorance operating in various economic models used through earlier major crises continue to influence how political and economic elites see what is taking place. They continue to influence how we think about and experience the transformation now underway.
What is clear is that each time an economic crisis unfolded, key actors and decision-makers relied on the economic theory available to them. That body of economics however was invariably wrong. It encouraged blindness to what was actually happening and it was directly implicated in creating the conditions that led to each of the economic crises. Key players repeatedly demonstrated a propensity for a combination of denial, wilful blindness and the preference not to know.
This time around we cannot afford to reproduce such patterns of denial or rely on problematic economic theories or models. Learning from earlier economic crises and also not recognizing how crises can also be used to prevent change and to affirm older dominant practices is critical if we are to develop ideas on how to meet the challenges now before us.

What we need now are 'critical dispositions' and the encouragement of questioning whether our

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Press.
[52] Lucas, R., 2004, 'The industrial revolution: past and future', *The Region* (Annual Report of the Federal Reserve Bank of Minneapolis), www.minneapolisfed.org/publications/ the-region/the-industrial-revolution-past-and-future.
[53] Piketty, T., 2014, *Capital in the Twenty-First Century*. Cambridge, MA: Harvard University Press.

'inherited language', categories and dominant intellectual frames are adequate to the task before us (Tully 2008:25[54]).

How governments, other agencies and leaders are understanding and responding to the transformation now taking place

Considerations of power, truth and the preparedness of leaders are relevant to determining how well our political systems, agencies such as the IMF, OECD and World Bank, political leaders and policy-makers and other power elites either understand accurately what is actually happening or are prepared to address the transformation now under way.

How do they understand what is happening, and how do they imagine the next few decades? One way of answering these questions is to focus on the language or the discursive practices used that politicians and policy-makers, advisors, consultants and lobbyists as they campaign for election, design legislation or make and implement policy. This research cannot be provided in this submission, but it is available (Bessant 2018[55])
If we do this we see considerable evidence of the use of the *di Lampedusa* principle

The di Lampedusa principle

Many contemporary leaders like to talk about change, technology and 'inventing the future'. In this way technology will play the leading if not the dominant role in shaping what happens. For all the talk of 'hyperchange', 'innovation', 'Fourth Industrial revolution' and 'creative destruction', I suggest that a deep fear of change is operating. This is especially so for those wedded to the neoliberal paradigm who now begin to acknowledge there is a growing popular disenchantment about the effects of decades of neoliberal policy-making, 'globalisation' and the displacement of human labour driven by automation and the associated elements of the digital economy. In this way the di Lampedusa effect is alive and well.

The historian, Wallerstein describes the 'di Lampedusa strategy' as: 'If we want things to stay as they are, everything has to change' (Wallerstein: 164-5[56]). The principle is that the best way to respond to seriously disruptive change threatening substantial political transformation is to make concessions to those who are posing it, to appease and diffuse political energies and emotions. In short, the di Lampedusa strategy involves placating, appropriating and incorporating the opposition in order to secure the older-prevailing system.

The di Lampedusa strategy can be seen when leaders maintain that 'creative destruction' , 'hyperchange', 'innovation', 'Fourth Industrial revolution' and so on are good for us all and that we should welcome it. This of course means governments will have to 'bolster the market' to allow 'the spirit of enterprise' to flourish. This point is made when political and business elites argue that 'the market' is best placed to ward off an 'impending' crises, be it a 'distributional policy crisis' created by diminishing government resources and public growth, or a 'workforce crisis' resulting from the replacement of human labour with automatons.

The di Lampedusa effect is operating in various reports that describe current government public services as a 'rising weight', a burden on society, and as 'enterprises' that properly belong to the private sector - 'the market place' (OECD 2017[57]). It is an account that reaffirm decisions made and implemented from the late 1970s, as economies were 'liberalized' in ways that involved the steady deregulation of financial markets, the floating of national currencies and unblocking the 'free flow' of

[54] Tully, J., 2008, *Public Philosophy in a New Key: Democracy and civic freedom*, Vol. 1. Cam- bridge: Cambridge University Press.
[55] Bessant, J., 2018,*The Great Transformation, History for a Techno-Human Future,* Routledge.
[56] Wallerstein, I., 1998, *Utopistics: Or historical choices of the twenty-first century*. NY: New Press.
[57] OECD, 2017, *Business and Finance Outlook*, OECD, www.oecd.org/daf/oecd-business finance-outlook.htm.

foreign capital (Krippner 2011[58]). In this respect the way ahead lies in remaining the same, in remaining faithful to neoliberalism and to the neoclassical economic model that it relies on.

There are also leaders who prefer not to know or acknowledge the extent of changes taking place by combining wishful thinking with the assumption that we can slide along without too much change or discomfort. This position was exemplified by Dita Charanzova, Member of the European Parliament and senior Czech government official who, in debates about regulating robotics, said we need to 'limit ourselves to the current realities':

> As legislators we need to keep our vision closer to the ground. …We must reject the belief that robots are going to steal everyone's job. This is simply not true … The bottom line: go and see the robots that exist today and those in development (Charanzova 2017[59]).

It is a message also evident in narratives of the kind provided by the Friedrich-Ebert-Stiftung, one of Germany's oldest political think tanks (Schroeder 2016). 'Industry 4.0', we are told, is simply the 'enhancement of the production and business mode' (Schroeder 2016: 2[60]):

> Industry 4.0 is part of the global mega trends of digitalisation, whose significance is increasing in all areas of life and the economy. The …idea is a comprehensive interconnection of all elements of the value-added process, starting from the raw materials and pre-products through to customer interconnection and the associated logistics and service processes (ibid:2).

Leaders who acknowledge there is a crisis of legitimacy of governments and the liberal democratic order, and who concede that neoclassical economics and liberal democracy find themselves in the midst of an existential crisis, have chosen a version of the *di Lampedusa strategy*. David Lipton, Deputy Managing Director of the IMF, is one who accepts that popular discontent and disconnection is weakening 'the political consensus', which in turn threatens global financial stability and challenges the foundations of neoclassical economics (Lipton 2017[61]). The 'remedy' seems to be reassuringly simple. All we need is greater interconnectedness, better governance and more trust. Lipton and leaders in other international organizations like the WEF and the OECD promote the value of greater 'interconnectedness' (Lipton 2017, OECD 2017a-b[62]).

The OECD, for example, invests a lot of hope in 'Global governance' to ensure 'a level playing field' in all areas of trade and investment (OECD 2017b). Others talk of 'building trust' by improving discipline or regulation of 'corporate behaviour' (OECD 2017b). This will help set and enforce better 'global standards', and increasing maximum penalties for breaches of consumer law and other laws will ease social discontent. Such technical solutions, it is argued, will alleviate growing scepticism and disillusionment through restoring faith in 'open markets' and the industrial capitalist order and creating more inclusive societies. It will also prevent the recurrence of a global financial 'crisis' and safeguard the political consensus (OECD 2017b). For the WEF, 'reviving economic growth' will not be enough to remedy social fissures; attention also needs to be given to the changing labour market:

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[58] Krippner, G., 2011, *Capitalizing on Crisis: The political origins of the rise of finance*. Cambridge, MA: Harvard University Press.

[59] Charanzova, D., 2017, *Civil Law Rules on Robotics Debates*. European Parliament, 15 February, www.europarl.europa.eu/sides/getDoc.do?pubRef=-//EP//TEXT+CRE+20170215+ITEM-014+DOC+XML+V0//EN&language=EN.

[60] Schroeder, W., 2016, *Germany's Industry 4.0 strategy: Rhine capitalism in the age of digitalisation*. The Friedrich-Ebert-Stiftung Foundation, www.feslondon.org.uk/cms/files/fes/css/FESLondon_Schroeder_Germanys%20Industrie%204.0%20Strategy.pdf.

[61] Lipton, D., 2017, *Stronger Cooperation to Promote Inclusive Growth.* IMF, www.youtube.com/watch?v=r22CMhMGOGE; OECD

[62] Lipton, D., 2017, *Stronger Cooperation to Promote Inclusive Growth.* IMF, www.youtube.com/watch?v=r22CMhMGOGE; OECD, 2017a, *Business and Finance Outlook*, OECD, www.oecd.org/daf/oecd-business- finance-outlook.htm; OECD, 2017b, *Key Issues for Digital Transformation in the G20*, Report prepared for a joint German Residency OECD Conference, Berlin, January, www.oecd.org/g20/key- issues-for-digital-transformation-in-the-g20.pdf.

> …the growing mood of anti-establishment populism suggests we may have passed the stage where this [economic growth] alone would remedy fractures in society: reforming market capitalism must also be added to the agenda (WEFa 2017[63]).

And, as evidence suggests:

> ….that managing technological change is a more important challenge for labour markets' (ibid: 12).

Yet 'the problem of political disaffection', declining confidence in key social institutions and leadership, and the widespread rejection of the conventional liberal democratic political consensus is not going away. While few political parties or their leaders say it openly, the ruinous neoliberal political experiment is ending. The crisis of politics in the US, Britain and Europe signified by the election of Donald Trump, Brexit and the rise of the far right indicate we are nowhere near resolving the prevailing legitimation crisis.

The problem of growing disaffection has been reframed in ways that follow the *di Lampedusa* principle. These include the way it incorporates elements of the critique but manages to redirect attention away from any serious examination of the intellectual edifice, as such an examination might reveal it was seriously flawed and not working, and indeed was a primary cause of the growing disaffection and hardship so many people were experiencing and disenchanted by.

The *di Lampedusa* principle of giving some concession to demands for democratization is evident in the ways some limited responsibility is ceded. It is a yielding that acknowledges the anger and certain 'issues' only in ways that ensure the basic framework of the prevailing system remains intact and safe from any serious threat.

This is a *di Lampedusa* response because it makes a small and safe concession: the harm caused by the 2008 crisis and growing social inequality, high unemployment, cuts to welfare, education and increasing private and public debt lie with bad corporate behaviour, lax regulation and poor governance. This *di Lampedusa* response was designed to placate by giving the impression responsibility was being taken to address the source of the social harms growing numbers of people opposed. Following the *di Lampedusa principle* the critique or opposition was seemingly incorporated - and in doing so it precluded alternative assessments of what was happening. It works to mute the point made by those calling for genuine political change.

The future of work.

Government agencies, academics and researchers in think-tanks have tried to assess the effects of 'digital disruption' from decades now. In Australia, for example, the Productivity Commission (2016, 2017[64]) forecast that over the next 10 to 15 years nearly 40% of Australian jobs were at risk of automation, a finding they add cautiously, based on gross, not net employment trends.[65]

There is much discussion about the future of work that has been going on for some time. In 2010 the sociologist Randall Collins argued that 'technological displacement' was generating an unavoidable breakdown in socio-economic relationships and practices of capitalism. To demonstrate this he pointed to 'innovations in equipment and organization [that] save labour, thereby enabling fewer employed persons to produce more at lower cost' (Collins 2010: 23[66]). According to Collins, due to the most recent wave of 'technology', we see the displacement of administrative labour and a downsizing of the middle-class by information technology, ie., the

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[63] WEF, 2017a, *The Global Risks Report 2017*, www3.weforum.org/docs/GRR17_Report_ web.pdf.

[64] Australian Productivity Commission, 2016, *Digital Disruption: What do governments need to do?* Canberra: Commission Research Paper.Australian Productivity Commission, 2017, *Data Availability and Use*. Canberra: Com- mission Research Paper.

[65] Others are even more optimistic: Price Waterhouse estimated for example, that 'an ecosystem based on innovation and digital technologies' will 'increase Australia's GDP by $37 billion in 2024 and $136 billion in 2034, creating 540,000 jobs' (2014: 3).

[66] Collins, R., 2010, 'Technological displacement and capitalist crises: escapes and dead ends', *Political Conceptology*. 1: 23–34, http://politconcept.sfedu.ru/2010.1/05.pdf.

technology of communications. This led to the second major contraction of work, the displacement of communicative labour which is the work of middle-class employees. In this way Collins' argument looks similar to earlier claims made by Gorz (1982[67]) and Rifkin (1995[68]).

Gorz drew attention to social and economic trends that were creating divisions between mass unemployed or casual and marginalised work and an advantaged minority who remained in relatively secure employment. The result was a society in which socially necessary and so valued and remunerated labour was increasingly spread thinly among all those who are available to work. Gorz argued that this could mean increased free time for people to engage in self-defined activities provided that some means could be found to assure them access to important resources like food, shelter transport (Gorz 1982: 4; Hyman 1983[69]). Similarly, in 1995 Jeremy Rifkin argued that human labour is: '...being systematically eliminated from the production process. Within less than a century, 'mass' work in the market sector is likely to be phased out in virtually all of the industrialized nations of the world' (Rifkin 1995: 16).

According to Collins computerization, the internet, and a wave of new micro-electronic devices are completing the process of displacing labour and starting to 'squeeze out' high skilled, middle-class labour. Can capitalism survive this second wave of technological displacement? According to Collins it cannot.

Scholars like Gorz, Rifkin and Collins provide sharp accounts of what is happening.[70] Where I differ with what they say relates to how fast the process of changing work practices is taking place. Rifkin argues that a 'mass' of work in the market sector will disappear in 'less than a century'. According to Collins, the 'imminent crisis' entailed by 'our current trajectory towards technological displacement of the middle class' is not likely to be experienced until 'the second half of the 21st century' (Collins 2010:34). As I argue, we are already experiencing the displacement they describe.

In saying this I do not offer an assessment of the rate of change now occurring by seeing it as an example of Moore's Law, as Kurzweill[71] has. Rather, I suggest that specific case examples of the changes 'developments' that are already taking place in areas like medicine, finance, law, teaching, human service and entertainment provide clear examples of the magnitude of the transformation now occurring. I do not have the space available here to detail these. They have however been documented in literature in theses field of practice see eg:
Bessant, J., 2018. *The Great Transformation, History for a Techno-Human Future,* Routledge.
Brynjolfsson, E., and McAfee, A., 2014, *The Second Machine Age: Work, Progress, and*

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67 Gorz, A., 1982, *Farewell to the Working Class*. London: Pluto Press.

68 Rifkin, J., 1995, *The End of Work: The decline of the global labor force and the dawn of the post-market era*. New York: Putnam and Sons.

69 Hyman, R., 1983, 'Andre Gorz and his disappearing proletariat', *Socialist Register*, Pluto.

70 I agree with Collins' suggestion that previously available 'escape routes' which historically enabled capitalism to avoid a terminal breakdown are no longer available (2010: 25). He rejects for example the idea of 'creative disruption' (that while some people lose their jobs new jobs will be created). Collins acknowledges how pessimism about new technology has long been considered wrong because it was thought that successive waves of technology would create new jobs as it displaced older forms of work. Schumpeter, said to have coined the term 'creative destruction', argued that capitalism is inherently able to engage in innovation and invent new products and processes by reorganizing production into new combinations and so generating new sources of profit. According to Collins, Schumpeter-inspired economists rely on extrapolation of past trends for their claims that the number of jobs created by new products will make up for the jobs lost by de-struction of old markets (1943, 1947: 149-59). None of those theories factor in the technological displacement of communicative labour, which has been the safety jacket in the past that led to the creation of new employment compensating for the loss of old employment.

71 Kurzweil, K., 2005, *The Singularity is Near: When humans transcend biology*. NY: Penguin.

Prosperity in a Time of Brilliant Technologies, NY: Norton.

Susskind, R., and Susskind. D., 2015, *The Future of the Professions: How Technology will Transform the Work of Humans and Experts, Oxford:* Oxford University Press.

Topol, E., 2012, *The Creative Destruction of Medicine: How the Digital Revolution Will Create Better Health Care*. New York: Basic Books

World Economic Forum, 2016, *The Future of Jobs Employment, Skills and Workforce Strategy for the Fourth Industrial Revolution,* Geneva: World Economic Forum.