Deleting Dystopia: Re-Asserting Human Priorities in the Age of Surveillance Capitalism

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RICHARD A. SLAUGHTER

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Deibert, R.H (2020). We've become dependent on a technological ecosystem that is highly invasive and prone to serial abuse, *Globe and Mail.*

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Contents

DELETING DYSTOPIA: RE-ASSERTING HUMAN PRIORITIES IN THE AGE OF SURVEILLANCE CAPITALISM

Richard A. Slaughter

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ACKNOWLEDGMENT OF COUNTRY

The author wishes to acknowledge the Aboriginal and Torres Strait Islander peoples of this nation. We acknowledge the traditional custodians of the country throughout Australia and their continuing connection to the land, culture and community. We acknowledge the traditional custodians of the lands on which we live and work, and where the book was written. We acknowledge the cultural diversity of all Aboriginal and Torres Strait Islander peoples and pay respect to Elders past, present and future. We celebrate the continuous living cultures of First Australians and acknowledge the important contributions Aboriginal and Torres Strait Islander people have and continue to make in Australian society.

About the team

This book was created and assembled by the following team:

- Project coordinator: Luke van der Laan
- Editor: Sophia Imran
- Open Education Content Librarian and Editor: Nikki Andersen
- Manager (Open Educational Practice): Adrian Stagg
- Cover image and graphics: Tara Mann
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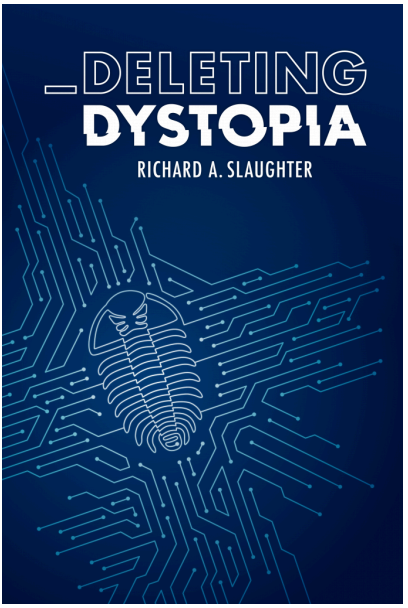
About the cover



The cover image of this book contains an invitation and a warning. It prompts us to remember that our entire civilisation is grounded in the global evolution of life over immense periods of time. Yet, as the dominant life form, we tend to forget our profound debt to natural process and our role as caring stewards. High-tech culture can be deceptive. It can appear all-powerful, but this transitory moment on the surface of deep time hides our debt to, and continuing dependence on, natural process. So, as digital technologies driven ever deeper into human society by the rich and powerful accelerate the disruption of global systems, we might be reminiscent that there's always a price to pay for carelessness.

This book reminds us that what matters most in this critical digital era is not the power and reach of advanced technologies but *the core values* that guide our use of them. The 400-million-year-old

trilobite pictured here is a reminder that life existed long before us and there will be life long after we have departed. If it could speak it might say something like: ‘remember where you came from; tread with care, with dignity, and live lightly upon this ancient world.’

About the author

Professor Richard A. Slaughter, Foresight International, Brisbane, Australia

Prof. Richard A. Slaughter is a writer, practitioner and innovator in Futures Studies and Applied Foresight with particular interests in Critical and Integral Futures. During 1999-2004 he was the Foundation Professor of Foresight at the Australian Foresight Institute, Melbourne. During 2001-2005 he was the President of the World Futures Studies Federation. He is the author or editor of some 20 books and many papers on a variety of futures topics and has served as a Board member of several journals. His works include: *The Biggest Wake Up Call in History* (2010) and *To See With Fresh Eyes – Integral Futures and the Global Emergency* (2012). He is the recipient of three awards for 'Most Important Futures Works' from the Association of Professional Futurists. In 2010 he was voted one of 'the best all-time Futurists' by members of the Foresight Network, Shaping Tomorrow. In 2020 he was invited to become a part-time member of the Professional Studies team at the University of Southern Queensland.

Web: http://www.foresightinternational.com.au

Acknowledgments

This book has been a team project from the outset. It emerged from conversations between myself and Luke van der Laan over an extended period of time. Following an invitation to join the Professional Studies team at the University of Southern Queensland, it seemed a natural step to draw together the threads of a project I'd commenced back in 2017. That was when I'd started looking more closely at what appeared to be increasingly problematic features of what was loosely called 'the IT revolution.' Far from helping to create a world of democratic enlightenment and human flourishing it appeared to be heading elsewhere. All the way, in fact, toward the kind of high-tech Dystopia foreshadowed, and repeatedly warned against, in hard science fiction, futures studies and a few other relevant fields. This, however, could neither be dismissed as fiction nor mere 'speculation'. It is occurring before our eyes right here, right now, with dramatic real-world consequences. Despite the emergence of many superficially compelling new devices and options, IT systems appear bereft of the idealism shown by the early pioneers. Now they appear set on undermining democracy, eliminating privacy and destroying human autonomy on a global scale.

To embrace the concerns of this more critical perspective a decision was made within the Professional Studies program to support the project and produce this book. Sincere thanks are therefore due to Luke for undertaking the hard work involved in

bringing it to life. Working closely with him at every stage has been a genuine pleasure. Further thanks are due to the incredibly positive response and hard work of Nikki Andersen (copy editing and production), Sophia Imran (copy editing), Samara Hoffmann (graphics) and Tara Mann (graphics). Tara took up an early idea for the cover and produced a stunningly simple but very effective design that contrasts deep time with current technology. It is sure to provoke reflection and raise questions – as intended at the outset. I also want to thank Adrian Stagg, Tahnee Pearse and Alex Charchar for the institutional support they provided. Finally, I'm indebted to my wife, Laurie, who has patiently put up with far too many details of this and related projects, let alone my all-too-frequent rants and ruminations about IT and world issues.

I hope that readers coming fresh to this material will gain a new appreciation for two suggestions contained herein. One, that the current uses and abuses of IT systems fall far short in human and cultural terms of what we have every right to expect. Second, to realise that help is indeed on the way. The seeds of constructive change are emerging in many places. To begin the process of 'deleting dystopia' they only need to be nourished and applied.

Richard A. Slaughter
Foresight International
Brisbane
June 2021.

Foreword

Arthur C. Clarke's *2001: A Space Odyssey* written in 1968 probes the perils and benefits of technological advancement. In particular, Clarke vividly raises questions as they relate to human interactions with computers and artificial intelligence. It is not a one-sided account of science fictional writing. The benefits of digital technology are abundantly displayed in the book as it (technology) enables humanity to explore the depths of outer space in an attempt to solve civilisational problems. But, there is a dark side.

Fast forward from Clarke anticipating the complexities of technological advancement to the reality of the dawning of the 21st century. He may not have anticipated the size (hand-held devices), popularity, processing power and reach (internet of things) of digital technologies but *A Space Odyssey* does describe likely troubles and consequences associated with them.

Since the earliest recorded history (and likely before), human characteristics and abilities, and earth's natural resources have been commercialised and monetised. To some extent these have been regulated but unrestrained exploitation has always been a standout feature. There have always been winners and losers when it comes to this form of exploitation with nature and the majority of people consistently amongst the 'losers'.

It is now clear that the monetisation of individual data and its exploitation is in the hands of powerful people who control digital oligarchies. The apparent abuse of this power and reach into the

everyday lives of humans, through collecting and commercialising personal data, represents a threat to humanity that has become increasingly prominent since Clarke's seminal work. These signals have 'hidden in plain sight' for all to see. We have seen them in non-fictional media, art, the news, dystopian fiction (books and movies), via the stock exchanges and increasingly in the political discourse of governments.

Shoshana Zuboff's *The Age of Surveillance Capitalism* clearly provides new insights into the nature of commercialising human data through digital surveillance. She points out that a business model has emerged that now includes the exploitation of *"human experience as a free raw material"* that is being increasingly traded.

Many have suggested that *A Space Odyssey's* HAL (**H**euristically programmed **AL**gorithmic computer) reflects the liberal economic notion that 'bigger is better' and to some extent is mirrored in the unabated growth of this 'new business model'. Combined with the popular notion that humanity should aim to mimic the human brain, we increasingly face a decline in human privacy and autonomy. Yet despite clear signals of these impending perils, the unrestrained use of individual data and the quest for developing non-human 'intelligence' continues unabated. Since these technologies are not yet fully understood and poorly regulated, they are difficult to control, resulting in a threat to human rights and the future of humanity.

Dystopian accounts of the occurrence of the threats posed by the oligarchies, unrestrained development of technologies and the 'dumbing down' of humanity by computers, feature in both fictional and non-fictional works. Irrespective of their accuracy, new evidence continues to emerge that humanity is on a trajectory whereby it represents an existential threat. Transhumanist and corporate interests appear to knowingly continue to navigate this path. A path that is not representative of the world's citizens.

A perspective that may reflect this power dynamic is offered by Michele Foucalt who suggests that the more useful humans

become, the more obedient they have to become. The purpose of maintaining this obedience is not only to continue exploiting the human skills and characteristics for financial gain but also to prevent the same from being used to revolt against this power. Parallels can be drawn between this view of power and the course of surveillance capitalism. Both imply that a level of obedience or at least apathy is needed to maintain current influence.

Richard Slaughter and the likes of Shoshana Zuboff validate the concerns of citizens and civil society in seeking to test and restrain the boundaries of potentially harmful technologies. This book reflects those concerns. Moreover, these human-centered insights and the ability to anticipate harm are starting to have meaningful results. And so, instead of global apathy in the face of the power imbalance the means to "delete dystopia" are appearing. *Deleting Dystopia* confirms that the threat is real and offers grounds for lasting solutions.

In its commitment to access and knowledge equity in the pursuit of human providence and rights, the University of Southern Queensland is proud to publish this book in collaboration with Richard Slaughter. It is a privilege and an honour to be associated with his long and highly impactful work over the last five decades. Together with his *Biggest Wake-up Call in History (2010)* he has now clearly described the greatest threats to humanity and the planet in the in the 21st century, along with a wide array of responses and possible solutions.

The Professional Studies research programs at the University of Southern Queensland are concerned with pragmatic evidence-based responses to everyday, social and existential problems. Of the over one hundred research projects at any time, all are concerned with addressing the problems faced by society and individuals. This book helps illustrate the impact of our research and frame a futures perspective to ensure that our research remains relevant over time. Further, the programs are absolutely committed to open access to, equity and participation

in knowledge and education. As such, supporting the publication of this book as an open access resource made complete sense. Sharing the knowledge, perils and solutions mentioned in the book is indeed a privilege.

Luke van der Laan

Associate Professor (Professional Studies), University of Southern Queensland.

Introduction

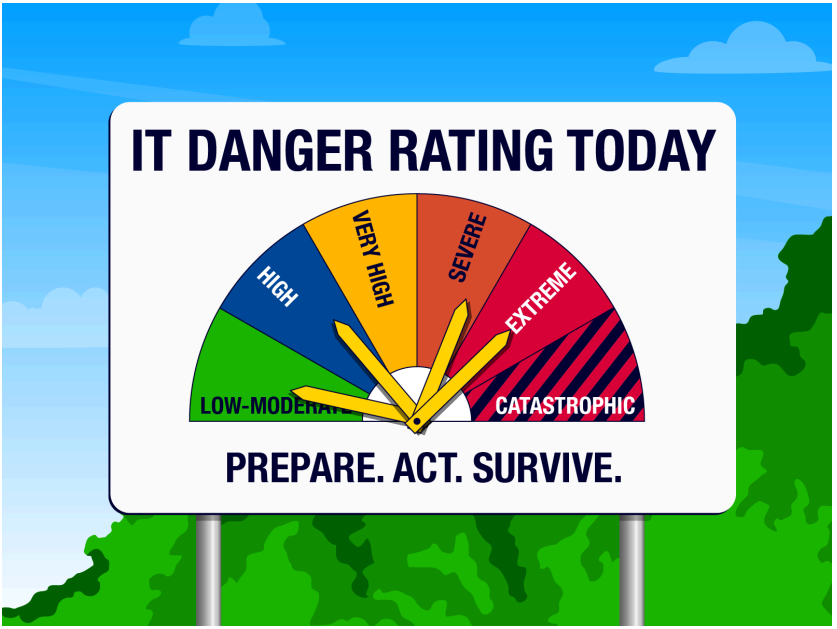
> *By embedding its values and goals into concrete technologies, capital seeks to assert dominion over the future – constraining what type of social change is viable. This makes techno-politics a natural battleground for staging struggles over what utopias are imagined and whose utopia is materialised (*Sadowski, 2021).

This book presents a critical analysis of the IT revolution in the early 21st Century. In so doing, it seeks to account for the way that innovations initially regarded by early pioneers as liberating and helpful have become absorbed into an oppressive global system. A system that appears more dangerous and invasive with each passing year. It's not a particularly easy call since this is a huge subject. Moreover, many of the services that the system provides appear, on the surface, to meet authentic human needs. We tend to forget that in order to make each and every device appear desirable, every item of consumer hardware (smart phones, tablets, screens and related devices) has been subjected to purposeful design and testing. The whole effort is backed by pervasive high-end marketing that has, over several decades, sought to construct entire populations as passive consumers. Not, it should be noted, as autonomous beings, meaning-makers, who deserve be seen and respected as such.

It follows that, in order to understand what is at stake, we need to confront the rationales and practices that create such radically diminished and reductive views of human life. The point here is

not that the products of this revolution are not useful. Clearly, they are and may well continue to be. But the current 'terms of engagement' are unacceptable both in principle and in practice. What is clearly at stake are the growing costs, dependencies and long-term hazards that have crept up on entire populations almost unawares. These are, however, no 'ordinary' hazards since, even in the present, relatively early stages, the tendency toward unliveable dystopian futures is becoming unavoidable. Thus, to confront and 'delete' dystopia is not merely a question of prudence. It constitutes a vital series of time-critical investments in the futures of our grandchildren and of future generations.

There's something distinctly odd, or ambiguous, about this story. The systems and devices that we've become so dependent upon only reveal very limited aspects of themselves to human senses in the context of our everyday lives. It can be a shock to realise that a vast slice of reality, known only to a few, controlled by fewer still, holds us in an invisible grasp, directs our actions and, in the process, by-passes our conscious senses and undermines our critical judgement. To deal with this 'other world' of hidden codes, distant servers, cloud repositories, hidden power structures, obscure algorithms and the like, we need to become conscious of them and how they operate. That is a primary purpose of this book. In this connection, some readers may recall the Matrix film trilogy. It drew on similar concerns by depicting stark, and at times shocking, contrasts between the awesome power of these hidden entities and the diminished status of humanity. In effect it provided a kind of fictional 'master class' that showed why these hidden structures and processes needed to be revealed. Without that knowledge, that clarity of understanding, we remain beholden to forces we can neither see nor hope to understand. With it we take the first steps toward reclaiming our dignity, re-asserting human needs and replacing redundant values with consciously adopted ones that make greater sense in our fragmented and imperilled world.



A secondary purpose of the book is to foreground the work of others who have also considered these issues in some depth. Chapter one 'Starting points and emerging issues' picks up the story from the viewpoint of various qualified observers during the early 2010s. It is a useful place to begin since this is when serious concerns about 'where the IT revolution was going' began to arise and underlying issues were beginning to emerge. Many ideas were generated that served to prime and inform subsequent debates. Chapter two 'Case studies and implications' considers three distinct issues that have attracted significant critical attention: the 'Internet of Things;' the prospect of 'driverless' cars; and growing concerns about what exactly was going on inside the slick but isolated world of Silicon Valley. It's in the latter connection that we first encounter Shoshana Zuboff who has probably done more than anyone else to reveal what surveillance capitalism is and how it operates. Her early critique of what she called 'the big other' pre-dates her impressive book on this subject by several years. Yet even at that stage, it

helped to register a new stream of informed insight and enhanced clarity that fed into her master work (considered in Part four). Since language is part of her gift, and one of the keys to in depth understanding, a glossary of key terms is included in the Appendices.

In chapter three the focus shifts toward several broadly defined areas that serve to frame possible solutions. Since the notion of 'compulsive innovation' is relevant to the whole project the first section takes a critical look at some of the existing and possible future expressions of this impulse. The following sections consider the grounds of various possible solutions under a variety of headings and conclude with a brief review of values and moral development. Far from being obscure esoteric matters, these topics reflect a further theme of the book. Namely that while science and technology are often assumed to be neutral, this is merely a convenient – and problematic – fiction. Both science and technology reflect aspects of the society (values, institutions, regulatory regimes, culture etc.) in which they occur. It follows that current usages of digital technologies tend to be misleading and diversionary. The term 'technology' cannot merely be applied to a limited set of physical objects but need to include the networks and wider human / social / cultural / environmental contexts in which they are embedded. For these and many other reasons, new technologies cannot but exhibit a range of unforeseen and unintended side effects. As such they need to be considered ambiguous from the outset and subjected to intense broad-spectrum evaluation. While the 'tunnel vision' of powerful actors allow them to ignore such inconvenient facts, the wider consequences of 'rushing' such innovations to market can be, and are, severe.

Towards the end, the book draws on the foregoing to propose a way of understanding our real-world situation. The aim is to clarify some of the ways in which the current system exerts its power and influence over whole societies, to their present and

long-term detriment. Four 'witnesses to the revolution' are then introduced. These are people who, in one way or another have had relevant experience of some of the core issues. They have, so to speak, 'done their homework,' so their accounts are both recent and reliable. It's all-but certain that they've worked independently. Taken together, they provide a coherent overview of the current state of play. They are telling us that while the age of traditional utopias may be over, the outlines of technological dystopia are already taking shape around us. The final section of the book draws a number of conclusions. It recognises useful work already being carried out and suggests broadly a two-pronged response to the present over-dominance of 'Big Tech.' On the one hand, a firm and steady continuation by governments of their efforts to enforce various forms of regulation (privacy, tax reform and anti-trust measures). On the other, significantly increased support for civil society, 'sharing cities,' community start-ups and the like. Both multi-initiatives are required to take market share away from the oligarchs by creating equivalent or improved services based not on the familiar capitalist imperatives of profit and exploitation but on defensible, clearly articulated human and community values. This is urgent work in its own right. But even more so in light of other existential threats facing humankind.

It's time for the power and influence of the oligarchs, if not to be removed entirely from history, but at least to be significantly diminished and replaced by carefully designed and implemented democratic alternatives.

Richard Slaughter

Foresight International, Brisbane, March 2021

Timeline of events in tech history

Scroll through the timeline below to discover key events in tech history.

An interactive H5P element has been excluded from this version of the text. You can view it online here:

https://usq.pressbooks.pub/deletingdystopia/?p=310#h5p-1

PART I

STARTING POINTS AND EMERGING ISSUES

Starting points and emerging issues

> *Mass surveillance is fundamental threat to human rights says European report* (Harding, 2015).
>
> *We are moving into an era when 'smart' machines will have more and more influence on our lives (but) the moral economy of machines is not subject to oversight in the way that human bureaucracies are* (Penny, 2017).

Headlines such as those above demonstrate as well as any that the IT revolution brings with it a series of challenges that societies are ill prepared to face. While surprisingly large numbers of people unthinkingly renounce such of their privacy as remains for trifles, the idealistic hopes of early pioneers and freedom-loving 'netizens' remain largely unfulfilled. Benign notions such as 'cyber democracy' and the 'information superhighway' have all but disappeared, replaced by a growing sense of uncertainty, disillusion and fear of unknown consequences. For many the digital realm has become an elusive and obscure 'nowhere place' whose shadowy operations lie beyond the boundaries of human perception. A few vast corporations, and those with privileged access to their services, appear to have almost unlimited influence both for good and for ill. To capture attention and encourage wide immediate usage it's the presumed *utility* of emerging technologies that's highlighted rather than the *radical ambiguity* that attends

their longer-term use. The implications of this ambiguity need to be more thoroughly understood if positive measures to reduce or eliminate its negative consequences are to be undertaken.

Those driving the IT revolution claim new benefits and highlight examples of successful implementation – email, tablets, health innovations and so on. Yet, despite such obvious successes, many IT practices are powerfully disposed in favour of the interests of agencies, corporations, innovators and entrepreneurs, with little evidence that these actors are motivated by positive values that promote public interest. So concerns that the overall effect of the IT revolution could herald the onset of a humanly oppressive technological dystopia remain remarkably durable – if not always spelled out in detail (Harari, 2015). Consequently no amount of saturation marketing will cancel out the 'dark' side of the IT revolution or allow it to be wished out of existence. The collective subconscious has access to truths, archetypes, dimensions of reality, denied to, and by, high-tech gurus (Slaughter, 2012, 2015a). It knows, for example, that intangible entities can reach out and destroy centrifuges in a distant country, disrupt civil infrastructure, undermine organised life across the globe. It knows that private bank accounts can be drained before their owners realise what has happened. It also knows that women are attacked and sometimes killed by former partners who've tracked their movements, their conversations, using smart phones and social media. Which leaves out a host of phishing attempts, scams, identity theft and other on-line abuses (Glenny 2011; Williams, 2015).

This enquiry first seeks to account for the underlying polarity outlined above between the promoters of high-tech 'solutions' and those who view the onset of the IT revolution from a more critical perspective. Since the literature is huge and growing it draws on an indicative sample of literature including informed (or 'quality') journalism produced over the last decade or so. It begins by outlining key assumptions (including that technology is 'not merely stuff" and 'new technologies are ambiguous'). It provides a critical

review of several key works and identifies some emerging themes. It then provides a critique of three case studies: the Internet of Things (IoT), autonomous vehicles (AV) and the Silicon Valley itself. It draws on Integral futures methods to provide a brief account of some internal aspects of the Internet giants. It finally concludes that a variety of actions, decisions and policies are needed to reduce high-tech ambiguity and expand social equity. Such 'conclusions' should be regarded as starting points for further enquiry. Turning the IT revolution toward more productive and egalitarian ends will require dedicated social efforts that are sustained over the longer term.

KEY ASSUMPTIONS

1 – Technology: not merely 'stuff'

A key insight that emerges from STS (Science, Technology and Society) perspectives is that we should not think, speak or refer to 'technology' as if it were merely an array of physical (or digital) objects. While it is the material existence of technologies that present themselves to our most obvious and external senses, linear and external views reify what 'technology' actually is – a consequence of the interaction of long-term social, cultural and economic processes. Hence, many of the most significant characteristics of any particular technology are effectively invisible – both to the naked eye and the credulous mind. These characteristics are not visible in the 'things' (or software) that are displayed before us but hidden in the patterns inherent in the causative relationships that brought them into being and maintain them over time. Anything of value about 'the IT revolution' or 'the Internet' suggests a need to consider particular items, or suites of technology, in relation to their wider contexts. That's where the fun begins because as soon as you look 'beneath the surface' of

social reality you find powerfully contested dynamics just about everywhere.

2 – New technologies are ambiguous yet warnings and costs are ignored

An underlying fact that's often overlooked is that *new technologies are, on the whole, seldom actively sought by anyone representing an existing public interest*. Rather, 'demand' is manufactured and propagated by powerful organisations through pervasive and relentless marketing across all available media by sheer financial and economic power. One is reminded of the aphorism credited to Donella Meadows that you don't have to spend millions of dollars advertising something unless its worth is in doubt. Few stand back to question the fact that the corporations assume that they know what's best for everyone. Yet technical developments have always created 'winners' and 'losers.' So new technologies are often

fundamentally ambiguous in the early stages or until sufficient time has passed for social experience to accumulate. While they are often introduced with showy fanfares enumerating supposed benefits, there are *always* hidden dangers and costs. For example, the ubiquitous rise of GPS devices has led to a marked decline in people's own ability to navigate. Again, commonly used 'phone numbers once memorised are now merely a click away and the memory fades. Most parents understand how technology alters things as basic as child rearing as they struggle to mediate between their children and the increasingly enticing attractions of 'screen time.' Then there are the 'lonely hearts' looking for love on the Internet and ending up seriously out of pocket or worse.

The following section provides a small but indicative sample of work on aspects of the IT revolution that was produced over the last decade or so. While superseded in some respects by later works (considered here below) they indicate the beginnings of an evolving response to careless high-tech innovation. As such they provide a 'way in' to this vast domain and a foundation from which more influential accounts would grow.

EARLIER VIEWS OF THE IT REVOLUTION

Big data, small vision

Mayer-Schonberger and Cukier's book *Big Data* (Mayer-Schonberger & Cukier, 2013), is sub-titled 'A revolution that will transform how we live, work and think.' Ironically, the associated threats appeared to escape them entirely. The bulk of the book was devoted to arguing how 'big data' provides new insights into many otherwise elusive phenomena and in so doing creates new sources of value. The authors ignored some key assumptions (for example that the emergence of IT can be equated with the 'end of theory') and concentrated exclusively on positive

uses of big data. These include the ability to predict the emergence of epidemics and the prevention of aircraft breakdowns due to real time engine monitoring.

But what they consistently failed to do was to separate what they considered to be 'good for business' from what may or may not be good for everyone else. Hence, the underlying theme, perhaps, can be summarised as 'jump aboard or be left behind.' While limited acknowledgements were made of how previous long-standing occupations and professions had been undermined by technological changes, the wider costs were overlooked. A brief section outlined strategies to minimise technology related risks, but no attention was given to evaluating *the culture and worldview* from which these technological changes originate. Nor was there any attempt to consider or evaluate their future implications. Rather these powerful background factors were taken as given and hence remained invisible throughout. As such the book demonstrated a familiar preoccupation with how 'technology' will help us to 'create the future' along with a strong sense of blinkered optimism.

Reform and renewal

Taylor's *The People's Platform* (Taylor, 2014) felt like a breath of fresh air in a difficult and often demanding IT debate – one that is often obscured by the overwhelming self-interest of some of the most powerful entities in the world. With the subtitle 'taking back power and culture in the digital age' the reader recognises at the outset that this will not be another banal enumeration of the purported 'wonders of IT.' For the author, the mantra of 'open markets' is far from an unalloyed 'good' because 'the more open people's lives are, the more easily they can be tracked and exploited by private interests' (Taylor, 2014, p.23). At the outset she clearly acknowledges the way conventional discourse about IT is framed. It 'tends to make technology too central, granting agency to tools

while sidestepping' larger social structures (Taylor, 2014, p. 6). She adds that 'technology alone cannot deliver cultural transformation'. Rather, we must address the underlying social and economic forces (Taylor, 2014, pp. 9-10). The issues could not be put more plainly than that. The language and intent here also echo those of the STS discourse mentioned above. Grounded approaches that explore the IT revolution's social and ecological implications certainly lie outside the realm of every day knowledge, but they are essential for 'clearing the fog' and making sense of what is happening around us.

Later she points out how, far from promoting competition, high-tech monopolies prosper online sanctioning a new kind of 'vertical integration' and power over people (Taylor, 2014). A major challenge in her view is that the more user-friendly digital devices are, the more we are connected to machines that 'keep tabs on our activities' (Taylor, 2014, p. 32). One of the most striking conclusions is that the future currently being fashioned, far from being innovative and 'new,' is in fact deeply conservative, even regressive. That is, it 'perpetuates and expands upon the defects of the earlier system instead of forging a new path' (Taylor, 2014, p. 34). The analogy to this conclusion is reflected in modern day advertising. During earlier times advertising was little more than a kind of visual adjunct to shopping that simply drew attention to what was for sale. A century or so later it has become a vastly inflated, turbo-charged public nuisance. It not only embodies crass and indefensible conceptions of human life ('shop 'til you drop') but also imposes incalculable costs on individuals, societies, cultures and the environment in part through misdirecting them wholesale and undermining useful, i.e. less self-focused values. It becomes increasingly vital to contest the power of what Taylor (2014, p. 78) calls 'the overlords of monopoly journalism' and the ways that they've become 'disconnected from the communities they were supposed to serve'.

As suggested above, new technologies don't emerge in a cultural

vacuum without a host of wider influences. It follows that, 'if we want to see the fruits of technological innovation widely shared, it will require conscious effort and political struggle' (Taylor, 2014, p. 54). What is also refreshing here is that the author is under no illusion that the main beneficiaries of IT innovations have indeed been US corporations. Given the worldview these share, it's obvious that limits need to be applied to their activities and their growth.

During previous years a great deal was written and said about the rise and rise of online 'social networks'. But, at that time, few examined the ways that they quietly 'shuffle hierarchies' and produce 'new mechanisms of exclusion' (Taylor, 2014, p. 108). Such media, it turned out, are by no means immune to what has been called the 'iron law of oligarchy.' It has 'a surprising degree of inequality built into its very architecture' (Taylor, 2014, p. 121). Again 'the topology of our cultural landscape has long been twisted by an ever-shrinking number of corporations' (Taylor, 2014, p. 129). She adds that 'powerful hierarchies have come to define the medium,' (Taylor, 2014). Moreover 'online spaces are… designed to serve Silicon Valley venture capitalists…and advertisers (Taylor, 2014, p. 139). The smoothness and ease of use of the technology belies an appalling 'structural greed' such that 'the cultural commons have become little more than a radically discounted shopping mall (Taylor, 2014, p. 166).

Some of the solutions – or at least necessities for creating positive change – that emerge from Taylor's (2014) well-founded critique include the following:

- The need for new social protocols that include 'ethical guidelines for engagement and exchange, restrictions on privatising and freeloading, fair compensation and the fostering of an ethos of stewardship.
- An explicit recognition of the need to acknowledge the people and resources of all kinds upon which IT systems

rest. These include, rare minerals, mines, data centres, toxic waste, low paid factory workers and the growing mountains of e-waste that turn up in poor countries.

- A serious attempt to define just how IT systems could be re-designed to better serve the public and also ensure that they are sustainable.
- A strategy to withdraw from the current practice of commodifying and monetising the attention of IT users and expropriating their personal information for profit. That is ending 'a new form of discrimination' where companies use data without your permission, 'dictating what you are exposed to and on what terms' (Taylor, 2014, p. 191).
- Defining and enacting new national policies to rein in the worst excesses of the IT industry and, at the same time, protect people and cultural spaces where creativity, art and innovation occur for non-instrumental purposes.
- Reducing the colossal amount of resources expended on advertising (over US$700 billion a year in the US alone) which is something that has virtually no social value and that most people despise.

As a way of bringing these ideas together, Taylor (2014, p. 215) proposes a 'manifesto for a sustainable culture'; one in which 'new and old media are not separate provinces but part of a hybrid cultural ecosystem that includes the tradition and digital composites of the two'. In her view such a culture will possibly include the following features.

- It will balance a preoccupation with 'nowness' with encouragements to think long term. As such it will include building archives 'to allow people to explore their cultural

heritage for years to come.'

- It will 'harness new communications tools to shift the conversation from 'free' culture to 'fair' culture.
- It will re-draw the boundaries for subsidies that currently go to the powerful and make them more widely available for genuine useful civic purposes.
- Current Internet oligarchs will give way to new civic organisations such as a 'digital public library.' The former would, at the same time, be required to pay their fair share of tax.
- Service providers and popular IT platforms will be regulated as public utilities. As part of this new 'firewalls' would be created to separate those entities that *create* information from those that *transport* it. In other words, the 'vertical integration' of the oligarchs would be reduced and eliminated over time.
- Similarly, meaningful government oversight of digital media will be re-established.
- New investment in non-commercial enterprises will be evaluated and encouraged.
- Overall, art, culture and commerce will be freed from being monetised, commodified and relentlessly exploited

These are clearly the kinds of suggestions that could in some places generate familiar accusations of 'Socialism' and the like. Yet without taking such proposals seriously it is difficult to imagine how the present trajectory of global civilisation catastrophe can be turned around.

THE DARK SIDE

Thus far we've considered sources dealing with some of the social and commercial uses or misuses of advanced IT. But there's an even darker and yet more challenging side to this story – the military and criminal uses of IT. The questions they pose are of the utmost significance to humanity and its possible futures but too few appear willing or able to grapple with the issues, let alone provide satisfying answers. Given the secrecy and obscurity that characterises the area, reliable sources are few and far between. An exception is Misha Glenny's 2009 book *McMafia* (Glenny, 2009) which provides a detailed overview of organised crime around the world. The book illustrates how the advent of the Internet was a boon for criminals since it made their activities easier and that of governments and other civil authorities harder. That's because the Internet provides an ever-growing number of ways to hide, launder money and pursue a vast range of criminal activities that are difficult to detect or deter.

Glenny spent the next two years researching and writing a book on cybercrime called *Dark Market* (Glenny, 2011). Here he concentrates on the emergence of individuals and groups who were all-too-ready to capitalise on the new opportunities to steal from unsuspecting organisations and individuals. For example he describes how the emergence of 'carding' allowed hackers to discover and access personal information and use it to withdraw funds from unsuspecting banks. This rapidly morphed into the development and online sale of card skimming devices, the duplication of credit cards and so on. An online presence called CarderPlanet facilitated this underground trade for some time by operating out of the 'Dark Net' of hidden sites that require special software for access. Nowadays its successors facilitate a vast network of illegal transactions that appear to cover the entire gamut of criminal activity around the world. Glenny follows some of the individuals who developed and pursued this parasitic

underground trade and found that many of them came from Ukraine and other parts of the Russian Federation. But, of course, it did not stop there.

As all Internet users know to their cost the rise of spam quickly began to infest email communications. Vast quantities could now be generated at minimal cost. Moreover, very few hits were required to create substantial profits. The Nigerian 419 up-front or money transfer scam was one of many that began to divest the naïve and vulnerable from their hard-earned cash. This, unfortunately, is a game that continues to grow and for which there are no simple or easy solutions. The rise of 'phishing' and the exploitation of human weaknesses continue to degrade the web and take it ever further away from the idealism expressed by many of its early promoters. Certain well-meaning groups (sometimes referred to as 'white hat hackers') trawl the Internet continuously to detect ISPs (Internet Service Providers) that support such illegal activities. But, as Glenny (2011, p.151) notes, it is an unequal struggle since 'there are tens of thousands of active cyber criminals out in the ether, and only a tiny fraction of them are likely to get caught.' Nasty as these criminal operations undoubtedly are, they are still relatively minor when compared to the growing use of the Internet for industrial espionage and sustained cyber aggression.

Often cited in this context is the case of the Stuxnet virus that was specifically designed to destroy uranium enrichment centrifuges in Iran. The virus is widely thought to have been a collaborative project carried out by the USA and Israel. The immediate end of disrupting the enrichment process for a period of time was apparently achieved. But informed observers point out that this dangerous piece of military software also had many other uses and thus potentially unlimited targets. Here the two-edged sword aspect of new technology is clearly revealed. What was originally touted as a 'solution' to a particular 'problem' becomes a vastly magnified 'problem' (if that is the appropriate word) in its own right with consequences that are, to a considerable degree, unknowable. The very same dynamic re-occurred in Syria in early 2017 when drones were used to attack the 'liberating' forces. Glenny's book was written out of a concern that 'in humanity's relentless drive for convenience and economic growth, we have developed a dangerous level of dependency on networked systems in a very

short space of time' (Glenny, 2011, p. 1). Yet none of these technological corollaries appear to have deterred the corporates and Internet oligarchs from pressing onward and promoting new digital capabilities – including what is now being called the 'Internet of Things,' explored in more depth later in this book.

At the end of his book Glenny refrains from suggesting solutions because, he does not see many emerging. He notes, for example, that the resources being poured into 'cyber security' are, by and large, being invested in technology. Here is another reflection of the structural bias that is common across a wide span of innovations. By contrast, 'there is virtually no investment in trying to ascertain who is hacking and why.' He adds that 'nobody differentiates between the hackers from Wikileaks, from the American or Chinese military, from criminal syndicates and from the simply curious' (p.268). It's important, in his view to develop a more detailed and sophisticated understanding of the hackers themselves. A thumbnail sketch suggests that most of them are male, bright (often in possession of advanced degrees), socially withdrawn and have had problems with family, especially parents. These attributes resonate with those attributed by Joel Bakan and others to certain corporations themselves, suggesting that the behaviour of some could legitimately be described as psychotic (Bakan, 2003).

Glenny's work provides a valuable source of knowledge and understanding about the widespread criminality of our times and also the extent to which it is supported and facilitated by IT in general and the Internet in particular. To dig deeper, we turn to one work that delves further into the notorious world of IT.

INTERROGATING NET DELUSIONS

The works considered so far have each tackled aspects of the IT revolution in fairly straightforward ways. They amount to what

could be regarded as a 'first wave' of critique in that they deal with fairly obvious topics and employ quite straightforward thinking and analysis. Fewer have related IT and its many extensions to other frameworks of knowledge and meaning-making in any depth. Nor have they accessed narratives that bring into focus the wider and deeper threats to our over-extended civilisation (Ehrlich & Ehrlich, 2013). Evgeny Morozov brought a qualitatively distinctive voice to the conversation and qualified, perhaps, as an early 'second wave' contribution. His two books *The Net Delusion* (Morozov, 2011) and *To Save Everything Click Here* (Morozov, 2013) set new critical standards, broke new ground and brought into play an impressive range of cultural and linguistic resources. This brief overview concentrates on the second of these.

What immediately set Morozov apart is that, unlike other observers who focused on more tangible and realist aspects of IT, his approach sought to 'interrogate the intellectual foundations of the cyber-theorists.' Thus, according to a Guardian review he found that 'often, they have cherry-picked ideas from the scholarly literature that are at best highly controversial in their own fields' (Poole, 2013). Morozov was critical not only of the means employed by the Internet oligarchs and Silicon Valley but also of *their ends*. The premise of *To Save Everything* uses:

> Two linked "small ideas" to critique the belief that the internet will help to improve everything. These two ideas are "internet centrism" and "solutionism". The former idea is self-evident – advocates of the internet tend to assume that features of the internet can be mapped into other areas, and that its exceptional qualities will transform any area of life that comes to be mediated by it. The latter idea, drawn from science and technology studies and urban planning, argues that focusing on solutions limits our ability to think critically about the nature of the problems they are supposed to solve – or even whether they are 'problems' at all! To a hammer, everything looks like a nail, and to a social network entrepreneur, both politics and obesity look like problems that can be solved through behaviour change instigated through social networks (Powell, 2013)

The method employed is 'radical questioning' and the author demonstrated a formidable grasp of doing it methodically and authoritatively. His arguments cannot be covered in detail as they need to be read and reflected on in the original. But it is useful to summarise some of the language and conceptualisations employed as these can be viewed as powerfully enabling resources in their own right. The main themes of Morozov's work address a number of long neglected topics including:

- Questioning the means and the ends (or purposes) of Silicon Valley's quest.
- Rejecting what he calls 'Internet centricism' along with the 'modern day Talorism' that it promotes.
- Opposing the rise of pervasive 'information reductionism' in many areas of life, culture, economic activity and so on.
- Questioning the fact that many apparently innovative procedures that are being promoted provide pseudo 'solutions' to problems that may not exist.
- Questioning the tendency of IT to reduce the viability of many socially grounded functions and activities – for example, causing entire professions and types of work (both repetitive and creative) redundant.
- Asserting the value of some of the human and social capacities that are undermined by IT. These include ambivalence, the capacity to make mistakes, the need for deliberative spaces and so on.

Morozov supported Taylor in reminding us that the dynamic that shaped and is continuing to drive the Internet's rapid growth and over-reach derives from *the never-ending search for profits* rather than any concern for human rights. In this view rights are everywhere being extinguished. The underlying dynamic is

revealed in many different ways. It shows up in the supposed 'neutrality' of algorithms that, while ubiquitous, are hidden and inaccessible so far as most people and organisations are concerned. It also shows up in the vastly expanding realm of 'apps' that have hidden costs in terms of privacy, dependency and the promotion of questionable notions such as that of the 'quantifiable self.' (That is, a 'self' that can be tracked, measured, located, directed and 'enhanced' in real time.) Also involved here is a 'quantification fetish' – the idea that more data is always better, always 'objective'.

What this amounts to is a vast and pervasive collective pressure on how people understand their world and how they operate within it. Already there is a costly 'narrowing of vision' and a decline in the 'narrative imagination.' Morozov (2013, p. 282) quoted Clay Johnson that 'much as a poor diet gives us a variety of diseases, poor information diets give us new forms of ignorance'. Having done so he also critiqued this view for portraying citizens as being too passive and hence unable to 'dabble in complex matters of media reform and government policy' (Morozov, 2013, p. 284). Instead Morozov preferred Lippmann's formulation of 'multiple publics.' These are seen as being 'fluid, dynamic, and potentially fragile entities that don't just discover issues of concern out 'in nature' but negotiate how such issues are to be defined and articulated; issues create publics as much as publics create issues' (2013, p. 287).

Morozov's work confirmed what some have critiqued for some time – namely that that the apparent 'success' of Silicon Valley, its entrepreneurs and, of course, the Internet oligarchs, arose out of a flawed and increasingly risky foundation. That 'success' for example depends on:

- Profoundly inadequate understandings of human identity and life;

- Thin and unhelpful notions of how private and public realms arise, exist and remain viable;
- Equally thin and unhelpful views of core concepts such as 'communication' and 'progress.'
- An overwhelming tendency to elevate 'technology' to a far higher ontological status than it deserves or can support.

One of the 'strands' of this multi-themed critique is the tendency of Internet promoters to forget that the kind of 'theory-free' approaches to knowledge and action that they'd consciously or unconsciously adopted had a protracted and chequered history. It reflected the tendency, powerfully inscribed in American culture, of setting theory and reflection aside in favour of action and innovation. This is certainly one of the most credible drivers of the 'GFC' (Global Financial Crisis) meltdown. The fact is that those driving the 'Internet explosion' are 'venerating a God of their own creation and live in denial' of that fact (Morozov, 2013, p. 357).

Morozov's analysis supported some of the suggestions put forward by observers such as Taylor and Glenny, but also went beyond them; He sought *a broad-based oppositional movement that called into question both the methods and the purposes of Silicon Valley.* Part of this movement involves the conscious design and use of 'transformational' products. These are products that, instead of hiding and obscuring relationships, dependencies, costs and the like, reveal them as *a condition of use*. An example would be an electronic device that provides tangible feedback about the sources, types and costs of the energy being used. Some of these examples are reminiscent of Tony Fry's attempts to counter what he calls 'de-futuring' by re-directing the evolution of the design professions (Fry, 2009). Such 'post-Internet' initiatives encourage people to 'trace how these technologies are produced, what voices and ideologies are silenced in their production and dissemination, and how the marketing literature surrounding these technologies

taps into the zeitgeist to make them look inevitable' (Morozov, 2013, p. 356).

A further characteristic of Morozov's (2013, p. 357) approach is that 'it deflates the shallow and historically illiterate accounts that dominate so much of our technology debate and opens them to much more varied, rich and historically important experiences'. Finally, Morozov (2013, p. 358) was at pains to remind us that 'technology is not the enemy,' rather, 'our enemy is the romantic and revolutionary problem solver who lives within'. This neatly turned the discussion back onto broader questions regarding the constitution of human needs, wants etc. This 'take away' message is strikingly similar to that set out in the *Biggest Wake-Up Call in History* (Slaughter, 2010).

CRITIQUE AND TRANSFORMATION

The sections above considered works that focus primarily on IT, the Internet and associated matters. Rushkoff's approach differs in that his focus is not primarily on IT per se but the ways that society and business have unthinkingly extended industrial practices well beyond their use-by date, supercharged unsustainable growth and missed the most positive opportunities that arise from digitisation (Rushkoff, 2016). In his view industrial innovations operated over time to disconnect people from the value chains that their labour helped create. Today's monopoly platforms, supported by centralised currencies have taken this process to extremes. Hence, 'the digital landscape so effectively monopolises economic activity that most people have nothing left to be extracted,' (Rushkoff, 2016). Consequently 'social media companies grow at the expense of their users' (Rushkoff, 2016, p, 33-4). The process is also counterproductive because it leads to an unsustainable endgame, namely 'an economy based entirely on marketing and advertising' (Rushkoff, 2016, p.36).

Rushkoff reminds us that Daniel Bell's earlier work on the 'information society' went well beyond purely technical issues. Among the latter's suggestions was that 'technical progress' should be balanced by what he called 'up-graded political institutions' (Rushkoff, 2016, p. 53). Clearly that did not occur but many of Rushkoff's recommendations for dealing with 21st century problems do serve to refocus attention on institutional change and transformation. Moreover these are to be guided, in part, by what he calls a 'recovery of values' (a topic that is explored further below). The *modus operandi* of platform monopolies like Uber and Amazon is seen as detrimental since neither accept any obligation to uphold the public good. In fact both rose to prominence by destroying and replacing pre-existing industries (taxi firms and publishing). A way forward, in his terminology is, to 're-code' or reinvent the corporation – which is obviously easier said than done. The author does, however, make a strong case for creating what he calls 'steady-state enterprises through engaging strategies such as:

- Get over growth (focus on sustainable equilibrium);
- Take a hybrid approach (commercial and more 'distributed');
- Change shareholder mentality (addressing social and sustainability concerns);
- Shift to a new operating system (revise and re-design the corporation).

For Rushkoff the central flaw of 'runaway capitalism' is the notion that 'more profit equals more prosperity' whereas in his view 'non-profits' (such as Mozilla) may be better adapted for a digital future. The important thing is to 're-write the rules of the growth game itself' (Rushkoff, 2016, p. 121-3). Much of the rest of the book deals with the nature of money. He is particularly critical of the dominance of centralised currencies – which he regards as

'the core mechanism of the growth trap' – and insists that 'we can program money differently' (Rushkoff, 2016, p. 132-8). One of his most original suggestions is that money should be optimised not for growth but for 'velocity.' He makes a strong case for using existing, and designing new, ways to 'slow' money down so that it can circulate more productively. Local area trading schemes (LETS) are one way to do this and, despite its 'brittleness,' emerging blockchain technology may be another.

Rushkoff (2016, p. 153) then brings a key suggestion to the table when he writes that 'reprogramming money requires less digital technology than *digital thinking and purpose*'. This is a crucial point that supports a central claim of this book, namely that *the power of technology needs to be matched by the wider, broader, deeper powers of understanding and insight that are available* but sadly lacking in the culture of Silicon Valley (Slaughter, 2015a). For example in this context we need to consider what kinds of money (plural) are needed? Local currencies make sense in some places, virtual bartering systems ('free money') in others and co-operative currencies in still others. Equally the existing heavy trend toward monopoly platforms designed for growth and for humanly extractive business methods can be replaced by what he calls 'platform cooperatives.' Models of the latter are said to already exist in Ecuador and in Spain's well-known Mondragon Collective.

At least two broad considerations appear to support Rushkoff's proposals. One is the sheer dysfunctionality of an economic system built on growth, extraction and exploitation, a system that works for a shrinking minority. The other is the growing influence of positive values that depart from this increasingly risky and over-extended model and that suggest viable ways forward. Readers will likely have their own list of candidates but those mentioned here include: women's equality, integrative medicine, worker ownership and local currencies. Finally, he suggests that a 'genuinely digital, distributist business' would:

- amplify value creating from everywhere;
- obsolesce centralised monopolies;
- retrieve the values of the medieval marketplace (inexpensive exchange between peers); and, in the long run perhaps
- seek some sort of collective or spiritual awareness (Rushkoff, 2016. p. 237-8).

In summary, what Rushkoff hopes to see is a wide range of social, organisational and related innovations that are *informed* by digital understanding but strongly oriented toward more productive human and social purposes.

SUMMARY

Mayer-Schonberger and Cukier's *Big Data* (Mayer-Schonberger & Cukier, 2013) demonstrated some of the pitfalls of taking an overly one-sided view of something as powerful as big data. Used carefully, with restraint and effective oversight, it certainly has a variety of helpful uses. Used carelessly and in covert, dishonest ways, it readily becomes a tool of domination and control. Taylor's *The People's Platform* (Taylor, 2014) offered a fresh way of looking at IT in general and a comprehensive list of 'desirable actions,' many of which could be readily undertaken with political and social will and enabled with appropriate organisational support.

Glenny's tour of the 'dark side' (Glenny, 2011) shed light on a widely felt but often ignored or denied reality. That is, the human, organisational and technical means through which the integrity of the early Internet was compromised. It drew attention to the fact that technical arrangements draw life, significance, meaning, both positive and negative capabilities, from human traits and cultural values. It therefore again demonstrated that these wider, deeper factors – rather than servers and ISPs – powerfully affect the

underlying foundations and operational structure of the Internet. Morozov's *To Save Everything Click Here* (Morozov, 2013) arguably set new critical standards and helped to create a more robust and capable discourse for dealing in depth with many of the issues raised here. He articulated a strong case for intelligent opposition to 'solutionism' and what might be called 'Internet-centricity.' As such his work provided in depth appreciation of the IT revolution and the need for ways of influencing it for the wider good.

Finally Rushkoff (2016) followed suit with other contributors by demonstrating how redundant values and skewed power relations create adverse outcomes when expressed through digital technologies such as monopoly platforms, related social media and mis-named 'sharing economies'. He also showed how, in their own terms, they lead to arid, self-defeating social and economic consequences. But, importantly, he also sees many positive opportunities. He demonstrates that other options can be envisaged, some of which already exist in one form or another. Alternatives emerge from adopting constructive values, 're-coding' organisations, developing new kinds of money and evolving new or renewed social and organisational forms. His work also serves to confirm the two assumptions that underpin this work. He demonstrates the practical utility of perspectives that look beyond technologies as such to embrace richer worlds of significance and meaning.

Despite the power and wealth of dominant IT based Silicon Valley mega-corporations they may not be as durable as they seem. Despite their current success most will at some point have to confront the fact that they are founded on a worldview and a set of values derived from the most problematic and short-sighted form of economic organisation that has ever existed (Ramos, 2011; Ehrlich & Ehrlich, 2013; Klein, 2014). To retain legitimation such organisations deny or obscure the fact that present forms of neoliberal techno-capitalism are poorly adapted to human needs and the reality of planetary limits (Slaughter, 2015b). Certain core

operating assumptions dictate the way the system operates and powerfully shape and condition many of its products and services. These include the 'freeing' of markets from effective oversight and government regulation, the pursuit of 'growth' as an unquestioned goal, viewing the natural world instrumentally as merely a set of resources for human transformation and use and demeaning view of human beings as consumers or pawns. One result has been the concentration of wealth into the hands of ever fewer individuals and groups (Piketty, 2015). So this is a state of affairs that cannot continue indefinitely.

Conclusion

If human societies wish to protect the wellsprings of life, culture and meaning they will need to limit the wealth, power and reach of the Internet oligarchs. Collective courage and resolve will be required to re-frame 'the Internet' and free the ubiquitous algorithm from their grasp. Ways in which it can be re-designed for more respectful and constructive uses are already beginning to appear (Hodson, 2016). This is quite obviously not a case of rejecting 'technology' wholesale but, as several authors considered above have suggested, of locating it within *a broader frame of understanding and value*. The latter will include 'the market' but not be dominated by its current reductive and out-dated economic framework. An indicative example of this could be the Tesla corporation that has, in some ways, started to disrupt the comfortable world of the internet oligarchs by beating them at their own game. While it participates in mainstream projects such as the 'self-driving car' and 'brain computer interfaces' it is also investing in distributed power storage solutions that are already proving attractive around the world because they help solve a real and urgent problem. This shows that size and wealth do not necessarily preclude the development and production of truly useful innovations.

It's worth emphasising, however, that values do indeed sit at the core of everything. One of the most constructive options is therefore to understand and acknowledge how different values manifest, where they 'fit', so to speak, and how they are expressed in different environments. Hence the second chapter suggests that greater insight into values precedes effective action (Wilber, 2017; Slaughter 2012). It brings to mind a worldview

in which technologies have been subordinated to consciously chosen values. That is, the culture of the Kesh richly evoked by Ursula le Guin in *Always Coming Home* (le Guin, 1986). Here the uses of high technology are certainly acknowledged but also known to be dangerous. The solution adopted by the Kesh is that advanced technologies are treated with care. They are partitioned off into specific locations where they can be used as needed but where their influence is kept in check. Rather than pursue technical power wherever its owners and inherent tendencies may lead, the Kesh chose to bring ritual and meaning into the heart of their culture. We would do well to remember this example and to draw inspiration from it. Although embodied in fiction it carries a vital message to our own time and culture.

PART II

CASE STUDIES AND IMPLICATIONS

> *We rely on technology for almost everything…and yet no society in the world has yet stood up to demand greater control over its digital destiny. No country has committed itself to building a technology that is as fair as it is convenient* (Fox, 2017).
>
> *The new technologies do not entail a radical reshaping of modes of doing things. A driverless car is still a car* (Das, 2016).
>
> *Google's tools are not the objects of value exchange. They do not establish productive consumer-producer reciprocities. Instead they are 'hooks' that lure users into extractive operations and turn ordinary life into a 21st Century Faustian pact. This social dependency is at the heart of the surveillance project* (Zuboff, 2015, p.82).

The first chapter of this book considered a sample of publications to explore some of the many contested issues that have arisen between promoters and critics of the IT revolution. It concluded that there are substantive reasons to believe that the Internet, in particular, falls short of what it was originally intended to be and, indeed, what it could yet become. It underperforms when assessed for fairness and egalitarian uses. It seriously over-reaches as a medium that is dedicated to selling and to extracting value from the general public – habitually without their knowledge or permission.

Hence the Internet we have is a degraded – and to some extent degrading – version of what it could be had it been designed and implemented differently. That is, according to positive values exercised in the public interest, rather than an oppressive, diversionary realm dominated by powerful corporations and providing unlimited opportunities for abuse.

The upcoming pages focus on three specific case studies – the Internet of Things (IoT), the rise of Autonomous Vehicles (AVs) and the Silicon Valley. The former is already being portrayed as a kind of unquestioned default assumption. The latter widely promoted to replace standard vehicles driven directly by humans on conventional roads. The section then outlines salient features of the two most dominant Internet giants, Facebook and Google, with two goals in mind. First, to identify ways to improve our understanding of their interior human and cultural aspects and second, to use the insights gained to explore what should be done and by whom – an issue addressed in the subsequent sections. Taken together these sections help define a draft agenda that can be critiqued, modified and put to wider use. The overarching goal is not merely to help moderate the exploitive impacts of IT but to evolve strategies that better serve more constructive, humanly valuable ends.

How, for example, can people begin to better understand the uses, abuses and limitations of algorithms? How can the vast potential of 'big data' be captured and applied in ways that support egalitarian uses within civil societies while avoiding the slide toward becoming an oppressive instrument of power and control? How can the 'dark' side of the Internet be rendered less dangerous, less of a continuing threat to the normal operations and general wellbeing of entire societies? How can the increasingly monopolistic and dehumanising aspects of 'surveillance capitalism' be moderated and replaced by more open and genuinely participatory forms of economic and social organisation? This alone constitutes a huge and challenging agenda. Yet, behind all such

IT-related questions lies another, deeper one that has arguably been eclipsed by the rampant and all-consuming growth of Internet phenomena. How can humanity employ its vast new technical capacities to moderate its multiple impacts on the global system and, over time, shift toward more far-sighted options that reduce the growing risk of 'overshoot and collapse' futures (Floyd & Slaughter, 2012)? This is the great question that few people – including Internet entrepreneurs – care to consider. Yet it arguably represents the greatest existential threat in history.

There is a very real possibility that putting all this technical power and capacity to work primarily for the radically limited instrumental purposes of surveillance, advertising and selling may come to be seen as amongst the greatest misuses of human ingenuity ever. So it is time to question the existing narratives, structures and dominant values that continue to drive the Internet as we know it. Society as a whole can do far better than to proceed into a cultural desert operated increasingly by remote AI devices for the benefit of a dominant few.

The Internet of Things

Most people will have heard of various forthcoming 'next big things' such as 'augmented reality,' 'self-driving cars' and the 'Internet of Things' (IoT). Yet the chances are that they won't have heard about them from personal or local sources since claims about their alleged benefits don't originate there. Rather, they are one of many campaigns that originate elsewhere – that is, from a handful of the world's most powerful organisations and their associates. As things stand, entire populations are regularly subjected to powerful marketing operations intended solely to prepare them for the so called miraculous new services that no one has ever wanted or needed. As Morozov and others have suggested 'the Internet' is a domain where numerous 'solutions' are offered for problems that currently do not exist – a phenomenon he calls 'solutionism' (Morozov, 2013). Hence it is difficult to find credible evidence of any real 'demand' for an IoT. Rather, it is all about power and accumulation on a vast scale. Powerful organisations insist that these latest innovations are inevitable. They claim that 'the genie is already out of the bottle' without offering any plausible justification to what this 'genie' actually is or what kind of 'bottle' it may have escaped from. Subtlety and depth of meaning are uncommon in these contextualised claims. Superficial, overly positive views about high-tech innovation, however, not only reflect their pretentious assumptions, they also speak volumes about the overriding self-serving priorities of the organisations involved. Yet,

there should be no doubt that the innovation 'push' model is certainly disruptive and frequently dangerous. The reasons are straightforward – it constantly injects random elements into complex social systems that are then forced to adapt, often at considerable cost to people, professions and organisations at large. Reflecting on the 2016 US election one observer commented that:

> We have fetishised "disruption". Governments have stood by and watched it take down all industries in its path – the market must do what the market must do. Only now, the wave is breaking on its shore. Because what the last week of this presidential campaign has shown us is that technology has disrupted, is disrupting, is threatening to upturn the democratic process itself – the best, most stable, most equitable form of governance the world has yet come up with (Cadwalladr, 2016).

Despite this malaise an IoT *per se* should not necessarily be considered a categorical mistake. Well-designed devices installed in robust networks with appropriate technical and exacting safety standards would have a variety of uses. A host of specialised applications can be readily envisaged in education, surgery, disaster management and so on. The elderly, disabled and sick could gain greater autonomy and enhanced capability to run their own lives. Potentially positive uses like these may well be unlimited. But the dangers and costs of the IoT as envisaged by the power hungry appear to outweigh these benefits.

Standing behind the seductive merchandising are questions such as: who is promoting the IoT? Who stands to gain and who will lose? Can we be sure that it will protect privacy and enhance human wellbeing or will it further erode both? Answering the 'who' question is straightforward. The main drivers and beneficiaries of this particular 'radically transformative innovation' are the corporate tech giants from Silicon Valley, their like-minded associates and high-tech manufacturers ever on the lookout for new markets. They share this particular expansionist worldview that continues to be virtually unchallenged. In fact following the 2016 US presidential election the Neo-Conservative ascendancy was reinvigorated. Central to its ideology is an assumption that equates 'progress' with single-minded technical innovation and development. Such a view, however, works against shared interests as it arguably rests on category errors and inadequate views of culture, human identity and human autonomy. Such limitations and costs were perhaps best expressed by Lewis Mumford who

declared that: 'I have taken life itself to be the primary phenomenon, and creativity, rather than the "conquest of nature," as the ultimate criterion of man's biological and cultural success' (Mumford, 1971). He would, of course, be unemployable in Silicon Valley.

This is not because Trump supported Neo-Conservatism directly. His antagonism towards it is well known. Nor is it because Silicon Valley has entirely abandoned its leaning toward Libertarian values. In the former case it is rather that a rich minority has thrived under Trump that remains deeply immersed in the 'Neo-Con' world from which it continues to derive significant financial and other benefits. In the latter Silicon Valley exhibits a profound disconnect from Democratic politics and the growing social costs of its own activities. The Neo-Cons therefore remain free to go about their business in the absence of any serious constraints.

DISRUPTIONS AND CONSEQUENCES

In some ways the high-tech sector resembles a wayward child that challenges authority and ignores boundaries. So it is unsurprising that, as existing product categories become saturated, it seeks to invent new ones. But what's good for Internet oligarchs and giant corporations may not be good for everyone else. Long before the IT revolution informed observers such as C.S. Lewis, Ivan Illich, E.F. Schumacher and many others understood that the 'conquest of nature' has a nasty habit of rebounding on people by compromising their humanity and riding rough shod over their rights. The entire high-tech sector has expanded rapidly over recent decades and, as a result, many of the organisations involved have become financially wealthy. But if they are not rich in humanity, perceptiveness, the ability to sustain people or cultures, then this becomes an empty and regressive form of wealth.

The high-tech sector has exhibited a dangerous and apparently

unquenchable obsession with 'inventing the future backwards.' That's to say, it pours millions into speculative technical operations with little thought as to whether the outputs are necessary or helpful. There's an abiding preoccupation with beating the immediate competition (including other high-tech behemoths) regardless of other considerations. Many will remember how the 'information superhighway' evoked images of openness, safety, productivity, social benefits spread far and wide. A range of new tools certainly came into wide use. Information on virtually any topic became almost instantly available. Useful knowledge is another matter entirely and wisdom may be the scarcest resource of all.

None of the above can be blamed on the Internet pioneers who built early versions of these systems and devices. Many appear to have believed that what they were doing was useful and constructive (Taplin, 2017). Unfortunately, once the new tools were released into wide use the aims, ambitions, values and so on of the pioneers counted for little. New, poorly understood, world-shaping forces came into play. Yet the power apparently granted to the latter does not, in fact, reside with innovators and disruptors. In a more considered view it resides in the domain of 'the social' from which countervailing power (for example in the form of sanctions or legitimation) may eventually arise.

THE ENTREPRENEURIAL MARKETPLACE AND A NEW ARMS RACE

In the meantime, left to the vagaries of 'the market,' further waves of high-tech innovation will continue to generate highly polarised consequences. It doesn't really matter what the high-tech gurus and the Internet oligarchs like to claim at any particular time in terms of the efficacy and usefulness of new products and services. Nor does it matter how glossy the marketing, how many times

stimulating or provocative TED talks are viewed on YouTube or how enticing the promises appear. *The very last entities to entrust with the future of humanity and its world are those who make 'innovation' their ultimate value and selling their core profession.* High-tech promises based on pragmatic, utilitarian and commercial values overlook or omit so much that's vital to people and societies that they have little or no chance of creating or sustaining open and egalitarian societies. (The ideology of 'value-free technology' is discussed below.)

Proponents of the IoT, however, seek to convince the public that it will be widely useful. Homes can be equipped to respond to every need, whim and requirement. Owners won't need to be physically present since they can communicate remotely with their home server. What could possibly go wrong? The honest answer is: just about everything. Perhaps the greatest weakness and enduring flaw in the IoT is this: *connecting devices together is one thing, but securing them is quite another*. As one well-qualified observer put it 'IoT devices are coming in with security flaws which were out-of-date ten years ago' (Palmer, 2016). Naughton (2016) acknowledges that 'there's a lot to be said for a properly networked world.' He adds 'what we've got at the moment, however, is something very different – the disjointed incrementalism of an entrepreneurial marketplace.' He adds that:

> There are thousands of insecure IoT products already out there. If our networked future is built on such dodgy foundations, current levels of chronic online insecurity will come to look like a golden age. The looming Dystopia can be avoided, but only by concerted action by governments, major companies and technical standards bodies (Naughton, 2016).

Even now private e-mail cannot be considered secure. One slip, one accidental click on a nasty link, can initiate a cascade of unwelcome consequences. There's no reason to believe that anyone's wired-up electronic cocoon will be any different. Consider this: a creepy Russian website was allowing users to watch more than 73,000

live streams from unsecure baby monitors (Mendelsohn, 2016). In the absence of careful and effective system-wide redesign what remains of our privacy may well disappear. First world societies are on the cusp of being caught up in the classic unwinnable dialectic of an offensive / defensive arms race. Currently, few understand this with sufficient clarity. It's therefore likely that many will continue to sign up for this new, interconnected fantasy world with no idea or little idea of the dangers involved or the precautions required. Some will ask why they were not warned. The fact is that such warnings have been plentiful but have fallen upon deaf ears.

INTERNET IDEOLOGY

No discussion of the Internet and its pervasive effects is complete without reference to a persistent – some would say extreme – view that technology is 'value free.' Technology is said to be 'neutral,' what matters is how it is applied. This represents a distinct philosophical position supporting a specific worldview that eludes many, especially in the U.S. where such issues tend to remain occluded. So it's not surprising that the limitations, not to say defects, of such a view are, on the whole, seen more clearly beyond the U.S. and far removed from Silicon Valley (Beck, 1999). For those who have absorbed the pre-conscious assumptions of U.S. culture the 'IT revolution' and its products are more likely to be described in glowingly positive terms (tinged, of course, with varying degrees of national self-interest). Yet such views are far from universal. Wherever healthy forms of scepticism thrive it's obvious that information processing – once restricted to the world of machines – has already colonised the interior spaces of everyday life to an unwise extent (see Zuboff, 2015, below). Allowing it to penetrate ever further into human life is clearly fraught with adverse consequences.

Greenfield (2017) has considered how these processes operate

at three scales: the human body, the home and public spaces. To take just one example, in his view the rise of 'digital assistants' … 'fosters an approach to the world that is literally thoughtless, leaving users disinclined to sit out any prolonged frustration of desire, and ever less critical about the processes that result in gratification' (Greenfield, 2017). They operate surreptitiously in the background according to the logic of 'preemptive capture.' The services they offer are designed to provide the companies concerned with 'disproportionate benefits' through the unregulated acquisition (theft) of personal data. Lying behind such operational factors, however, is 'a clear philosophical position, even a worldview … that the world is in principle perfectly knowable, its contents enumerable and their relations capable of being meaningfully encoded in a technical system, without bias or distortion.' When applied to cities Greenfield regards this as:

> Effectively an argument that there is one and only one correct solution to each identified need; that this solution can be arrived at algorithmically, via the operations of a technical system furnished with the proper inputs; and that this solution is something that can be encoded in public policy, without distortion (Greenfield, 2017).

Hence 'every aspect of this argument is questionable.' Similarly, the view that 'anything at all is perfectly knowable' he regards as perverse since so many aspects of individual and collective life cannot be reduced to digital data. Differences of value, identity, purpose, meaning, interest and interpretation – the very attributes that make human life so rich and varied – are overlooked or eliminated. It follows that,

> The bold claim of 'perfect' knowledge appears incompatible with the messy reality of all known information-processing systems, the human individuals and institutions that make use of them and, more broadly, with the world as we experience it. In fact, it is astonishing that any experienced engineer would ever be so unwary as to claim perfection on behalf of any computational system, no matter how powerful (Greenfield, 2017).

In summary, claims for 'perfect confidence' in the social applications of digital systems are 'incommensurate with everything we know about how technical systems work.' In other words the dominant ideology behind the rapid expansion of the IoT and related systems is clearly unfit for many of the purposes to which it is currently being applied. Or to put this differently 'hard' empiricism involves systemic reductionism that works directly against the wider human and social interests outlined above.

FICTION INFORMS FORESIGHT

It's no secret that high-tech nightmares exploring the dark side of 'progress' have been a staple of science fiction (SF) for well over a century. Far from being idly 'negative' they can be viewed as useful reminders to, for example, not proceed too far too fast with these powerful, seductively networked technologies. H.G. Wells attempted an early expression of this concern in his 1895 novel *The Time Machine* in the contrasts he drew between the effete and vulnerable Eloi and the brutal Morlocks (Wells, 1895). Then in 1909 E.M. Forster made an even more deliberate attempt to identify the likely effects of becoming over-dependent on technology in his novella *The Machine Stops* (Forster, 1909). More than a century later it still carries a forceful message that is both credible and explicit. Then, in the early 1970s, J.G. Ballard began his decades-long explorations of ennui and decay in the ruins of high-tech environments – the abandoned high-rise, the empty swimming pool and so on. One of the most evocative is a short story in his 1973 collection *Vermillion Sands* called 'The thousand dreams of stellavista' (Ballard, 1973). It portrays a house constructed to exquisitely mirror the needs of its inhabitants in real time. Unfortunately it turns out that a previous occupant was insane. Over time the house begins to exhibit similar symptoms – which places later owners in peril of their lives. This is obviously not

merely a metaphor. Daniel Suarez' *Daemon* picks up the familiar theme of runaway technology and gives it a powerful new twist. He draws on a wealth of information technology (IT) know-how to explore how a dormant entity – or daemon – is activated, becoming a self-replicating, highly destructive virtual menace (Suarez 2010). Finally Dave Eggers' prescient 2013 novel *The Circle* brings the story up to date in a highly relevant and insightful critique of the digital utopianism that arguably characterises the current thinking and practice of IT corporations (Eggers, 2013). It's a salutary tale in which human ideals become subordinated to an ever more dominating technical infrastructure. This is, of course, only a small sample of a vast literature exploring almost every aspect of technological dystopias.

Futurists and foresight practitioners often recognise such sources as essential background. But they also earn their living by scanning the environment for more specific and empirically based 'signals of change.' The art and science of 'environmental scanning' is, however, arguably more advanced in theory than it is in broad, commonly accepted, practice. In terms of social governance in a digital era, this is a serious oversight. Consequently *the relative absence of high quality foresight places entire societies at significantly greater risk than they need to be.* Here, for example, are a couple of 'scanning hits' on surveillance and the IoT.

> "The Internet of Things (IoT) has particular security and privacy problems...it affect the physical world, sometimes controlling critical infrastructure, and sometimes gathering very private information about individuals" (Seitz, 2015).

And again,

> The IOT "network is responsible for collecting, processing, and analyzing all the information that passes through the network to make decisions, in other words, millions of devices permanently connected to the Internet act and interact intelligently with each other to feed and benefit thousands of applications that are also connected to the network," (Alvarez, 2021).

It will be a two-way street. Internet of Things transactions linked to the same identifier are traceable, and ultimately make people also traceable, hence their privacy is threatened. According to Ball (2016), this consumer surveillance is an act of corporate power, attempting to align individual preferences with corporate goals. This is seen by the increasingly widespread practice of customer surveillance in stores (and other points of sale) when people unwittingly accept offers such as 'free Wi-Fi.' In so doing they agree to 'terms of use' that they neither read, nor understand. This is clearly analogous to where entire societies now stand in relation to the IoT – the actual 'terms of use' remain out of sight and unavailable to all but the most persistent and technically adept.

A PLAUSIBLE TRAJECTORY

During these dangerous and uncertain times much is at stake – not least of which is how to manage a world severely out of balance. More competent, imaginative and far-sighted leadership would help, as would a growing society-wide resistance to the values and, indeed many of the products, of the high-tech giants. Strategies of this kind would contribute toward a thorough re-appraisal of various pathways toward viable futures (Floyd & Slaughter, 2012). Those who are fortunate enough to be living in still-affluent areas are being taken on a ride intended to distract them, to still their growing fears for the future, through the many diversions provided by new generations of technological devices. But the above suggests that it's time to push back and seek answers to questions such as the following:

- Does it make sense to accept the current, deeply flawed, vision of the IoT that promises so much but ticks so few essential boxes, especially in relation to privacy and security?

- Are whole populations really willing to passively submit to a technical and economic order that it grows more dangerous and Dystopian with each passing year?
- To what extent should time, resources and attention be focused on the kinds of long-term solutions that preserve human and social options? (Slaughter, 2015).

If things continue to proceed along the present trajectory the system is likely to misbehave, to be hacked, militarised, fail just when it needs to work faultlessly. In this eventuality domestic users may start backing out and rediscovering the virtues of earlier analogue solutions. Although simpler and less flexible, the latter could gain new appeal since they lack the ability to exact hidden costs and turn peoples' lives upside down in unpredictable ways. Some might well opt wholesale for a simpler life (Kingsnorth, 2017). Early adopters of the IoT are, however, not restricted to householders. They include businesses, government agencies and public utilities. It is often forgotten that the latter are *structurally predisposed* toward greater socio-political complexity – which also contributes to the growth imperative. Thus, according to Tainter, large-scale organisations are unlikely to pursue deliberate simplification strategies while at the same time becoming increasingly vulnerable to collapse (Tainter, 1988). Given the overall lack of effective social foresight, as well as the parlous state of government oversight in general, present modes of implementation may proceed unabated for some time. Security breaches on an unprecedented scale would then take place, disruptions to essential services would occur and privacy for many would all-but vanish. The costs would be painful but they would also constitute a series of 'social learning experiences' *par excellence*. At that point serious efforts to raise standards and secure the IoT become unavoidable.

Farewell to driving?

The advent of 'driverless cars' has been regularly announced for some time. They refer to one type of 'autonomous vehicle' (AV) tested on the streets of various cities. Others are operating in closed environments such as mines and industrial sites. Airports have used 'autonomous trains' for some time, safely moving thousands of passengers around from one terminal to another. Road testing of city-to-city AV fleets are not far behind. Such vehicles are another in a series of 'disruptive technologies' whose benefits are said to outweigh the possible costs. It's claimed that the current system of independent vehicles driven by fallible humans is so expensive, dangerous and out-dated that it needs to be replaced. At first glance, it's not hard to see why. Such a system could be more efficient, less wasteful and safer. The outlook appears sufficiently compelling that the longer-term goal of creating fully automated systems is being widely debated and planned for.

Several levels of autonomy are envisaged. At level one single functions are to be carried out by the vehicle in restricted circumstances. At level two the vehicle can operate multiple functions with the driver actively monitoring. At level three the vehicle can cover all driving functions but refer back to the driver if / when needed. At this level, however, the 'hands off' issue becomes a safety concern. So at level four, complete vehicle autonomy within system-wide limits becomes the preferred goal. At level five,

in-vehicle systems replace all driving functions in any circumstances, indicating true autonomy (King, 2017). Such apparently positive conclusions appear to be supported by World Health Organisation (WHO) statistics that recorded a staggering 1.25 million road deaths in 2015 alone (WHO, 2015). Or, as one writer put it: 'the only difference between a human driver and a machine driver is the speed and accuracy of perception and reaction, and the machine wins that one easily' (Walsh, 2016). This is one of several arguments. Others include the following. If AVs were to become standard then chaotic and crowded road transport systems might well be rationalised. Traffic jams could become a thing of the past. Car ownership per se would decline since fewer vehicles would be needed. Roads could be smaller and less intrusive. The space in cities presently devoted to parking would be reduced making these same areas available for other uses. Then again, since the new AVs would run on electric power there'd be an increase in energy efficiency with corresponding reductions in exhaust fumes and pollution. (That noted, the makeup of energy systems – coal, oil, gas, nuclear vs. renewables – used to power electric vehicles would obviously have a significant impact on the overall energy profile.) From a popular viewpoint, cities could return to being 'clean and green.' On the other hand all these assumed benefits turn out to be highly contestable. For example, it's doubtful if such a multi-dimensional transition could occur as quickly as proponents suggest. Then there's the huge question of costs – not only to manufacture smaller, lighter batteries but also to drive down the cost the sophisticated electronics such vehicles require. Equally, the question of complexity has barely figured in current narratives. But it will take heroic levels of reliability to keep such vehicles operating safely. There's also another side to this story.

UNEMPLOYMENT AND THE MYTH OF

PERPETUAL INTERNET RELIABILITY

The most obvious and immediate drawback is the rapid decline in employment for large numbers of people who currently earn a living through driving. In the UK, for example, there are close to 300,000 Heavy Goods Vehicle (HGV) drivers alone, most of whose jobs would disappear (Ashley, 2017). And this is without counting bus and taxi drivers. Yet little is heard from policy makers or AV promoters about these deteriorating prospects. John Harris describes the issue like this:

> There are 3.5 million truck drivers in the US, as well as 233,000 cab drivers (an official estimate, which seems low), 330,000 Uber drivers and 660,000 bus drivers. In the UK, at the last count, there were 297,600 taxi or private-hire-vehicle driver licenses in England alone, and 600,000 people are registered drivers of heavy goods vehicles. The traditional logic of the job market has made sitting behind a wheel a fallback option – if all else fails, you can always drive a cab. But no more… (Harris, 2016a).

The beginnings of a solution are likely to involve income redistribution on a wide scale. Proposals for a *social* innovation – a universal basic income (UBI) - to reduce the strain on what Paul Mason calls 'the precariat' crop up occasionally but are a long way from being implemented (Mason, 2016). The political will is minimal, the economics challenging and the issues complex. Yet it's fair to say that little could be further from the minds of those who favour the introduction of AVs. While most are caught up in the ever more unequal distribution of wealth, measures to *moderate* such extremes are few and far between. These are matters of real public concern. Yet industry innovators, and those who speak for them, remain preoccupied with technical issues. So they don't view the structural decline in employment and a corresponding rise in public unrest as any concern of theirs. They are focused on capturing as large a slice as possible of emerging markets. So

questions like 'should we do this?' give way to 'can we do this, how fast and where?' Framing issues in such ways certainly simplifies things.

Yet pursuing the single-minded pursuit of 'innovation' on the one hand, while ignoring wider consequences on the other, de-legitimises any pretence to objectivity or detachment. Acknowledging and understanding these links therefore becomes a vital public concern. More people would then appreciate the extent to which corporate and social interests have been poorly aligned for many years (Higgs, 2014; Klein, 2007, Klein, 2014; Bakan, 2004). It was suggested above that privileging technological innovation above all else looks increasingly like a dangerous mistake. On the other hand, costs and disruptions can be moderated or prevented if they are detected and publicised in good time. This is obviously one of the key functions of high quality foresight work in the public interest. If and when the political will is found, more equable solutions can emerge.

There is, however, no ready-made solution to what may be the Achilles Heel of all AV systems – their dependence on *perpetual Internet integrity*. At the very time when key players are preparing for ubiquitous cyber warfare, the faultless continuity of IT-related systems remains a convenient myth. In this view, complexity becomes a social trap and reliable security a delusion. Yet, as things stand, the pragmatic worldview and raw instrumental power of the main players suggests that they will push ahead regardless. They're uninterested in permission, regulation or negotiating any diversion from the humanly tragic and debased futures they are creating (Harari, 2015).

SYSTEMS RATIONALITY, ARTIFICIAL INTELLIGENCE, PRIVACY

Since most governments lack even the rudimentary means to evaluate the emerging tides of new technology – let alone make informed decisions about their social implications – the question of who will take responsibility for large-scale breakdowns, power-outages and disruptions, whether caused by actual accidents or by malign cyber-attacks, remains open. What is clear is that to the extent that AV systems are progressively installed the torrent of data that they'll require and generate will become too vast and complex for humans to manage. New levels of automation capable of processing vast amounts of 'big data' in real time will be needed. Human control over these systems will therefore diminish. Humanity will have taken another step toward the era of 'systems

rationality' where notions like 'autonomy' and 'choice' become meaningless.

One option that can be explored as an alternative to a full on 'big data' scenario would reflect the difference between artificial intelligence (AI) and Intelligence Amplification (IA). In the former case the goal is to *replace* human intelligence with machine equivalents, whereas in the latter it is to *augment* human capabilities. Driver assisted vehicles are not merely less threatening and problematic, they already exist in significant numbers. So it may be possible to explore a similar process of augmenting human capability and, in so doing, bypass some of the hurdles mentioned here. Yet this is by no means a foregone conclusion. Within a 'growth at all costs' corporate worldview optimal solutions appear less appealing than grand visions in which limits have little or no place.

Currently we're a long way from figuring out how society as a whole can begin to deal with the unending flow of data. Effective AV systems would necessarily be designed to eliminate as much uncertainty, ambiguity and choice as possible. It would record the full details of each and every trip, making it possible for anyone with access to know exactly where and when people have been. Unlike with today's smart phones whose 'tracking services' can still be switched off, no such option would be available. Some criminal activities (such as car theft) might decline but at the cost of ratcheting up the level of surveillance to unprecedented levels. One observer sees it this way. He writes:

> Shrouded in secrecy, swallowed up by complexity and scale, the world is hurtling toward a new transnational electro-dystopia … Localisation doesn't matter that much. The Chinese Internet model and the American giant server farms are proof of the dangerous fact that digital automation is inherently coupled with the efficiencies of integrate centralisation and control (Keane, 2015, p. 33).

AVs are safer for whom?

The issue of safety is one of the key drivers behind the emergence of AV technology. Yet the conversation thus far has taken place within an affluent 'first world ghetto.' It's here that the finance is available and the greatest rewards are expected. Yet the closer one looks the more the whole process appears to do with notions of greed than of need. So it's worth asking a different question – where are these promised new levels of safety most needed? The answer is – in the very places where they are least likely to occur. The WHO (2015) statistics on road deaths make this clear. The following sample is for deaths per 100,000 people in 2013.

Table 1: Road deaths

Country	Deaths per 100,000 people in 2013
Central African Republic	32.4
Democratic Republic of Congo	33.2
Germany	4.3
Iran	32.1
Libya	73.4
Netherlands	3.8
Norway	3.8
Rwanda	32.1
Singapore	3.6
Sweden	2.8
Thailand	36.2
United Kingdom	2.9

If, in this already one-sided technical view, part of the 'value proposition' is that 'human life is valuable therefore we should reduce the road toll' then it's clear that *countries with the greatest need for technical assistance are the least likely to get it*. The unfortunate truth is that there's little or no profit to be made from

poor and destitute nations. Hence the argument about 'making driving safer' clearly rests on 'first world' privilege. It depends on (a) excluding the poorest nations and (b) therefore ramping up even further the already unsustainable gulf that exists between rich and the poor. So far as the corporates are concerned poor people can continue dying in their thousands so long as they gain access to the most profitable markets. Obscured by the growing chorus of approval for AVs in the rich West this sad reality has been widely overlooked. Yet its antecedents are well understood. They were described a decade ago, for example, in Klein's detailed account of what she called 'the rise of disaster capitalism' (Klein, 2007).

SUMMARY

This section has argued that the full costs of any thorough going implementation of AV technology bring with it very significant costs. These include:

- mass unemployment and few serious attempts to deal with it;
- the further erosion of privacy;
- an impossible commitment to the myth of perpetual Internet integrity;
- the assimilation of people, societies and cultures into a world dominated by machines and governed by the abstract demands of 'systems rationality'; and,
- a further increase in the unsustainable gulf between rich and poor.

Rationales in favour of the rapid implementation of AVs are therefore not as persuasive as they may first appear. It follows

that the rush to implementation needs to be slowed down and perhaps halted – at least for a while. This view is partly about values including prudence and compassion. It strongly supports the view expressed in the previous section that new technologies should be seen and understood in their wider contexts. They are not merely 'stuff'; each has human, social, cultural and geopolitical consequences, and positive, negative and ambiguous outcomes. The arguments and justifications put forward in favour of AVs thus far appear to depict issues in the simplest and most positive ways, obscuring alternatives and understating the wider costs.

High-tech companies have become surprisingly casual about embarking not merely on one or two but a whole series of frankly outrageous projects that, at base, serve to re-shape the world in their own image. But there's sufficient evidence to take a stand against careless innovation with ramifying social consequences. It's now clear that a high-tech world fashioned by and for the corporate sector becomes progressively less fit for people (Klein, 2014; Higgs, 2014; Harari, 2015). There are many other alternatives awaiting our collective attention (Alexander & Mcleod, 2014; Rees, 2014; Floyd & Slaughter, 2012).

What drives Silicon Valley?

It was suggested above that well-grounded critique opens up new areas of insight that can inspire viable responses and inform policy-making (Slaughter, 2017). This chapter suggests that further insights can be gained from a better understanding of the human and cultural interiors of organisations and individuals. After all, it is from the interior dynamics of values and worldview commitments that real-world structures, innovations and consequences emerge into the light of day. Developmental psychology has opened up many ways of achieving greater clarity regarding interior structures and processes and integral methods have proved particularly useful here. In brief, they embody a fusion of the work of many different people that helps us to understand more of what is occurring 'beneath the surface' of contested issues (Slaughter, 2010). They shed new light on some of the interior sources or 'drivers' that operate in Silicon Valley.

An indicative example can be found in Mark Zuckerberg's admonition to the staff of Facebook to 'move fast and break things' as it reveals much about both. Jonathan Taplin draws on this statement to show how such imperatives arose within the specific conditions of American society and culture. Three influences can be mentioned here – Shumpeter's notion of 'creative destruction', the normalisation of aggressive entrepreneurial practices and, last but by no means least, the pervasive influence of Ayn Rand's radically individualistic right wing ideology (Taplin, 2017; Freedland, 2017).

These are among the historical and social forces that created Facebook, Google, Amazon, among others, and helped them become what Rushkoff calls vast 'monopoly platforms' (Rushkoff, 2016). These organisations currently have as much, if not more, wealth and power than many national governments. John Harris puts it like this:

> The orthodoxies of government and politics are so marginal to the way advanced economies work that if politicians fail to keep up, they simply get pushed aside...The amazing interactions many of them facilitate between people are now direct – with no role for any intermediate organisations, whether traditional retailers or the regulatory state. The result is a kind of anarchy, overseen by unaccountable monarchs: we engage with each other via eBay, Facebook and the rest, while the turbo-philanthropy of Mark Zuckerberg and Bill Gates superficially fills the moral vacuum that would once have pointed to oversight and regulation by the state (Harris, 2016b).

Mason comments what must be obvious to many that as 'monopolies (they) should be broken up.' He adds, 'if Facebook were a bank, it could not exist; nor Google if it were a supermarket,' (Mason, 2017). In this view an underlying reason why that has *not* occurred is due to 'the structure of hedge-fund-driven modern capitalism (which incentivises the creation of monopolies), together with political cronyism' (Mason, 2017). Back in 2016 Facebook reportedly earned a cool US$8.8 billion and counted close to two billion people, or about half of the world's Internet users, as its customers (Cadwalladr, 2017). Yet such gains also impose equally huge losses on publishers, newspapers, authors and a wide range of associated professions. Over time its customers become used to the dumbed-down alternatives that pour forth from countless unverified sources. Vital questions about where Facebook's power ends, where its limits lie and to whom it is accountable have eluded successive U.S. governments that, at minimum, have failed to apply their own anti-trust rules and regulations. Inscrutable algorithms,

deep penetration into the texture of so many human lives and vast wealth appear to make Facebook almost invulnerable to top-down intervention. There are, however, other possibilities.

While much attention has been paid to the wealth and apparent instrumental power of these organisations, rather less attention has been paid to investigating them from within, so to speak. Yet doing so reveals new ways of understanding them and perhaps reducing their dominance. Two previous examples of this kind of work are informative. One is Urry's *Societies Beyond Oil: Oil Dregs and Social Futures* (Urry, 2013); another is Oreskes and Conway's *Merchants of Doubt* (Oreskes & Conway, 2011). Urry deployed his considerable talent in 'depth sociology' to understand how 'carbon interests' became so powerful and was able to characterise the kinds of futures to which their continued dominance leads. Oreskes and Conway took on the cultural power of the exceptionally well-financed U.S. 'climate denialist' clique. They revealed in detail exactly where it started, the techniques and assets it employed and how careers were destroyed en route to establishing denialism as continuing disruptive force in US political life. The point is this: when credible efforts are undertaken by well-qualified people to return some of these hidden interior phenomena back into the limelight there's no turning back. The hand of autocratic power, money and influence is revealed. Motives, purposes and outcomes are identified and called into question. Importantly, in the present context, the knowledge so gained cannot be erased. This is, in other words, a fair and legitimate way for societies to recover from multiple failures of governance and to regain from the oligarchs what was never theirs in the first place – an assumed social licence to operate as they wish.

INTEGRAL PERSPECTIVES AND THE SILICON VALLEY WORLDVIEW

Integral methods can be used in many ways. Theorists and practitioners can plunge into them in such depth that their investigations become abstracted and lose touch with reality. Here, as in previous work, they are employed lightly to reveal insights that can be taken up and used by virtually anyone. They use three sets of criteria: the four quadrants (windows on reality); four levels of worldview complexity and six values levels (Table 2). In earlier work some key reasons for applying Integral thinking were summarised thus:

> While most people and the vast majority of civil and commercial organisations around the world certainly appear to have benefitted in the short term from the vast expansion of on-line options and capabilities, a much darker picture is emerging. It concerns not only the extraordinary cultural and economic power being wielded but also the nature of the underlying worldview and values – which are the main foci here – and where these appear to lead (Slaughter 2015, p. 243).

Table 2	Summary of quadrants, worldviews and values by Slaughter (2012)
1	**The four quadrants (or 'windows' on reality)** a. The upper left quadrant (the interior 'world' of human identity and self-reference); b. The lower left quadrant (the interior 'world' of cultural identity and knowledge); c. The upper right quadrant (the exterior 'world' of individual existence and behavior); d. The lower right quadrant (the exterior world and physical universe).
2	**Four levels of worldview complexity** a. Pre-conventional (survival and self-protection); b. Conventional (socialised, passive, adherence to status quo); c. Post-conventional (reflexive, open to complexity and change); d. Integral (holistic, systemic, values all contributions, works across boundaries, disciplines and cultures).
3	**Six value levels** a. Red (egocentric and exploitative); b. Amber (absolutist and authoritarian); c. Orange (multiplistic and strategic); d. Green (relativistic and consensual); e. Teal (systemic and integral); f. Turquoise (holistic and ecological).

What became clear over time was that the Internet had morphed into something like an extreme version of Bentham's Panopticon where individuals were routinely subjected to extreme surveillance. Today that merely looks like a first step as entire industries are now feeding off of data traces routinely expropriated and on-sold for exploitation by the advertising industry (Zuboff, 2015). There's little sense among the main players of any compassion, empathy or care for the higher goals or aspirations of humanity.

> "The dominant paradigm is one of covert exploitation, erosion of individual agency and autonomy, and a sheer lack of transparency and accountability, reminiscent of authoritarian dynamics rather than of a digital well-being with equal and active participation of informed citizens," (Christodoulou et al. 2021).

What emerges overall is a picture of societies and cultures becoming hollowed out by extraordinary monopoly power and, at the same time, becoming increasingly polarised and angry. Many formerly proud professions are in decline, unemployment is rising and criminality penetrates even the most private spaces. A look at three key figures from Silicon Valley – Mark Zuckerberg, Ray

Kurzweil and work by Google's chief economist Hal Varien – help make sense of this perverse reality. In the former case an interview published in *Time* magazine clearly revealed elements of Zuckerberg's interior life. It showed, for example, that he is dismissive of external opinion and equates critique with 'turning the clock back'. He denies that pervasive advertising is in any way 'out of alignment' with his customers and is 'concerned with nuance and subtle shades of meaning only to the extent to which they are useful to him' (Grossman, 2014). Within such a pragmatic and instrumental frame terms like 'values', 'human nature' and 'society' have little or no meaning. This is significant when the broad impacts of Facebook are considered.

Similar issues arose in relation to Kurzweil, Chief Engineer at Google and well known for his views on the coming 'singularity.' This is supposedly a time when humanity merges with its technology and achieves a kind of disembodied immortality. There are fringe admirers, of course, who eagerly anticipate such 'post-human' futures. Yet a review of various accounts of this work strongly suggest that this perspective can be characterised as 'high technology and hubris' in about equal parts. Reductionism and category errors abound, for example, in Kurzweil's 'theory of mind' where the vast complexity of the latter is reduced to mere 'pattern recognition' (Pensky, 2015). Another concern is the 'constant conflation of biological evolution' with 'technical evolution.' For Kurzweil 'biological evolution, cultural development, and the advancement of computing technology are all part of the same immutable force.' In this view, 'the advance of technology is as inevitable as biological evolution' (Pensky, 2015).

When technology and biology are 'plotted on the same graph' we know that those who view the world this way are living in their own version of what has been called 'flatland.' Within that diminished frame what is manifestly missing is any appreciation of the power and influence of the interior worlds of individuals and cultures. Also significant is that from a structural interior standpoint the

worldviews and values of these key figures are so similar. In terms of the categories outlined in Table 1 both appear to be driven by 'red' to 'orange' values and draw on conventional to inverted (incomplete or, more controversially, 'unhealthy') forms of post-conventional worldviews.

ZUBOFF'S CRITIQUE OF THE 'BIG OTHER'

Shoshana Zuboff's magisterial treatment of Google's pursuit of 'surveillance capitalism' should be read in the original as it provides a paradigmatic example of an in-depth countervailing view (Zuboff, 2015). Her article 'Big Other' takes the form of an extended critical response to, and evaluation of, material produced by Google's chief economist Hal Varien. Zuboff supports the view taken above that: 'big data is not a technology or an inevitable technology effect. It is not an autonomous process... *It originates in the social, and it is there that we must find and know it.*' (Zuboff, 2016, p.75) . This is a crucial point. She continues:

> 'Big data' is above all the foundational component in a deeply intentional and highly consequential new logic of accumulation that I call *surveillance capitalism*. This new form of information capitalism aims to predict and modify human behaviour as a means to produce revenue and market control (Zuboff, 2016, p.75).

Later in the piece she contrasts Varian's technocratic vision with that of Hannah Arendt who offered more nuanced humanistic view of. She comments that:

> In contrast to (Hanna) Arendt, Varian's vision of a computer mediated world strikes me as an arid wasteland – not a community of equals bound through laws in the inevitable and ultimately fruitful human struggle with uncertainty. In this futurescape, the human community has already failed. It is a place adapted to the normalisation of chaos and terror where there the vestiges of trust

> have long since withered and died. Human replenishment … gives way to the blankness of perpetual compliance (Zuboff, 2016, p.81).

Zuboff's calm, clear and forensic examination of Google and its operations lead her to conclusions that are valuable in the present context as they help to inspire subsequent actions. For example:

> Google's tools are not the objects of value exchange. They do not establish productive consumer-producer reciprocities. Instead they are 'hooks' that lure users into extractive operations and turn ordinary life into a 21st Century Faustian pact. This social dependency is at the heart of the surveillance project. Powerful felt needs for an effective life vie against the inclination to resist the surveillance project. This conflict provides a kind of psychic numbing that inures people to the realities of being tracked, parsed, mined and modified – or disposes them to rationalise the situation in resigned cynicism. This … is a choice that 21st Century people should not have to make (Zuboff, 2016, pp.83-4).

In summary she concludes that:

> New possibilities of subjugation are produced as this innovative institutional logic thrives on unexpected and illegible mechanisms of extraction and control that exile persons from their own behaviour (Zuboff, 2016, p. 85).

Limitations of space preclude further discussion here. Next steps, however, could include applying this kind of exploration to other subjects and creating projects dedicated to revealing the inner worlds of the oligarchs and their leaders in much greater detail. The next section is devoted to this wider analysis.

SILICON VALLEY – BUILDING OR UNDERMINING THE FUTURE?

With such examples in mind it is legitimate to ask if Silicon Valley in general and the 'big three' in particular are building the future or, in fact, undermining it. From an Integral viewpoint any attempt to 'build the future' from structurally deficient and reductive right hand quadrant (empirical) views of reality is at the very least unwise and almost certainly a recipe for disaster. What can be missed by critics, however, is that *the existential risks that have been created by thoughtless innovation and the scaling up of these enterprises to the global level are as dangerous for the U.S. as they are for anywhere else*. In summary these examples suggest a broad default or collective profile of the sector, namely that it:

- Arises from ego-, and socio-centric outlooks that serve to privilege 'me, us and now.'
- Proceeds from a conventional level of complexity (with forays into post-conventional when it comes to, e.g., financial innovation and marketing);
- Expresses a range of values from 'red' to 'orange,' neither of which provides an adequate basis from which to resolve the issues identified here.
- Largely address the lower right (exterior collective) domain of reality, with an occasional focus in the lower left (for social influence) and upper right (for persuasion and control).

Seen in this light the term silicon 'giants' appears misplaced since they currently operate more like ethical 'midgets.' It follows that if societies are to resolve some of the concerns expressed here then they will want to focus on ways to bring individuals and organisations at every level up and out of these diminished states of being. This is a core concern of humanistic and developmental psychology in general. Within the domain of integral methodology Chris Fuhs proposes a model for assessing the nature and potential of translative change (change within a given level) in contrast to transformative change (movement from one level to another). This work is partly motivated by a need to avoid earlier 'growth to goodness' assumptions that are now understood to be overstated (Fuhs, 2013). This is categorically not a question of promoting ever newer and more exciting technologies. Rather, it is finding ways to bring into play more comprehensive worldviews and more sustaining values.

GROUNDS OF HOPE

The crucial thing to note is that the current techno-capitalist

worldview is by its very nature unstable and yet highly resistant to any kind of oversight or limitation. The Internet oligarchs have continued to flourish over the years when it became clear that humanity requires a genuine shift of state, a new dynamic (a transition to sustainability) and completely different direction (a post-growth outlook). The evidence is finally in that high-tech civilisation, despite its real achievements, is on a no-win collision course with the planet (Das, 2015; Higgs, 2014). It no longer makes sense to deny that the direction we should be collectively pursuing is one that moves decisively *away* from passive consumerism, the diminished rationality of 'the market' and endless growth. This is not to say that genuinely innovative, useful and worthwhile uses of IT have not emerged over this period. Rather, 'IT revolution' has been undermined and misdirected by an ideology that ignores the human and cultural interiors. Instead of leading to a 'better world' it inscribes the collective slide toward civilisational breakdown and eventual collapse (Floyd & Slaughter, 2014).

In a more open and egalitarian world new technologies would not be set loose to blindly impact upon complex social systems through one default *fait accompli* after another. Rather, they would be subjected to rigorous questioning and testing long before they were widely applied. Indeed, this was a core purpose of the Office of Technology Assessment (OTA) that, in its brief lifetime, was established to advise the U.S. Congress on exactly these matters (Blair, 2013). During the Reagan / Thatcher era the all-powerful 'private sector' in the US comprehensively abolished such initiatives with predictable results. This is only one of a whole series of failures of governance especially, within the U.S. One could imagine, for example, what might have occurred if, instead of repealing the Glass-Steagal Act (to abolish the separation of high street backing and high-risk speculative gaming) Bill Clinton and the US government had put in place the means to probe the implications of high-risk speculative credit-default swops and the like. The Global Financial Crisis (G.F.C.) would have been less serious or

possibly averted altogether. But no such attempt was made. Warnings were ignored, taxpayers of the developed world ended up footing the bill and Wall Street continued much as before. While various attempts to institutionalise technology assessment have occurred, it still remains uncommon (Schlove, 2010).

Until very recently the European Community (EU) has been effectively alone in taking steps to ensure that 'some things are not for sale'. It has taken small, but promising steps to regulate corporations, compel them pay more tax and create new rules allowing users to take charge of how their personal data is used, if at all (Drozdiak, 2017). It has even fined Google 2.4 billion for promoting its own shopping recommendations above those of other companies. This is a beginning. But a great deal of dedicated work will be required before sufficient countervailing power can be assembled on behalf of civil societies to design and implement IT systems that are secure and benefit everyone

Fortunately there are multiple ways forward in shaping this IT revolution that are being pursued by people and organisations of intelligence and good will. In fact the seeds of many solutions to global dilemmas are already emerging. For example, one of many places to begin is Solnit's work on the role of hope in a threatened world (Solnit, 2016). A different approach from Canada is Rees' 'Agenda for sustainable growth and relocalising the economy' (Rees, 2014). Raworth's work on a broader and more inclusive model for economics looks promising (Raworth, 2017). As does Fry's impressive work on what he calls 'design futuring' (Fry, 2009). Then, specifically relevant to the issues raised here, are suggestions by Hodson, Taylor and other actors in this virtual space on how, in practical terms, oversight and control can be returned from the Internet giants to individuals, societies and, more broadly, governance in the public interest (Hodson, 2016; Taylor 2014). Having outlined aspects of 'the problem' the following sections begin the process of focusing on possible solutions.

PART III

FRAMING SOLUTIONS

> *Never has an industry attained such global dominance with so little effort at regulation. Search engines are like cars on motorways with no requirement for brakes, emission controls or seatbelts. The failure to regulate, let alone properly tax, these massive corporations is the grossest lapse of modern government* (Jenkins, 2017).
>
> *Big data … is not a technology or an inevitable technology effect. It is not an autonomous process … It originates in the social, and it is here that we must find it and know it* (Zuboff, 2015).

INTRODUCTION

The first chapter in this book explored several accounts of the IT revolution. Of particular interest was the contrast between those who framed this process in terms of positive outcomes and those who considered that it had been subverted by powerful actors especially in Silicon Valley. The second section considered two case studies: the Internet of Things (IoT) and the projected rise of Autonomous Vehicles (AVs). It briefly employed Integral concepts to identify values and worldviews that appear to characterise leading

figures within the IT industry. These interior human characteristics arguably have powerful consequences yet have been widely overlooked in high-tech environments. It concluded that, on the whole, and notwithstanding some obvious practical gains, there is evidence to support the view that the Internet has been undermined and compromised by the power, wealth and reach of vast monopoly enterprises. Yet multiple solutions already exist in embryo and many more are sure to emerge. This section challenges the current status quo and considers revising assumptions and re-designing (or re-purposing) the Internet and associated IT applications towards more egalitarian and socially viable ends. The enormity and complexity of IT reflects shifts and changes almost daily. So, a concise account such as this cannot be other than a work in progress.

A central theme of this publication is ill-considered or compulsive innovation. It questions fatalistic attitudes and argues that, far from being inevitable, concerns such as artificial intelligence (AI) or Chinese surveillance practices need to be brought more fully into the open and subjected to sustained critical enquiry. The theme of recovery and renewal is also addressed. Some critical 'blind spots' are briefly outlined (a distinct lack of interest in global challenges; a pervasive tendency to under-value 'the social') and reframed in more positive terms. The notion of 'constitutive human interests' is raised. It's here that the positive implications of the project become more obvious since many of the concerns raised can also be viewed as positive opportunities for productive innovation and adaptive change.

A variety of innovations for better managing IT-related innovations and re-purposing the Internet are subsequently discussed. They include working with three scales of innovation, taming algorithms and supporting human agency. The positive innovation theme continues where wider questions about social democracy, new infrastructure and regulation are discussed. Finally we return to the question of 're-humanising' the IT

revolution. Here the discussion includes notions of the public good, moral universals (and their lack) and the vexed, ever-present question of the sheer ambiguity of unconstrained and rapid technical innovation. The conclusions are framed by a growing imperative to 'disrupt the disruptors' by investing in socially democratic actions and processes across the board. These could include changing the terms of business to rein in the oligarchs, breaking up monopolies (or re-constituting them as public utilities), subjecting proposed high-tech innovations to greater informed scrutiny, building new civic infrastructure and supporting the development of further IT capabilities in the public, as opposed to private, interest.

Compulsive innovation

'You can't stop progress.'

One of the themes that emerges from this enquiry is the need and opportunity for large-scale, democratically mediated social design and a commitment to long-term social innovation in the public interest. At first sight it may appear difficult to see how the motivation for such efforts could arise or from whom. But these are early days and motivation can emerge from a variety of sources. To begin with, in a context of radically ambiguous technical innovation, with its accompanying upheavals and disruptions the widely held view that 'you can't stop progress' clearly lacks credibility when used fatalistically, and should be set aside. Modifying this slightly to 'you can't stop technical innovation' is a small step forward but doesn't take us very far. Of far greater value is a more nuanced understanding of what terms such as 'progress' and 'innovation' actually mean, what values they spring from, whose interests are represented (or extinguished) and what longer term impacts and consequences may plausibly occur.

Such issues are hardly part of common conversation but if society is to regain any say in its own prospects, these issues need to be brought into the open and debated much more widely. Similarly, the social, political, technical and environmental consequences of neo-liberal formulas of economic growth along

with ever increasing inequality are no longer in doubt across the globe. People are becoming ever more concerned about these issues and, moreover, the Earth system itself is responding to multiple human impacts with glacially slow, but unstoppable, momentum. The faulty notions of 'progress' in this context clearly need to be unpacked as they are fraught with ambiguity and increasingly divorced from genuine human interests (Metcalf, 2017). Australia's Gold Coast illustrates this dilemma rather well. The mode of development on display is a living testament to a worldview characterised by profit-seeking, denial and short-termism. These are not characteristics that bode well for the future (Slaughter, 2016).

'Progress' is often seen as synonymous with technical innovation but such notions do not withstand close scrutiny. Similarly, a continuing free-for-all dialectic of innovation and counter innovation quickly becomes irrational in our currently divided world. In what may be an inexact but tellingly perverse reversal of Moore's Law the stakes grow ever more extreme with each new level of technical capability. Yet business leaders and decision makers seem largely unaware of this. We can see this in the current breakout of IT company investments in powerful real-world applications such as automation and advanced robotics that look set to destroy most, if not all, semi-skilled jobs (Murphy, 2017). We see it in the irrationality of emerging autonomous weapon systems (Begley & Wroe, 2017). We also see it on the mid-term horizon in the systemic threats that plausibly arise from quantum computing (Majot & Yampolskiy, 2015). A more immediate example is the rise of GPS spoofing. The early development of this technology was undoubtedly useful as it introduced precise, reliable navigation into countless transportation applications. Now certain features in its design are being quite deliberately employed to disable it. According to reports anomalous results were first spotted by PokemonGo players near sensitive sites in Moscow and then began appearing elsewhere. For example, alarms began to sound when

the master of a ship in the Black Sea discovered that his position was over 30 kilometres away from where it was supposed to be. Russia is thought to be one entity experimenting with the technology. But of equal or perhaps greater concern is that spoofing software can now be downloaded from the Internet and employed by anyone with the knowledge and will to do so (Hambling, 2017).

A similar dialectic is apparent in countless other examples, sometimes even in advance. Actively scanning the environment for signals of change does, in theory, provide time to respond. Separate scanning hits may interact to reveal previously hidden possibilities. For example, public media announce that trials of driverless 'autonomous vehicles' (AVs) will occur along a public motorway. A UK Minister of Transport announces that AVs will be in use by 2021 (Topham, 2017). Such developments are now becoming technically feasible. Yet around the same time a radical group publishes details about how, with a little imagination, vehicle-derailing devices can be easily and cheaply constructed and set in place leaving those responsible to disappear without trace (Thiessen, 2017). Little imagination is required to suggest that both high-, and low-tech devices will be developed to intervene and disrupt the smooth operation of AV technology wherever it is deployed. Once again, we are reminded that new technologies are never 'value free;' they always come with hidden weaknesses and costs, winners and 'losers'. Those who put their faith in complex systems will eventually need to recognise that the latter are not infallible. Those with different values and what one might call 'oppositional' social interests will continue to take advantage of any weaknesses or blind spots (Bartlett, 2017). It follows that the 'hidden', non-material side of any technology is at least as significant as its physical form. It therefore requires much closer attention.

ARTIFICIAL INTELLIGENCE

Bill Gates and Stephen Hawking are among many who have warned of the dangers of artificial intelligence (AI) and the very real possibility that it may represent an existential threat to humanity. Fresh impetus to this debate was provided when Mark Zuckerberg and Elon Musk clashed over this issue. While Musk echoed previously expressed concerns, Zuckerberg would have none of it. For him such talk was 'negative' and 'irresponsible.' He's dead against any 'call for a slowdown in progress' with AI (Frier, 2017). So it fell to director James Cameron, director of Terminator 2 and other movie blockbusters, to inject some reality into the proceedings by reminding everyone of the mammoth in the room. Namely that it is 'market forces (that) have put us into runaway climate change, and the sixth mass extinction.' He then added that 'we don't seem to have any great skill at not experimenting on ourselves in completely unprecedented ways' (Maddox, 2017).

What is significant here is that it falls to a movie director to draw attention to links between the products of an advanced techno-economic system and the growing likelihood of irrational outcomes. Such concerns are fundamental to the maintenance of public safety and wellbeing. Yet, careful consideration of the social implications of technical change by public authorities has declined even as the need for it has increased. The race to create artificial intelligence is being pursued in many places. Yet, few of the key players appear willing to pull back and rigorously assess the risks or seek guidance from wider constituencies. Whether East or West, to passively 'follow the technology wherever it leads' is technological determinism writ large. It's clearly an inadequate basis upon which to make decisions, let alone to gamble with the future of humanity.

We cannot assume that advanced AI will take over the world and either destroy humanity or render it redundant. Such outcomes are certainly possible but there are genuine differences of opinion on these very questions (Caughill, 2017; Brooks, 2017). Of more

immediate concern is that various agencies have been looking to AI for military and security 'solutions' for some years. Roboticised figures have been common in the entertainment industry for several decades. But wider appreciation of risks involved in their use in real-world situations has been minimal thus far. Now, however, robot soldiers are being designed and tested. In 2017, for example, a group called the Campaign to Stop Killer Robots met at the United Nations in New York. Part of the program included a film illustrating the potential of 'assassin drones' to sweep into a crowded area, identify targets using facial recognition, apply lethal force and vanish. Concerned scientists were attempting to 'highlight the dangers of developing autonomous weapons that can find, track and fire on targets without human supervision' (Sample, 2017). This may sound like science fiction (SF) but a leading AI scientist offered at least two reasons for believing that such devices are closer than one might think. In his view:

> The technology illustrated in the film is simply an integration of existing capabilities. It is not science fiction. In fact, it is easier to achieve than self-driving cars, which require far higher standards of performance. (Also) because AI-powered machines are relatively cheap to manufacture, critics fear that autonomous weapons could be mass produced and fall into the hands of rogue nations or terrorists who could use them to suppress populations and wreak havoc (Sample, 2017)

This is merely one branch of a rapidly evolving area of research and innovation but the prospects are clearly terrifying. Another key question raised was: who or what locus of authority provided the green light to arms manufacturers, the disruptors of Silicon Valley, or indeed anyone else to carry out these unprecedented experiments? Reinventing the world in a high-tech era – whether by innovation or disruption or both – is a non-trivial matter. To routinely and relentlessly create new dangers and hazards cannot do other than threaten the viability of humanity and social life. Yet somehow these entities continue to operate openly and with

confidence, yet lacking anything remotely like a social license. Some consider that the development of AI could be the test case that decides the matter once and for all. Here is Taplin again on how what he regards as the benign legacy of Engelbart – an Internet pioneer – was turned toward darker ends. He writes that the latter 'saw the computer as primarily a tool to augment – not replace – human capability'. Yet 'in our current era, by contrast, much of the financing flowing out of Silicon Valley is aimed at building machines that can replace humans' (Taplin, 2017, p. 55). At this point, the ghost of Habermas might well be heard whispering something along the lines of 'whatever happened to our communicative and emancipatory interests?' To what extent does their absence from dominant technical discourses mean they are also missing from the products and outcomes they produce?

THE PANOPTICON RETURNS

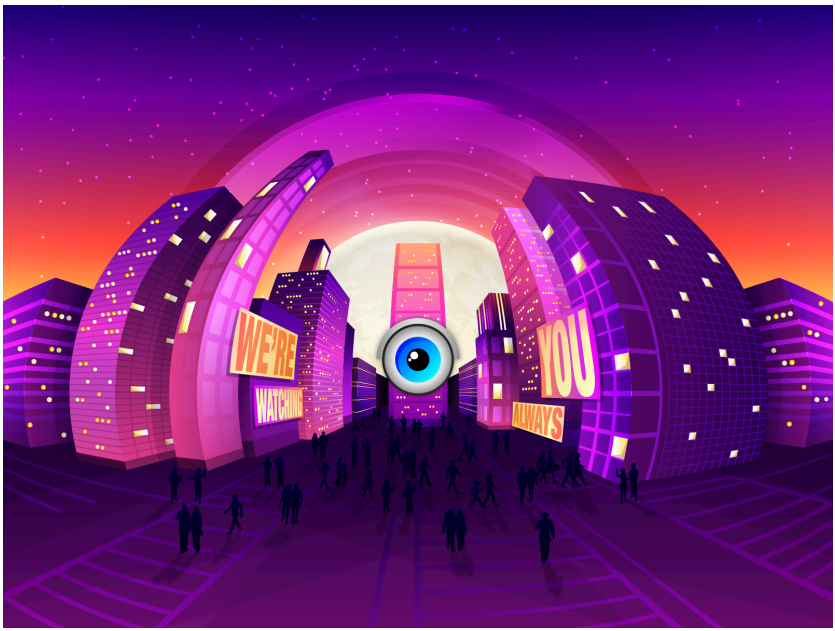
The original panopticon as envisaged by Jeremy Bentham in the 18th Century was a design for a prison in which all the inmates could be continuously monitored without their knowledge. Since they could never know whether they were being observed or not they were constrained to act as if they were at all times. Hence they became adept at controlling their own behaviour (Wikipedia, 2017). During recent years newer versions have arisen that bring this oppressive model to mind. One is in China; the other much more widely distributed. Chinese intentions to use IT for social control are revealed by Kai Strittmatter (2020), who states: "China's new drive for repression is being underpinned by unprecedented advances in technology", including:

- Facial and voice recognition
- GPS tracking
- supercomputer databases

- intercepted cell phone conversations
- the monitoring of app use, and;
- millions of high-resolution security cameras

> "This digital totalitarianism has been made possible not only with the help of Chinese private tech companies, but the complicity of Western governments and corporations eager to gain access to China's huge market," (Strittermatter, 2020).

This may not seem like a particularly significant departure from what's already occurring elsewhere. What is different is that China already has totalitarian tendencies since it is ruled by an inflexible party machine that shows no interest in human rights or related democratic norms. While the US has itself long been hamstrung by deadlocked and ineffectual governments it does have a constitution that protects certain core rights (such as free speech). Despite systematic predation (through copyright theft and monopoly power) by Internet oligarchs, the US also retains elements of a free press and it certainly has an independent judiciary. Furthermore, the European Economic Community (EEC) has already taken the first steps to establishing a more credible regime of regulation. In so doing it has shown that it is willing and able to take on the Internet oligarchs and force them to change their behaviour. So in the West there are real prospects of reining in at least some of the excesses.



But China is a very different story. According to reports its oppressive 'grid system' of systematic surveillance has been operating in Beijing since 2007. Aspects of this oppressive new system were summarised as long ago as 2013 in a Human Rights Report. For example:

> The new grid system divides the neighbourhoods and communities into smaller units, each with a team of at least five administrative and security staff. In some Chinese cities the new grid units are as small as five or ten households, each with a "grid captain" and a delegated system of collective responsibility ... Grid management is specifically intended to facilitate information-gathering by enabling disparate sources into a single, accessible and digitized system for use by officials. ... In Tibet the Party Secretary told officials that 'we must implement the urban grid management system. The key elements are focusing on ... really implementing grid management in all cities and towns, putting a dragnet into place to maintain stability. ... By 2012 the pilot system was in 'full swing' (as it had stored) nearly 10,000 basic data' (and collected) hundreds of pieces

> of information about conditions of the people (Human Rights Watch, 2013).

By 2015 this vast modern panopticon was ready to be rolled out to enable the full-on mass surveillance of China's 1.5 billion citizens. According to the Metamorphosis Foundation (2020):

> Any society that looks to stratify people based on how they look, based on their health, based on their data and things about them, is an incredibly authoritarian and sinister society. The societies throughout history that have tried to separate and stratify people based on data about them are (those) that we want to stay as far away as possible from...Collaboration of all stakeholders and demand for public debate are key to preventing situations in which the power to decide is taken from citizens and lies only in the hands of private companies or police forces...

Since then further details of this oppressive and inescapable surveillance system in China have emerged. For example, a wired article by Rachel Botsman revealed that two Chinese data giants – China Rapid Finance and Sesame Credit – had been commissioned by the government to create the required infrastructure using copious amounts of big data. Free access to this vast resource means that people can be monitored, rated and evaluated in depth throughout their normal lives. It turns out that 'individuals on Sesame Credit are measured by a score ranging between 350 and 950 points.' While the algorithms remain secret the five factors employed are not – credit history, fulfilment capacity (or ability to abide by contractual arrangements), personal characteristics, behaviour and preferences and, finally, interpersonal relationships. Those with high scores get consumer choices, easy credit and the chance to travel; those with low scores become the new underclass with few meaningful choices at all. These are described as 'private platforms acting essentially as spy agencies for the government.' The author then adds that 'the government is attempting to make obedience feel like gaming. It is a method of social control dressed

up in some points-reward system. It's gamified obedience' (Botsman, 2017).

What's particularly curious here is the inevitability of non-trivial perverse outcomes, foremost among which are the immense cultural and human costs. Masha Gessen's mesmerising and sometimes painful account of life in post-revolutionary Russia clearly demonstrates how hard it is to imagine that a cowed and passive population could retain sufficient awareness or creativity to contribute much of value to any culture, however instrumentally powerful it may appear (Gessen, 2017). In Botsman's view 'where these systems really descend into nightmarish territory is that the trust algorithms used are unfairly reductive. They don't take into account context.' Yet without a keen sense of context meaning becomes free-floating and elusive. Finally there's the inevitable emergence of 'reputation black markets selling under-the-counter ways to boost trustworthiness' (Botsman, 2017). Overall, this may turn out to be the world's prime contemporary example of a 'deformed future' in the making.

A second and equally subversive example over the last few years is the growing use of voice-activated 'digital assistants'. Skillfully packaged as mere 'assistants' and 'helpers' they are 'on' all the time and thus set to respond to every request and whim. Some of are equipped with female voices that are intended to exert a distinctly seductive effect as shown in Spike Jonez's 2013 film *Her*. What is less obvious (at least to the user) is that with each and every use the individuals reveal ever more information about their not-so-private lives. Before long comprehensive profiles are assembled, preferences noted and rich fields of data produced.

As things stand, the operators of these systems own this treasure trove of information and suggest new products and services in the light of those already consumed. Sales go up but consumers become ever more tightly bound to their own induced impulses and proclivities. Thus, instead of having open-ended learning experiences, of responding to challenges, of deepening their

knowledge and understanding of their own authentic needs and human qualities, those who succumb can end up having 'feelings' for, and an ersatz fictional bond to, a remote impersonal network that exists only to exploit them. A further consequence of becoming over-reliant on such 'immersive' technologies is that the real-world skills and capacities of human beings start to atrophy. Memory, time keeping, spatial awareness are among the capabilities that wind down over time leaving people ever more dependent and at risk (Aitkin, 2016). People are seduced into becoming a core component of the 'product' being sold. As the human interiors shrink and fall away, identity itself becomes elusive and problematic.

In summary, leaving the high-tech disruptors in any field to their own devices, so to speak, simply means that the human enterprise is subjected to random shocks and abuses that end up placing it in ever-greater peril. For Naomi Klein this is part of a deliberate playbook designed to provide a minority with greater dominance and power (Klein, 2007). But it's also the result of a certain kind of blindness that comes from over-valuing the technical and under-valuing the human and the social. If there's a consistent theme here it's that power in the wrong hands creates more problems than it solves. So high-tech innovation needs to be separated from simple notions of 'progress.' It is fundamentally a question of values and power – instrumental, cultural and symbolic. If humanity wants to avoid dystopian outcomes, human societies will need to find new ways to retain their power and control and part only with what they judge necessary to governance structures that meet their real needs. In other words, it's time to disrupt the disruptors. They've had their moment in the sun and the clouds are gathering. It's time for them to stand aside so that a different world can emerge.

Blind spots as opportunities

It has been suggested throughout this book that worldview limitations are complicit in supporting a widely shared and selective blindness that prevents many of the key players from perceiving what is strikingly obvious to others. Three brief examples are provided here. One concerns the implications of Earth changes now under way. Another is how heedless commitments to empiricism, technical determinism and neoliberalism have eroded key modalities of human and social existence. Finally there is a significant, but seldom appreciated, underlying concern regarding the nature and implications of constitutive human interests.

GLOBAL CONTEXT, GLOBAL LIMITS, GLOBAL ACTION

Macro views of the contradictory and unsustainable condition of human civilisation have gained little or no traction with US corporations, the giants of Silicon Valley and their wealthy associates. This 'condition' obviously has multiple facets and there are many ways of coming to grips with it. For some observers a primary concern is the way humanity has laid waste natural resources at the expense of outgrowing the physical capacities of the global environment (Higgs, 2014). In this view issues around global warming, the scarcity of fresh water and the sixth extinction

loom large. The accumulation of planetary impacts has given rise to the term 'Anthropocene' or era of human-related changes (Carrington, 2016; Slaughter, 2012; Steffen, 2015a). The term has slowly become accepted over recent years as those dedicated to 'Earth science' have provided numerous insights into the nature of large-scale processes of change.

Well-grounded knowledge about changing parameters of the global living space available to humans and other species has become both plentiful and increasingly reliable. It has, for example, provided valuable inputs to policy and decision-making at all levels. Work by Steffen and others on planetary boundaries is of particular salience (Stockholm Research Centre, 2017; Steffen, et al 2015; Steffen, et al 2004). It shows how humanity has exceeded safe limits in three areas (flows of phosphorus and of nitrogen; loss of genetic diversity) and is set to exceed them in two others (land system change and climate change). Yet vital global concerns of this kind are not only widely overlooked by many high-tech entrepreneurs they are also actively denied by some of their most wealthy backers (Mayer, 2016). The very last thing the latter are prepared to recognise is the reality of global limits (Higgs, 2014).

Coming to grips with limits, the extent of human impacts and the choices and options available to humanity also provide many positive opportunities. Among these is the increased breadth and capability that flows from adopting more progressive values and broader, more inclusive worldviews (see below). Taking global issues seriously opens up a plethora of actions and strategies that, properly understood, significantly enhance our individual and collective ability to navigate through the rough weather that undoubtedly lies ahead (Monbiot, 2017; Raworth, 2017). The New Economy Network Australia (NENA) is one of many organisations that demonstrate in practical terms how new economic structures and processes can be created both with, and without, official sanction (NENA, 2017). Other examples are discussed below.

RE-VALUING THE HUMAN AND SOCIAL INTERIORS

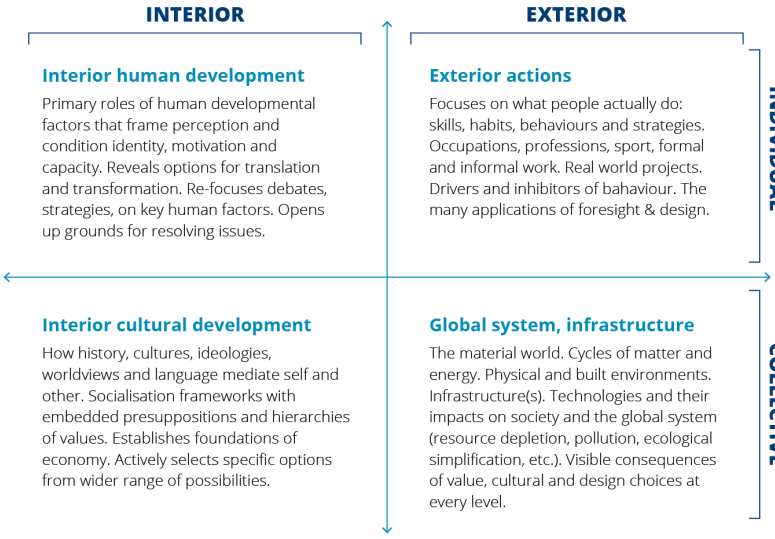


Figure 1. Four quadrants of Integral enquiry (Slaughter, 2010).

The empirical-analytic methods employed to create powerful technologies and to understand track macro phenomena both emerge from the 'exterior collective' quadrant of Integral enquiry. Yet taken in isolation they cannot grasp the nature of related human and cultural realities since they spring from very different sources and invoke different kinds of knowledge. Integral perspectives seek greater balance by adding an 'interior' dimension to both individual and collective phenomena (Figure 1). The general lack of such distinctions helps explain (and indeed to resolve) some of the confusion and conflict that occurs when, for example, new waves of high-tech innovation (exterior collective) impact on human life worlds (interior individual) and pre-existing ways of life

(interior collective). As noted, people, social systems and cultures are all deeply affected. Jobs are destroyed, professions disappear and machines primed to take over operations that were previously understood to exist solely within the domain of human action. Yet the study of history, the foundations of personhood, society and culture are only marginally accessible to empirical enquiry and are therefore routinely dismissed. Which is not to say that they cannot be studied and understood by those with the requisite skills, insight and methods (Esbjorn-Hargens, 2012).

CONSTITUTIVE HUMAN INTERESTS

German philosopher Jurgen Habermas produced a series of works that made significant demands on readers yet also produced insights of continuing value. Of direct relevance here is his account of 'constitutive human interests.' Unlike much of his work the essence of such interests are easily grasped and usefully illuminate a number of vital social processes that tend to be overlooked in high-tech environments. Table three provides an outline of Habermas theory. In this account, the technical interest relates to 'work' and the empirical/analytic sciences that are centrally concerned with production and control (i.e. the application of technical rules to instrumental problems). The practical interest is about human interaction. Here the concern is not with control, nor with technical processes, but with communication and understanding, both of which are grounded in language and culture. The point is to clarify the conditions for clear and unobstructed communication between participating subjects. These are seen as interpretive tasks requiring appropriate skills. The third and perhaps 'highest' interest is the emancipatory interest. This relates to questions of power and the universal drive for emancipation and freedom of action (Habermas, 1971).

Table 3: Habermas' constitutive human interests (1971)

	Life Dimension	Form of Knowledge	Criteria	Type of Problem
Emancipatory Interest	Power	Critical	Emancipation and liberation	Normative: critique of domination, repression and distorted communication
Practical Interest	Interaction	Interpretive	Achievement of communication and understanding	Interpretive understanding and practical choices
Technical Interest	Work	Empirical/ analytical	Economy, efficiency and effectiveness	Technical and instrumental

At no point does Habermas denigrate the technical interest per se since civilisation depends upon the maintenance of effective and efficient technical processes. Rather, what he is set against is the over-extension of the technical into areas that he considers illegitimate – as, for example, when decisions about new technologies are made on the basis of 'can it be done?' rather than 'should it be done?' One is a pragmatic issue concerned with technique; the other is value-laden and grounded in ethical considerations. This distinction has been widely overlooked in the present context. Then concerning the practical interest, there are many non-technical factors (such as power, ideology, marketing and direct exploitation) that impede and prevent true communication taking place between individuals and groups. The issue then becomes that of defining the conditions under which communication can be optimised. This again is not a technical question but one that relates to the richer and more complex world of human intersubjectivity. Finally, the emancipatory interest is engaged in the critique of domination, repression, mystification and institutional inertia. It tries to define the conditions within which people can create an authentic existence for themselves.

Unfortunately however, questions of limits, of the character and requirements of 'the social' and the whole question of underlying human interests – actual human needs and qualities – mean little or nothing to techno-enthusiasts and Internet entrepreneurs. As

we've seen their speech patterns, metaphors, discourses were, and remain, focused on the single-minded pursuit of power, exploitation, expansion and accumulation of immense financial rewards. These features go a long way towards explaining why the Internet and many associated technologies became debased and also why they parted company from authentic human and social needs. The rise of homo economicus and the rapid expansion of humanly arid technical systems could not but produce a generalised dystopian sense that human affairs were spinning out of control. During the second decade of the 21st Century traditional research, scholarship and the scientific method itself were also being undermined by the diminished rationality of technical innovation coupled with denialism at an astonishing scale. Moreover, the tendency of traditional disciplines toward subject compartmentalism made it difficult to address the growing complexities of macro-change. Many people began to experience a sense of the coming-apart of earlier structures and assumptions, often expressed as multiple failures. For example:

- A near-universal failure to resolve major environmental issues.
- Unwillingness on the part of global elites to rein in growth or reduce over-consumption.
- Unresolved questions about the Global Financial Crisis (GFC) and its aftermath.
- The related failures of globalisation and 'trickle down' economics to create a fairer and more equitable distribution of wealth.
- Growing instability and upheaval in the Middle East consequent upon the Iraq war and the abortive 'Arab spring'.
- Multiple failures of the US government to regulate or

reform Wall Street, apply its own anti-trust regulations to the Internet oligarchs, develop appropriate policies on high-tech innovation and respond effectively to global warming.

- New waves of high-tech innovation were and are undermined by corporate power, mass surveillance and a newly enfranchised criminal underclass (Glenny, 2011; Zuboff, 2015).

The environment created by these interrelated and ever-shifting phenomena was and remains complex and challenging to say the least. Governance virtually everywhere has become more difficult. So it is regrettable, but not entirely surprising, that high-tech innovators have had little of value to say about the world they have been attempting to create. So long as their own innovations made it to market, these 'straws in the wind' were held to be of little significance. A variety of non-empirical and broad-based approaches to understanding were quietly developing in the background. Since they are too numerous to receive adequate attention here they might well form the basis of a separate work. Yet the task of grasping some of the interior aspects of social change in the post WW2 era was taken up by interdisciplinary scholars such as Lewis Mumford, Hannah Arendt, Ulrich Beck, Zigmunt Bauman and Jurgen Habermas, among many others. More recent perspectives shedding further light on these matters include accounts of hypernormality (Hooton, 2016), anticipation theory (Poli, 2010), the 'de-growth' movement (Cattaneo, 2012; Videira, 2014) postnormal studies (Sardar, 2015) new economic paradigms (Raworth, 2017) and the wider use of Integral methods (Egmond & de Vries, 2011).

Overall, the selective blindness of the high-tech sector is less an indication of strength and power than of 'thin' and, in the long run, unproductive views of reality. The entire sector – and those who seek to reinvigorate it – would do well to re-direct their attention

toward blind spots such as those outlined here. Properly understood, they provide creative springboards, stimuli for new thinking and new opportunities such as the following.

- Grasping the reality of global limits and the vast number of opportunities for values development, creativity, design and adaptation that they imply.
- Re-valuing aspects of 'the social' such as empathy, care, respect and in-depth communication between equals.
- Consciously seeking to understand and enable fundamental human interests, without which it is doubtful if advanced and vibrant human societies can endure.

In short, careful and genuine investments in richer worlds of meaning and significance foreshadow completely different outlooks and a radically renewed palette of options.

Transcending reductionism, re-purposing the Internet

INTERIOR DRIVERS, SCALES OF IMPLEMENTATION

Virtually everyone outside the Silicon Valley bubble who has paused to consider the complex tangle of issues thrown up by the IT revolution in general and the Internet in particular tends, at some point, to reach a key conclusion – that the key issues before us are not primarily technical. Technology provides the physical substrate and software an artificial 'nervous system' that reaches ever more deeply into human lives. But merely following technical capabilities as far as they can be driven appears to confine humanity on a fast train to Dystopia and perhaps the end of human civilisation itself. Juval Harari unintentionally provided a rehearsal, or test case, for that thesis in his book Homo Deus (Harari, 2015). Here the main driver of change was considered to be the ingenuity of large groups of people and their most significant achievements, indeed, were said to be those associated with high technology. Yet by relentlessly following this technologically determinist path, what the author refers to as 'unaugmented', humans are expected to fall by the wayside and become the 'road kill' of history. It is severe and uncompromising conclusion but unavoidable with the

starting assumptions. If, on the other hand, the uses of high-tech are shaped and conditioned by progressive social drivers – such as life-affirming values and expanded worldviews – the outcomes would certainly be very different. So in playing a reductionist game with the very forces that moderate raw technical power degrades language, values, worldviews and similar culturally derived sources of meaning and capability – Harari actually demonstrates how vitally necessary they really are (Slaughter, 2017). Nor is this the only source that confirms this vital insight. As mentioned above, the idea that repressing or turning away from human qualities and social phenomena is exceptionally damaging receives powerful support from Masha Gessen in her book *The Future is History* (Gessen, 2017).

There are clearly many aspects to this story and a growing number of informed observers of this rapidly changing scene. Greenfield, for example, is by no means alone in viewing the IT revolution as a full-on invasion. So he is alert to the implications of what he calls 'the colonisation of everyday life by information processing.' As with other critical approaches he is interested not merely in raw outcomes but also in the motives of promoters, the ideas behind the hardware and the social interests involved. Working at a more fine-grained level and acknowledging such interests helps to re-frame core assumptions within corporate and business environments. In 2015 John Naughton reported on work by Doc Searles on what he calls the 'intention economy.' Of direct relevance to the issue of there being human interests beyond the purely technical is the following view. Namely that 'many market problems … can only be solved from the customer side: by making the customer a fully-empowered actor in the market place, rather than one whose power in many cases is dependent upon exclusive relationships with vendors, by coerced agreement provided entirely by those vendors' (Naughton, 2015).

From considering the IoT at three scales of implementation Greenfield wants to probe more deeply into what they mean

through actual case studies (Greenfield, 2017). As we have seen repeatedly, the marketing of high-tech devices commonly assert assumed benefits to users but obscure underlying corporate benefits. So at the individual human scale biometric devices such as the Fitbit and the Apple Watch monitor a variety of health and fitness indices. Yet, these personal data are valued, analysed and used as inputs to advertising and sales. Insurance companies have vested interests in these skewed transactions such as offering reductions in premiums in exchange for such personal data. Truck and public service drivers are especially vulnerable to the imposition of more heavy-handed versions. Then, unless this trend is halted, the intensive collection of personal data may be required of all drivers and other persons responsible for vehicles and related machinery. The logical end this insidious process is akin to the imposition of total surveillance.

That these observations are not 'merely' theoretical or personal but extend to other scales is confirmed by the emergence of 'Google Urbanism,' an ambitious plan by the company's Alphabet subsidiary to reconfigure cities in its own image. Its pilot project on the Toronto waterfront sought to 'reimagine urban life in five dimensions – housing, energy, mobility, social services and shared public spaces.' However, what caused most concern was a proposed 'data-harvesting, wi-fi beaming digital layer' to provide a 'single unified source of information about what is going on.' This was intended to gather 'an astonishing level of detail' such that 'each passing footstep and bicycle tire could be accounted for and managed.' Issues of privacy and the blurring of public and private interests were set aside confirming the suspicion that 'the role of technology in urban life is obvious: It is a money-maker' (Bliss, 2018). Fortunately, opposition to this project grew to the point where it was eventually cancelled. For Morozov, ever on the alert for new forms of Internet solutionism, heavy-handed developments of this kind signal 'the end of politics.' He comments that:

> Even neoliberal luminaries like Friedrich Hayek allowed for some non-market forms of social organisation in the urban domain. They saw planning as a necessity imposed by the physical limitations of urban spaces: there was no other cheap way of operating infrastructure, building streets, avoiding congestion. For Alphabet, these constraints are no more: continuous data flows can replace government rules with market signals. (Morozov, 2017c)

Seen in this light the emergence of high-end 'smart cities' represents a further incursion of technical expertise into the lifeworlds of people, the ethos of cultures and the character of the settlements where much of humanity lives. More recently Sadowski has suggested that such environments may best be referred to as 'captured cities' (Sadowski, 2020). Such conclusions clearly challenge the legitimacy of this entire process. Greenfield's own recommendations include the following.

- The use of algorithms to guide the distribution of public resources should be regarded as a political act.
- Claims of perfect competence in relation to 'smart city' rhetoric should be rejected.
- Any approach the whole IT domain should include a healthy dose of skepticism.
- Commercial attempts to gather ever more data about people should be resisted (Greenfield, 2017).

TAMING THE UBIQUITOUS ALGORITHM

Standing at the core of a vast number of IT processes is the ubiquitous algorithm. Its relative obscurity and foundation in mathematics means that for many people it remains a mystery. But this need not continue. Cathy O'Neil was originally employed as a 'quant' in the heart of the New York financial district prior

to the Global Financial Crisis (GFC). She saw first-hand, how the algorithms that exploit 'big data' can be used productively or as instruments of power and exploitation. In her view most people are unaware of how these new capabilities have proliferated. Consequently the reliance of bureaucratic systems on them is seldom appreciated. In the US she notes that 'getting into college, getting a job, being assessed as a worker, getting a credit card or insurance, voting, and even policing are in many cases done algorithmically.' She adds that:

> The technology introduced into these systematic decisions is largely opaque, even to their creators, and has so far largely escaped meaningful regulation, even when it fails. That makes the question of which of these algorithms are working on our behalf even more important and urgent (O'Neil 2016).

She uses a 'four-layer hierarchy' in relation to what she calls 'bad algorithms.' At the first level are those with 'unintentional problems that reflect cultural biases'. Next are those that 'go bad through neglect.' Third are those that she regards as 'nasty but legal' and finally 'intentionally nefarious and sometimes outright illegal algorithms.' In relation to the latter she adds that:

> There are hundreds of private companies...that offer mass surveillance tools. They are marketed as a way of locating terrorists or criminals, but can be used to target and root out citizen activists. And because they collect massive amounts of data, predictive algorithms and scoring systems are used to filter out the signal from the noise (O'Neil 2016).

The scam run by Volkswagon to conceal the results of emissions tests is, in her view, perhaps the most well-known example; but the sale of surveillance systems to repressive regimes looms larger as a serious future threat. In her 2016 book *Weapons of Math Destruction* she looks into numerous context only to find the same dynamic at work. In one case a school district attempted to identify the weakest teachers and designed a set of tests of 'teacher

effectiveness' using algorithms. Many of the criteria, however, such as how well students were learning year to year, could not be measured directly. The use of unverifiable proxies resulted in wildly varying results – but teachers were sacked anyway. From this and other cases O'Neil concluded that many algorithms are poorly designed and proxies used in place of real data invisibly distort the results. Another oft-experienced trap is where hidden feedback loops render data meaningless the more often they are run within a system. What is also significant about this account is that the underlying issues are less about mathematics, statistics or data, than they are about transparency (or its lack) power and control. Currently in the US, for example, the well-off can usually afford human representation whereas the poor are left with poorly performing data and a bureaucracy they can neither influence nor communicate with. In summary, used well algorithms can be tools that usefully extract value from big data. Used poorly, they can certainly ramp up the efficiency of operations but at the cost of unreliable or unjust results and increasing inequality.

O'Neil (2016) suggests a number of solutions, none of which are short term or particularly easy to implement without wider social support. 'First and foremost', she suggests, 'we need to start keeping track.' For example, 'each criminal algorithm we discover should be seen as a test case. Do the rule-breakers get into trouble? How much? Are the rules enforced, and what is the penalty?' She continues:

> We can soon expect a fully-fledged army of algorithms that skirt laws, that are sophisticated and silent, and that seek to get around rules and regulations. They will learn from how others were caught and do it better the next time. They will learn how to do it better the next time. It will get progressively more difficult to catch them cheating. Our tactics have to get better over time too (O'Neil, 2016).

Finally she suggests that:

> We need to demand more access and ongoing monitoring,

> especially once we catch them in illegal acts. For that matter, entire industries, such as algorithms for insurance and hiring, should be subject to these monitors, not just individual culprits. It's time to gird ourselves for a fight. It will eventually be a technological arms race, but it starts, now, as a political fight. We need to demand evidence that algorithms with the potential to harm us be shown to be acting fairly, legally, and consistently. When we find problems, we need to enforce our laws with sufficiently hefty fines that companies don't find it profitable to cheat in the first place. This is the time to start demanding that the machines work for us, and not the other way around (O'Neil, 2016).

O'Neil's program for re-purposing algorithms is certainly ambitious but, given the plethora of unresolved issues in this area, it seems entirely appropriate. In her book she also calls for a 'model builder's pledge' (similar to the Hippocratic Oath taken by medical practitioners) a full-scale regulatory system, algorithmic audits and greater investments in research. In light of this she speaks approvingly of Princeton's Web Transparency and Accountability Project and European approaches (noted below) that are, starting to dictate a new raft of terms and conditions that the Internet giants will have to recognise. Ultimately, she returns to the same ground that others have indicated in arguing that such choices are fundamentally moral, hence also ethical and social.

DEFENSIVE MEASURES, KEY QUESTIONS

Many options are available to those who are willing to invest the time and effort in responding to these issues and concerns. In mid-2017, for example, Australian reporter Rose Donahue interviewed Helen Nissenbaum in New York about the 'obfustication movement.' This was described as a 'David and Goliath' strategy that relied on the fact that David had more freedom to act than his opponent (Donahue, 2017). Donahue noted that Nissenbaum had developed tools specifically designed to

disrupt Google's tracking and ad delivery systems. One called 'TrackMeNot' allows users to browse undisturbed under the cover of randomly generated searches. Another dubbed 'AdNauseum' is a tool that collects data from every site visited by the user and stores them in a vault. This vastly overstates the user's activity and therefore serves Google false information. While such tools may at present appeal only to a minority there are undoubtedly many more to come. A high-tech defensive war against the overreach of Internet oligarchs is increasingly likely. Many of these tools will become easier to use and personal agency will be enhanced as more people avail these tools.

In summary, the present Internet has evolved – or 'de-evolved' – into its present condition over an extended period. It will therefore not easily be prised from the grasp of giant corporations. Repurposing the Internet will take time. It will take concerted social and political action as well as extensive technical backup. Charles Arthur credits online rights activist Aral Balkan with the following insight: 'If you see technology as an extension of the self, then what is at stake is the integrity of our selves'. He continues: 'Without that – without individual sovereignty – we're looking at a new slavery' (Arthur, 2017). So key issues include the following.

- What kind of society do we want to live in?
- What visions of human life, society and culture do we believe in?
- What kinds of futures arise from our collective decisions?

These are exactly the kinds of questions that have driven futures / foresight thinking and practice for several decades. As the wider implications of IT revolution cause more and more people to focus upon them so new players will need to become more involved in the search for solutions. Governments, city authorities and civic administrators at all levels will need to be open to new forms of

social engagement. They, in turn will also need greater support from an informed public.

Productive innovation

SOCIAL DEMOCRACY

Many of the decisions and practices of the high-tech innovators and oligarchs have gained support from prevailing assumptions about the market, the consumer, a minimal role for government and so

on. Yet despite its broad influence the durability of neoliberalism as a guiding ideology should not be overstated. An in-depth review of neoliberalism by Metcalf refers to a 2016 paper published by the International Monetary Fund (IMF) that explicitly connects the former with some of its most significant consequences. These include 'pushing deregulation on economies around the world … forcing open national markets to trade and capital, and for demanding that governments shrink themselves via austerity or privatisation' (Metcalf, 2017). While such insights may appear unremarkable in themselves they represent a startling admission by the IMF whose policies have long supported such practices. The author also suggests that the ideology should not be seen merely a 'standard right wing wish list' but rather 'a way of reordering social reality, and of re-thinking our status as individuals' (Metcalf, 2017). Viewed in this light the main premise – that 'competition is the only legitimate organising principle for human activity' – seems unlikely to remain viable over the longer term since it rules out and overwhelms vital human capacities. These include care, compassion, philanthropy and the like which all healthy societies need in order to function at all. The decline of neoliberal values and assumptions would also mean that previously unthinkable options would emerge, as would new strategies to reform the system. A 'new normal' would have its chance to become established.

In the UK a then resurgent Labour Party raised the possibility that just such a development could occur through the rise of social democracy. Rundle (2017) summarised what he considered to be some of the wider implications. In this distinctively optimistic view local, national and global societies could be run as a tripartite process of state, market and community institutions, with a "democratically enabling" state enforcing limits to the private sector, mandating social-economic spaces into which community / open / free / collective activities could expand, with democratic socialised ownership, whole or part, of key economic sectors. Such a shift would have major implications for all sectors of the economy

– including IT systems and the Internet. As other essential social resources (including water, energy, finance) transitioned to shared ownership and control, Google, and other large companies could be regarded as having self-socialised (Rundle, 2017). As such there's no good reason why they could not be subjected to the very same institutional arrangements.

Such raw suggestions have a long way to go before they can be rendered into widespread practice. Yet they make a good deal of sense in the current context. Google / Alphabet, for example, may thus far have avoided the rigours of US anti-trust regulations but this may turn out to be a temporary 'victory' as other governments step in to take actions based on alternative assumptions and views (see below). Rundle's (2017) piece also demonstrates yet again why so many observers and critics of the IT revolution argue that the central issues are not primarily technical but social and political. Society as a whole needs to take part in multi-faceted conversations of this kind.

NEW INFRASTRUCTURE

There's no shortage of ideas and proposals regarding 'what needs to be done' to re-design and re-direct the Internet and, by extension, high-tech innovation in general. Helen Magretts of the Oxford Internet Institute is no exception. In order to deal with aspects of Internet aggression she suggests that:

> Any successful attempt to prevent extremist, abusive and hateful behaviour online must be multifaceted, thoughtful and collaborative. It will involve ethical and legal frameworks to guide as well as mandate good behaviour; working with tech companies rather than making enemies of them; smarter policing of activities that are already illegal; and crowdsourcing safety, so that people and social enterprises play a role (Magretts, 2017).

Cathy O'Neil (2016) puts a strong case for the establishment of a

new infrastructure to deal with the uses and misuses of algorithms. She seeks to create reliable records of how these tools are used and by whom. She also knows that to do so will not be easy as powerful organisations normally resist being called to account. As noted before Cathy O'Neil calls for the establishment of a new infrastructure to deal with the uses and misuses of algorithms. She seeks to create reliable records of how these tools are used and by whom. She also knows that to do so will not be easy as powerful organisations normally resist being called to account. Taplin (2017), however, goes even further in proposing what he calls a 'digital renaissance.' This has various features that include:

- a shorter working week and the establishment of a universal basic income (UBI);
- measures to get the technical and creative communities working together;
- revisions of the 'safe harbour' provisions in the DMCA act;
- the Library of Congress issuing new guidelines as to the 'fair use' of creative and copyrighted material;
- revisions to, and wider application of, anti-trust regulations (to break up monoplies); and,
- a proliferation of co-operatives, non-profit companies, and what he calls 'zero-marginal-cost distribution systems.

In this respect Taplin (2017) echoes suggestions by Rushkoff (2016). Rushkoff is interested in exploring a range of social and economic inventions in the context of re-thinking what money is and is for (Rushkoff, 2016). Finally Morozov (2017), whose work has contributed substantially to this enquiry, suggests that a single data utility would be best placed to make the best use of material from divergent sources. In the light of current experience with commercial entities it would need to be non-commercial and

publically owned, much as Rundle (2017) has suggested. Given that progressive governments could set up such utilities quite easily the next step would be to ensure that 'whoever wants to build new services on top of that data would need to do so in a competitive, heavily regulated environment while paying a corresponding share of their profits for using it,' (Morozov, 2017a). Morozov (2017a) adds that 'such a prospect would scare big technology firms much more than the prospect of a fine'.

EFFECTIVE REGULATION

When the European Union (EU) handed Facebook a $120 million fine in May 2017 and Google a heavy $2.4 billion in June, both for market abuses, many wondered what the next step would be. By mid-2017 the answer came in the form of another acronym – the GDPR (or general data protection regulation). Long-time observer of the IT scene, John Naughton, emphasised that GDPR was not a directive but a regulation so it would become law in all EU countries at the same time. Some of the implications follow:

- The purpose of the new regulation is to strengthen and rationalise data protection for all individuals within the EU. It also covers the export of personal data to outside the bloc. Its aims are to give control back to EU residents over their personal data and to simplify the regulatory environment for international business by unifying regulation.
- The GDPR extends EU data-protection law to all foreign companies that process the data of EU residents. So even if a company has no premises or presence within the EU, if it processes EU data it will be bound by the regulation. And the penalties for non-compliance or infringement are

eye watering, even by Internet standards: fines up to €20m and/or 4% of global turnover.

- More significantly, the GDPR extends the concept of "personal data" to bring it into line with the online world… The regulation gives important new rights to citizens over the use of their personal information… Valid consent has to be explicitly obtained for any data collected and for the uses to which it will be put.
- Citizens will now have the right to request the deletion of personal information related to them (Naughton, 2017a).

This was obviously what pundits call a 'game changer' as it fundamentally changed the rules for how these organisations collect, use and manage private data. Naughton (2017a) called it an 'existential threat' to those currently operating beyond the reach of existing data regulation laws. It certainly helped to resolve a situation in which people's private lives everywhere are regarded as 'fair game' to entities whose sole interests lie in sales, profit and power. And it went a long way toward resolving some, but by no means all, of the concerns expressed so clearly by Zuboff (2015) and others. At the same time public service sectors such as education and health need to adjust their own procedures which will involve considerable costs.

THE TECHNICAL IS POLITICAL – THE RETURN OF ANTI-TRUST

As the oligarchs have steadily penetrated ever more areas of human and economic life they've become so powerful that they abjure regulation by elected bodies and are frequently said to be way 'ahead' in terms of their products and services. But this is a mistake. If we accept that the technical is political it is harder to confuse technical mastery with other forms of expertise. As ever,

Morozov (2017b) nails the core of this confusion by reference to underlying social interests. He poses the following question:

> How could one possibly expect a bunch of rent-extracting enterprises with business models that are reminiscent of feudalism to resuscitate global capitalism and to establish a new New Deal that would constrain the greed of capitalists, many of whom also happen to be the investors behind these firms? (Morozov, 2017b.)

During mid-to-late 2017 it was clear that, while the Internet giants were not about to collapse, social and political forces on both sides of the Atlantic were beginning to line up in broadly the same direction. Signs were emerging that might be called their 'golden age' could be coming to a close. In September, for example, the Guardian editorialised that 'Amazon's dominance of the eBook market may not have raised prices, but it left the sector anaemic and competition floundering'. Another commentator was quoted as saying of the oligarchs that he did not think 'any credible economist who isn't an Ayn Rand lunatic would accept that these are not monopolies'. More people than ever are becoming aware of the fact that something is very wrong with this picture.

During the same month Ben Smith, a well-regarded Buzzfeed writer, was among the first of many to confirm what he called a 'palpable, perhaps permanent, turn against the tech industry,' (Smith, 2017). He added that 'the new corporate leviathans that used to be seen as bright new avatars of American innovation are increasingly portrayed as sinister new centres of unaccountable power,' (Smith, 2017). In his view this constituted 'a transformation likely to have major consequences for the industry and for American politics' (Smith, 2017). He also reported on how politicians of widely differing views were urging 'big tech' to be considered less as private companies than as 'public utilities,' (Smith, 2017). After years of denying the value or relevance of treating the high-tech giants in the same way that Bell Telephone and Microsoft had been treated in earlier years (i.e. broken up into small units) anti-trust legislation was finally back on the agenda.

Similarly Washington senators Elizabeth Warren and Claire McCaskill both became involved in making anti-trust regulations part of the Democratic agenda over the next four years. Overall, the gap between ideas and effective action was perceptibly closing.

PART IV

HUMANISING AND DEMOCRATISING THE IT REVOLUTION

Humanising and democratising the IT revolution

> *A People's Internet is possible … Silicon Valley loves a good disruption, so let's give them one* (Scholz, 2016).
>
> *History is made by humans not by machines* (Taplin, 2017).

PUBLIC GOODS AND MORAL UNIVERSALS

If anything has become clear during the present enquiry it is that humanising the IT revolution requires something other than technical innovation. It obviously has many technical implications but the key drivers of a multi-faceted shift toward a different modus operandi are not technical but found within human, social and cultural contexts.

The current 'de-evolved' Internet and explosion of radically ambivalent high-tech innovations provide clear evidence of an extended and continuing cultural failure. Despite its many positive aspects we cannot avoid the fact that the US has become enmeshed in its own downward spiral. Countless words have been written on this topic but one core concern is its singular lack of success in creating viable 'public goods' such as free health care, quality education, protection from random violence and public wellbeing on a broad scale. Umair Haque (2017) argues that the lack of such goods separates the US from all other advanced

nations. The former spring from 'moral universals' that he suggests are largely absent from the US but which are needed to 'anchor a society in a genuinely shared prosperity.' Such universals don't simply 'spread the wealth' but help to civilise people. They 'let people grow to become sane, humane, intelligent human beings' – all characteristics upon which democracy depends. Any society lacking these characteristics simply runs out of steam. In this view, what happened in the US is that:

> They have never seen – and still don't see – the benefits: the civilising process that democracy depends on. Thus, in America today, there are no broad, genuine, or accessible civilising mechanisms left. … The natural consequence of failing to civilise is breaking down as a democracy – democracy no longer exists in the sense of "people cooperating by voting to give each other greater prosperity". They have merely learned to take prosperity away from one another (Haque, 2017).

Such suggestions must be treated as debatable, yet Haque is not alone in advancing this general argument. Noted Australian journalist, Peter Greste is in broad agreement. In his opinion 'since America's founding, its leaders have recognised that the country's real authority – as opposed to power – rests on its moral standing,' (Greste, 2017). Yet the routine outpouring of ignorance by the former US president 'placed the US on the same moral plane as some of the world's most ruthless tyrants.' He finds this 'deeply troubling' because 'without a clear moral framework, the world becomes a snake pit of competing national interests' (Greste, 2017). Such sentiments provide yet another factor that helps to account for the debased version of Internet usage and commerce that became normalised over recent years.

VALUES, WORLDVIEWS, RESEARCH

Taken together, the views discussed above go a long way toward

explaining why the Internet became compromised. It not only failed to deliver on the idealism of its early proponents but also became a source of exploitation, danger and oppression. The many and varied uses of IT are divided between the genuinely helpful and those that are routinely misused. At least two underlying rationales can be briefly mentioned here. One springs from value and worldview considerations. An outlook typified by greed, selfishness, exploitation and an underlying disregard for real human and social needs will produce, and has produced, applications adapted to these uses. On the other hand positive values such as generosity, care and respect, especially when coupled with socio-centric or world-centric outlooks, will be directed toward more widely useful and constructive uses. This identifies a core difference between, say, monopoly platforms that treat people like mindless sheep by driving them into the arms of the advertising industry, and socially useful innovations such as local currencies, that respect and build local economic and social wellbeing.

As noted above, a different, but related, rationale can be drawn from evidence-based Earth science that makes it abundantly clear that humanity is under real and unrelenting pressure to re-think the conditions of its tenancy on this small planet. Here values such as caring, foresight and obligations to future generations come to the fore. They simply make better sense in this context. Roger Dennis (2017) is not alone in suggesting that leaders in technology need broader and deeper views of the world. In fact he suggests that 'the industry doesn't need more programmers, it urgently needs more women, ethicists and philosophers'. Political decision-making about the uses and abuses of all classes of high technology need to be returned from 'defence' contractors, specialised labs and private corporations to well-staffed and properly equipped locations firmly placed within the governance and related structures of civil societies. This process will certainly include private initiatives that draw both on progressive values and emerging technologies to help break the multi-monopolies of

over-dominant players (Ahmed, 2017). It follows that effective and helpful innovation does not necessarily mean expanding the size of governments per se, but it will certainly require overturning any residual notion that 'markets rule.' Clearly they don't and can't.

Another way to 'humanise the future' is to ensure that sufficient human and economic resources are directed toward high quality evaluation and research. In late 2017, for example, the Oxford Internet Institute found clear statistical evidence that during the previous US election 'the balance between freedom of speech and election interference has been tipped.' Specifically 'Twitter users got more information, polarising and conspiratorial content than professionally produced news' and 'average levels of misinformation were higher in swing states than in uncontested states' (Howard & Kollanyi, 2017). Junk news is an ideal medium for the further propagation of junk science. So the researchers came up with a short list of actions to deal with the abuses they uncovered. These include:

- Up-dating the Uniform Commercial Code … forcing companies to adhere to basic anti-spam and truth-in-advertising rules;
- Ensuring that paid political content on social media is accompanied by the disclosure of backers;
- Social media platforms be required to file political advertising and bot networks with election officials; and,
- Bots in general be clearly identified to users (Howard & Kollanyi, 2017).

Not long after this, *The Economist* magazine (not particularly well known for having a progressive outlook) ran a 'leader' story that posed the question 'Do social media threaten democracy?' One reason provided was that 'far from bringing enlightenment, social media have been spreading poison' (Economist, 2017). Clearly

disquiet with social media is not limited to a few marginal sources. During 2017 disruptions to vital democratic processes – especially during the US election and the 'Brexit' referendum – carried out by Russian and other sources were acknowledged and documented in detail (Cadwalladr, 2017). Unfortunately these concerns were amplified many times over during the disastrous 2020 US election campaign and its violent aftermath. Clearly there is still a vast amount of work yet to be done in order to 'clean up' and re-orient social media toward more constructive ends. Some of the latter are briefly outlined below.

SHARING CITIES, PLATFORM COOPERATIVISM

Nowhere is the potential for new kinds of IT-enabled organisations and practices more timely and useful than in relation to cities and cooperatives. For example, in Darren Sharp's (2016) view the notion of Sharing Cities – rather than merely 'smart' ones lacking a social contract with citizens – can serve as 'an antidote to top-down technologically deterministic visions of the future.' His vision is one in which existing infrastructure such as wi-fi and spaces within public buildings are made more widely available. He looks to Seoul and Amsterdam for examples of how a sharing approach is actually working. In summary he suggests that 'Sharing Cities create pathways for participation that recognise the city as a commons and give everyone the opportunity to enjoy access to common goods and create new forms of shared value, knowledge and prosperity' (Sharp, 2016). That this is not an isolated example and should be seen in a much wider context is demonstrated in a fine collection of 137 case studies. This is much more than a 'how-to' reference work as it presents a vision for cities that situate people (rather than the market, technology or governance) at the core of what cities are and how they operate (Shareable, 2017).

In a similar vein Rushkoff (2016) explores the potential of

democratically focused social and economic innovations. Drawing inspiration from existing examples he highlights possible characteristics of IT-enabled 'steady state' enterprises, 'platform cooperatives' and 'genuinely distributist businesses.' Such features include the need to 'reclaim values' in support of 'women's equality, integrative medicine, worker ownership and local currency' (Rushkoff, 2016, p. 215-37). Platform cooperatives are among the most promising of new IT-enabled and democratically constituted organisational forms. One of the most thorough treatments of this emergent phenomenon is provided by Trebor Scholz. As with many other observers he is clear about the need for change. For example he writes that:

> We cannot have a conversation about labour platforms without first acknowledging that they depend on exploited human lives all along their global supply chains, starting with the hardware without which this entire "weightless" economy would sink to the bottom of the ocean. ... (Similarly) this isn't merely a continuation of pre-digital capitalism as we know it, there are notable discontinuities – new levels of exploitation and concentration of wealth for which I penned the term crowd fleecing. Crowd fleecing is a new form of exploitation, put in place by four or five upstarts, to draw on a global pool of millions of workers in real time (Scholz, 2016, p.3-4).

In Scholz' (2016, p18-21) view what he calls 'platform cooperativism' is the coming together of three elements: the existing technical know-how of existing monopoly platforms, a sense of solidarity and reframing concepts like 'innovation' with a view to sharing the rewards. He also provides a typology of platform cooperatives and a useful list of guiding principles:

- Ownership.
- Decent pay and income security.
- Transparency and data portability.
- Appreciation and acknowledgement.

- Co-determined work.
- A protective legal framework.
- Portable worker protections and benefits.
- Protection against arbitrary behaviour.
- Rejection of excessive workplace surveillance.
- The right to log off.

For Scholz (2016) the core of the issue is 'a new story about sharing, aggregation, openness and cooperation.' Equally significant is that his view of the present incumbents may be iconoclastic but it is certainly not punitive. Rather:

> The importance of platform cooperativism does not lie in "killing the death star platforms." It does not come from destroying the dark overlords like Uber but it comes from writing over them in people's minds, and then inserting them back into the mainstream (Scholz, 2016, p.26).

This is clearly a human and social process that seeks to recover values that were cast aside in the single-minded pursuit of growth and profit. This, it seems, is the very foundational work that can help to rehumanise and democratise both the Internet and the IT revolution on which it is founded.

VALUES AND MORAL DEVELOPMENT

This and the previous chapters have commented on certain values and worldview limitations that arguably characterise both the ethos of Silicon Valley and some of its leading figures. In 2017 John Naughton took up the issue of what he calls the 'astonishing naivety of the tech crowd'. For him a plausible explanation can be found in the restricted nature of the latter's educational backgrounds – mainly mathematics, engineering and computer science. He noted

that these are 'wonderful disciplines' but then went on to suggest that:

> Mastering them teaches students very little about society or history – or indeed about human nature. As a consequence, the new masters of our universe are people who are essentially only half-educated. They have had no exposure to the humanities or the social sciences, the academic disciplines that aim to provide some understanding of how society works, of history and of the roles that beliefs, philosophies, laws, norms, religion and customs play in the evolution of human culture (Naughton, 2017b).

Some may regard these as contentious topics yet there are quite straightforward ways of addressing them in this context. One is to go back to the Universal Declaration of Human Rights (UDHR) that was signed off by the United Nations (UN) in 1948. Here there are a couple of specific articles that speak directly to the themes of this paper, as follows:

Article 12

No one shall be subjected to arbitrary interference with his privacy, family, home or correspondence, nor to attacks upon his honour and reputation. Everyone has the right to the protection of the law against such interference or attacks.

Article 22

Everyone, as a member of society, has the right to social security and is entitled to realisation, through national effort and international co-operation and in accordance with the organisation and resources of each State, of the economic, social and cultural rights indispensable for his dignity and the free development of his personality (United Nations, 1948).

These statements clearly established that the nations of the world were firm in their belief that the privacy and dignity of all human beings were to be respected and maintained in perpetuity. After the horror of two disastrous world wars they were deemed to be of particular value and significance. Yet the high-tech sector almost everywhere seems to have lost sight of these vital commitments. Wendell Bell later took up the theme of 'universal human values' in volume two of his masterwork *The Foundations of Futures Studies*. Bell reminds us that what might be called the 'near-universals' of human life have never been restricted to a particular time or place. Values that promote survival imperatives are widely adopted because they support human well-being and civilisational progress.

He continues by discussing four values that he considers of major importance: 'knowledge, evaluation, justice and cooperation,' (Bell, 1997). He also mentions those from a survey carried out by Kidder: 'love, truthfulness, fairness, freedom, unity, tolerance, responsibility and respect for life' (Bell, 1997, p.181). Taken out of context such lists mean very little but they do indicate general orientations that have been highly regarded by most cultures over long periods of time. As such they are not to be readily dismissed. The picture becomes clearer still when Bell reviews Kohlberg's stages of moral development, summarised in Figure 2. (Kohlberg, et al, 1983).

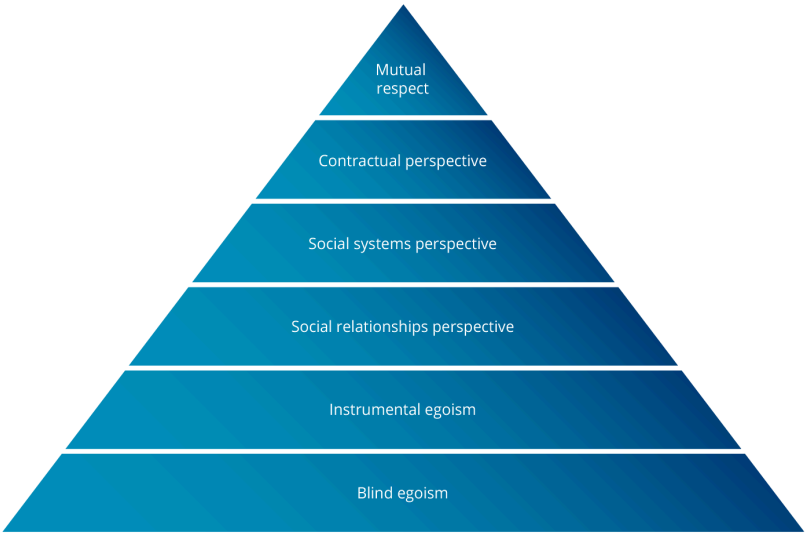


Figure 2. Social perspectives at six stages of moral development (Bell, 1997; Kohlberg et al., 1983).

Bell (1997, p.218) summarises some of the features of these stages in the following way.

Stage 6: Universal principles of justice, the equality of human rights and respect for individual human dignity are deemed to transcend the law itself. In this view it is rational to believe that 'doing the right thing' is based on an understanding that universal moral principles are valid. Personal decisions to uphold such principles affirm their continued salience over time.

Stage 5: A contractual perspective requires impartial support for agreed

core values, including that of trust in fulfilling contractual obligations. To this end it is helpful to recognise fundamental rights, such as the right to life and liberty, while not necessarily being constrained by fashion or transient opinion. Defensible ethical behaviour involves freely accepting such obligations and actively seeking the greatest benefit for the common good.

Stage 4: Embodies a focus on large and more dominant social institutions and the wider society as a whole. Group welfare is a primary concern, and it is in this context that obligations need to be fulfilled.

Stage 3: The need to be, and be seen as, a good person. Sustained loyalty is related primarily to particular groups and organisations. Individuals are keenly alert to the expectations of others in most situations. They are self-critical within these limited domains.

Stage 2: A bi-directional stance in which individuals pursue their own agendas while also remaining open to, and accepting of, those of others. Behaviour is, however, socially sanctioned since it is dependent upon on approval and reinforcement from others.

Stage 1: The locus of decision-making is largely external and, as such, lies beyond the individual. Motivation is therefore focused on routine, convergent behaviour and the avoidance of sanctions. 'Doing right thing' is identified with successfully following pre-existing rules and procedures.

It is for the reader to consider how well or badly the values and human qualities suggested here may apply to specific individuals and organisations that have colonised the Internet for their own limited purposes. But at the very least Bell and Kohlberg provide us with clear and reliable criteria that can legitimately be used as an evaluative scale. So in terms of moral development thus

defined, some organisations and their executive leaders may find themselves hard pressed to provide adequate answers. Which has huge social implications. When the question of re-negotiating social contracts is raised – and it will be repeatedly – then interlocutors can legitimately seek evidence for the fulfilment of these criteria at the highest levels. Possibly the most useful guidance and overall summary is provided by Bell himself when he suggests that ' People live best who live for others as well as for themselves' (Bell, 1997, p.275). Finally Figure 3 summarises some of the key suggestions made throughout this series back to an Integral perspective.

Figure 3. Humanising and democratising IT. (Adapted from Slaughter, 2010, p. 153)

A straightforward four-quadrant analysis illustrates how various right hand quadrant phenomena (including technology, infrastructure and exterior actions) can usefully be related back to various left hand quadrant equivalents (values, worldviews, stages of development etc. as expressed through a variety of cultural norms and conditions). It follows that one way of promoting more

humanised and democratic uses of any technology is to simply open to these left-hand quadrant realities and take them fully into account.

The story thus far has shown how the early Internet was shaped and conditioned by specific human and cultural forces within the U.S. After a fairly benign, government-funded start, a handful of entrepreneurs took over and, with little or no thought for wider consequences, actively fashioned the conditions for their own success. Tax laws were revised. Anti-trust regulations that had earlier been applied to Microsoft and the Bell Telephone Company were set aside. Strategies were undertaken through which private monopoly platforms would grow unhindered into the world-spanning behemoths of today. The rise of neoliberalism turbo-charged this process. Following Hayek, it viewed the government as an impediment to 'progress' and the market as an unquestioned good. These tendencies, along with Rand's nihilistic view of human existence, all helped to bring the present constellation of rootless and invasive entities to its present condition.

In an alternative world, competent far-sighted governance would have set the conditions for such enterprises and modified them progressively over time. Human rights (including the right to dignity, privacy and freedom from oppression) would have been respected and consciously built into the foundations of the Internet. Corporations would have learned to respect users and therefore to ask before expropriating creative work and private data wholesale for commercial gain. Tax laws that mediated fairly between corporate and social needs would have helped to ensure a steady flow of income for social expenditures. When entities grew too large they would have been broken up or otherwise compelled to adapt. Currently, however, we do not live in that world.

Yet, as can be seen from some of the many examples outlined above, there are a host of reasons to support informed optimism and hope, the framing of real solutions. Furthermore, it is helpful

to remember that some aspects of our situation are not entirely new. When Martin Luther hammered a copy of his 93 theses onto the Wittenberg church door some five centuries ago, he set himself against the oligarch of the day – the all-powerful Catholic Church. He questioned the legitimacy of that vast institution and, at the same time, began a process that both destroyed its business model and made way for alternatives. Today the underlying dynamic is suggestive but there are also clear differences. Luther's stripped down version of Christianity was a radical change but it still provided people with a sturdy moral framework to guide their thinking and behaviour. Such foundational certainties are more elusive in our own time. On the other hand this very fact arguably provides a rationale for recovering, re-valuing and applying some of the universal human values outlined above. The latter are perhaps among the most viable sources of strength and continuity available during times of transformation and change.

The legitimacy of the Internet oligarchs is now in doubt from many quarters and for a variety of reasons, so limits and conditions are likely to be progressively imposed. Similarly, the business model that daily abuses countless human beings is unlikely to survive without major changes being wrought by newly enfranchised, democratically constituted cooperatives and civil authorities. While government actions may be slow and, at times uncertain, this study suggests that a host of responses, innovations and alternatives is under active development. It is inconceivable that these will not change the nature of digital engagement over time. So it is indeed possible to look ahead with qualified optimism and to anticipate a new and different renaissance. A renaissance that sets aside technological adventurism and wild, unconstrained innovation, in favour of positive human values and cultural traditions that balance human dignity and rights on the one hand with the enhanced stewardship of natural systems on the other.

PART V

THE IT REVOLUTION REASSESSED

The IT revolution reassessed

> *Technology…is not intrinsically bad. Much of it … is brilliant and beneficial – at least to humans. But invention often originates in short-term or siloed thinking. And even more frequently, its application fails because of political and economic decisions taken with little heed for non-humans and future generations. … The old idea of conquering nature has never really gone away. Instead of changing ourselves, we adapt the environment … The United States, though, pays little heed to its pre-industrial history. The country's identity is deeply enmeshed with technology, which is treated as the great enabler of progress and freedom* (Watts, 2021).
>
> *A successful society is a progress machine. It takes in the raw material of innovations and produces broad human advancement. America's machine is broken. The same could be said of others around the world. And now many of the people who broke the progress machine are trying to sell us their services as repairmen* (Giridharadas, 2019).

This book began with a literature review and the identification of emerging issues and case studies. The latter included the Internet of Things (IoT) and the prospect of 'driverless cars.' Related evidence from these and other sources suggested that the broad, rapid and largely unreflected-upon adoption of Silicon Valley's high-tech offerings, while impressive in many respects, evolved from surprisingly narrow and inherently problematic foundations. A wide variety of human and social concerns have emerged that cast serious doubt on the viability of this trajectory and outlook. Among them are:

- Questionable values (unbounded profit, growth of monopoly power, size and over-reach in multiple domains).
- The calculated use of strategies intended to conceal how high tech and the growth of corporate power compromise and degrade many aspects of public and private life.
- Inadequate conceptions of human identity and purpose that contradict standards of safety, respect and dignity as defined, for example, in the UN Declaration on Human rights.
- Equally thin and instrumental views of socially vital concepts such as 'friends', 'communication' and 'progress.'
- One-dimensional views of high tech that bestow upon it an assumed and unquestioned ontological status that can neither be justified nor sustained.
- Failure to question self-serving practices that permit high-tech innovations to be released into social and economic contexts without due regard for unintended effects, drawbacks and long-term implications.
- How foresight and provident care have been overtaken by the naked power of speculative investments in ill-considered innovation, marketing and the resurgence of monopoly practices on a global scale (Slaughter, 2018b).

Chapter three considered some features of 'compulsive innovation,' took a brief look at artificial intelligence (AI) and also drew attention to the apparently unstoppable rise of surveillance systems around the world. Its main emphasis, however, was to begin the task of 'framing solutions.' It was proposed that certain 'blind spots' that afflict Silicon Valley, its investors and supporters, could be reconceptualised as opportunities to reframe and

re-direct the entire enterprise. A four-quadrant model from Integral enquiry re-focused attention away from the over-hyped exteriors of IT systems to highlight dynamic but widely overlooked interior phenomena such as worldviews and values. Habermas' insistence on the primacy of what he calls 'constitutive human interests' also served to anchor the discussion in these vital domains. The chapter reviewed a variety of strategies for better understanding and intervening in systems that undermine humanity's autonomy and well-being. They included:

- Transcending reductionism and re-purposing the Internet;
- Productive innovation; and,
- Humanising and democratising the IT revolution (Slaughter, 2018c).

It is universally accepted, however, that the IT revolution is anything but static. It is therefore unsurprising that a multi-faceted 'pushback' against the continued expansion and power of the Internet oligarchs has continued to grow and develop. In an *Atlantic essay* during mid-2019, Madrigal outlines 15 entities that he refers to as 'an ecosystem of tech opponents.' (Madrigal, 2019). This chapter draws on some of these newly emerging insights to extend the scope of the critique and provide further support for possible solutions. It begins with a view of the 'fractured present' and continues with four contrasting accounts by individuals who have, in quite specific ways, acted as 'witnesses' to this unprecedented upheaval. The upcoming chapters also employ a metaphor from The Matrix film trilogy to consider how the real-world matrix of high-tech entities and systems can be better understood, or 'decoded.' Overall, it suggests that the clarity of insight now emerging from such sources may begin to resolve the digital dilemmas we collectively face. It helps to establish the grounds for hope and effective action. Finally, we should not be under any

illusion that we are dealing with a stable situation or outlook. The over-reach of high-tech innovation and its thoughtless implementation has multiple costs and brings with it quite new dimensions of hazard and risk. In other words, we are treading unstable grounds ripe for change. But what kind of change and whose interests will prevail?

THE FRACTURED PRESENT

Many features of human history are known to work against integration and the smooth functioning of society. They include poverty, revolution, war, disease, the exhaustion of physical resources and imagination (Tainter, 1988). During recent centuries, and especially since the Industrial Revolution, new forms of human organisation and technology progressively extended this list, giving rise to new versions of old problems as well as entirely new ones.

During the early 21st Century, a particularly perverse combination of IT capability and capitalist values created powerful waves of change and dis-integration that now permeate our own fractured present. While it suited the institutional beneficiaries of the IT revolution (Silicon Valley behemoths, associated start-ups, investors, certain government agencies) to evoke the myth of progress and portray this 'revolution' as a broadly liberating force, that view has steadily lost credibility. A particular series of events occurring within a very specific historical context, sometimes known as the 'Neoliberal ascendancy,' unfortunately arrived at precisely the wrong moment. As global dilemmas became increasingly evident, the view that 'markets' should prevail over 'governance' was used to repeatedly delay or destroy many of the very adaptive responses upon which more far-sighted policies could have been based. US governments in particular failed to fully comprehend or restrain the aggressive, monopolistic strategies that arose in their midst. Consequently, no-one in positions of power and authority succeeded in subjecting these developments to sufficiently thorough-going assessment, technological or otherwise.

In retrospect, few people paused to consider the repercussions of these developments in future. Some may argue that this apparent blindness should be attributed to inherent human limitations, including plain, old fashioned naivety. Yet the fact remains that the Internet oligarchs intentionally obscured the growing costs of their activities behind a wall of self-serving propaganda, marketing glitz, for distraction and outright deception of the general public. The costs include undermining human agency, weakening democracy, destroying livelihoods, fracturing social systems and creating new sources of conflict and violence. The following vignettes evoke the 'lived quality' of situations replete with disturbing human consequences (Fazzini, 2019).

- A mother discovers that her 12-year-old son has become addicted to the hard porn he first encountered via friend's 'phone in a school playground.
- A student who'd sent intimate images of herself to her boyfriend finds herself being ogled and trolled months later by school acquaintances as well as strangers on the internet.
- New parents who'd installed a video monitor on their child's crib find out later that the feed was intercepted by thieves who used it to compromise their home network.
- A young man is hauled before a court for furiously striking his pregnant partner because she challenged his addiction to multi-player online gaming.
- The owners of any organisation with an online presence can switch their computers on one morning only to find that they've become a victim of 'ransom ware' and have been 'locked out' of all their data. To have any chance of retrieving it they are required to pay a sum of money in Bitcoin to a remote and unknown entity. Help is available but there's no guarantee the data will ever be recovered.
- A mature affluent woman falls for a good-looking former soldier on the internet who has run into hard times. As their relationship develops, he asks for financial help. After several such transactions the victim discovers that she has been sending money to a 20-something scammer in Nigeria.
- The would-be purchasers of a new property discover that the deposit paid into their lawyers' authorised account was diverted elsewhere by scammers and could not be recovered. The bank denies all responsibility.

These and countless similar examples have occurred, and are

occurring, almost everywhere. Table four provides an indicative overview under three broad headings.

Table 4	Human, Social and Geopolitical Costs of the IT Revolution
Human costs	• The loss of privacy on a vast scale. • Loss of control over private data and the uses to which it is put. • A steady decline in respect and tolerance for 'others' and other ways of being. • A growing tendency to stereotype, blame, exploit and attack from a distance. • Misuse of passwords to threaten, steal and control.; the rise of identity theft. • The rise of hacking, phishing, cyber-bullying and scams of every possible kind. • The rise of on-line predatory behaviour, including the sexual abuse of children. • Diminution of the right to be free of such abuse, and of the right to sanctuary. • Evisceration of the inner lives of countless individuals, especially in developing nations. • Propagation of false solutions and solutions to problems that do not exist (solutionism). • Propagation of vacuous 'entertainment' that degrades human life and experience. • The rise of equally vacuous 'influencers' who are richly rewarded for showcasing trash. • The active promotion of outrage as a means of creating 'user engagement.' • Careless and repeated abrogation of the 1946 UN Declaration of Human Rights. • Denial of the right to an open and 'surveillance free' life now and in the future.
Social costs	• Repeated assaults on the value of truth and the integrity of scientific knowledge. • The consequent weakening of social integration and clear-sighted decision making. • Radical questioning / undermining of precedence and authority in almost every domain. • The compromising of core human institutions such as: government, health and education. • The decay of social capital, traditions and ways of life built up over generations. • The deliberate or careless resourcing of 'bad actors' at every level and in every country. • The broadcasting of demeaning ideas, memes, narratives and images of every kind. • The curation, replication and use of anti-social 'performances' (including sexual assault and mass killings) that in turn promote further violence and destructive responses. • The deliberate use of dopamine reward responses to create and sustain addiction for commercial gain. • The deliberate and systematic appropriate of creative work – including that of artists, writers, musicians and journalists without any or adequate payment. • The associated 'starvation' of traditional news through direct theft of material and loss of funding through declining advertising income. • The attempt to replace government services funded by formal taxation with commercial for-profit costs levied by private companies in their own interests (for example, age care, health care, education and related social services). • The re-orientation of intra-nation security services from protection of native populations to the wholesale invasion of their privacy and autonomy. • The corresponding inability of governments to protect themselves or their citizens from random external cyberattacks.

Table 4	Human, Social and Geopolitical Costs of the IT Revolution
Geopolitical costs	• A continuing shift from the Internet as positive enabler of legitimate civil functions to a multi-dimensional liability, i.e. an expanding series of hard-to-fix vulnerabilities. • The willingness of nation states to develop increasingly powerful surveillance capabilities and high-risk interventions in the IT systems of other countries for purposes of intimidation and control. • The resulting 'dismal dialectic' by which competing nation states seek temporary advantage over others by pursuing ever more dangerous and threatening internet- and satellite-enabled offensive capabilities. • The growing likelihood of autonomous 'soldiers,' 'smart' drones and the like, bringing the prospect of cyber warfare ever closer. • The asymmetric benefits that accrue to 'bad actors' at every level. For example, Internet-enabled crime such as money laundering, financial scams, illegal transfers to and from rogue administrations. As compared with the very high costs of pursuing any kind of wrong-doing or criminal activities via Internet means. The costs of the latter tend to be very low, while the costs of pursuing it in terms of time, money and expertise are prohibitively high. • Multiple vulnerabilities arising from the lack of coordination and cooperation in the digital arena between the three largest centres of power and control: China, Russia and the USA. • The global emergency, however, recognises no political boundaries whatsoever. Although IT systems have achieved global reach few or no effective human / political organisations have emerged that are capable of providing integration and coordination on a similar scale. • Effective global governance appears to be a remote possibility at present.

These examples demonstrate how profoundly the IT revolution – as implemented by Silicon Valley and its clients – has helped to fashion the dangerous and unstable world that we now inhabit. It is a world that blunders into new dilemmas while failing to resolve those it already has. What many have overlooked, for example, is that to maintain what are now considered 'normal' operations, the high-tech world can no longer function without recourse to vast numbers of very complex devices operating silently in the background. The entire system is, in principle, vulnerable and needs to be constantly protected from entropic malfunction and deliberate on-line aggression (Galloway, 2020). Assurances regarding these endless liabilities have never been fulfilled. It is unlikely that they ever will be (Gent, 2020).

To summarise, Western civilisation has embarked on a process of high-tech development with certain well-known benefits and other less well-known costs for which there are apparently very few easy or ready-made solutions. It is therefore, worthwhile to enquire if the IT revolution itself may constitute a new and dangerous

progress trap (Lewis and Maslin, 2018). So instead of passively accepting the technology onslaught, it needs to be subjected to sustained critical enquiry. Exactly how does this historical condition affect life, culture, tradition and meaning? How, under these chaotic circumstances, can solutions be crafted that hold out real hope of recovering the collective future? In order to de-code the matrix we first need to understand how it developed and why.

UNDERSTANDING THE MATRIX

RED PILL, BLUE PILL?

In the first Matrix movie the lead character, Neo, is offered a choice between red and blue pills (Warner Bros, 1999). One will wipe his memory and return him to the world of conventional surfaces with which he is familiar. The other will open his eyes so that he can not only see The Matrix for what it is but penetrate into, and perhaps even influence it. He opts for the latter and as the mundane world slumbers begins his 'deep dive' into reality. The trilogy narrative may not be entirely coherent, but it certainly tapped some deep and perhaps obscured aspects of human psychology. In so doing it arguably triggered half-conscious questions or fears about 'what is really going on' with succeeding waves of technology over which we appear to have little or no control. The key word here is 'appear' since what is at stake are not immutable, natural forces or God-like injunctions handed down from above. Rather, the high-tech world has been created by individuals making critical decisions at the behest of people in real time and places with vested interests and imperatives.

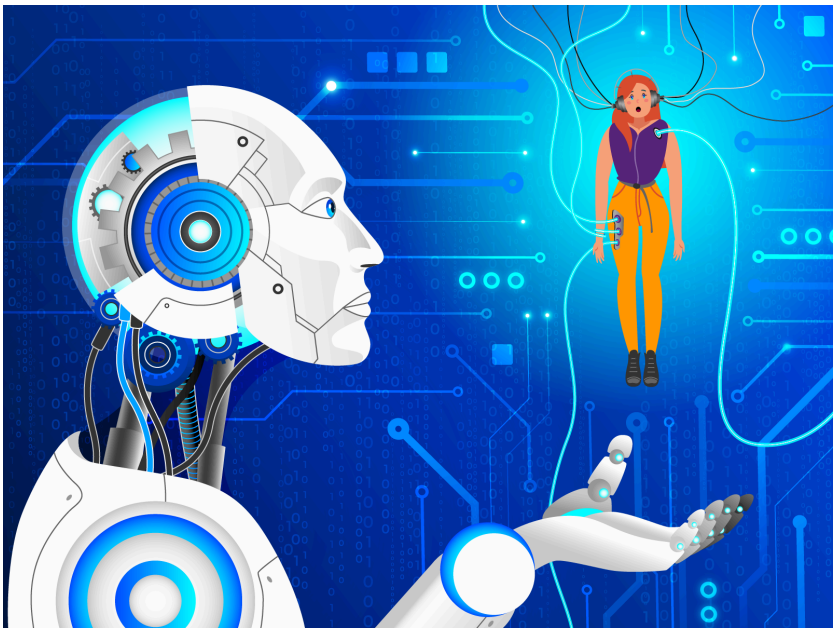
In the 'red pill' version of 'the real' the global monopoly platforms created by Google, Facebook and others are believed to exist to help us access information, explore human knowledge and connect with others around the world. We are led to believe that the power

of modern technology is at everyone's fingertips to do with as they will. In exchange for what are described as 'free' services, personal data from everyday lives and activities is scanned, recorded, used and sold. This information helps ever-attentive suppliers to better know and anticipate human needs. By drawing on as much information as possible dedicated Google users are, it is said, enabled to more efficiently navigate their way through an ever more complex world. For reasons best known to themselves some appear happy to install various 'digital assistants' that record their daily conversations. Some choose to unburden themselves of familiar low-grade tasks such as remembering train times, navigating a city or knowing what groceries to buy when. Which encourages them to use these services in real time. Dedicated 'always-on' monitoring devices that connect the young to their parents and friends and the elderly to medical support seem to have wide appeal. Yet prying on everyone, even in most private moments, are hidden armies of 'data aggregators' that sift and sort and organise the flood of information about what people do, where, how and even why they do it. It can be claimed that such technologies protect individuals from external harm and perhaps protect society from certain kinds of criminal activity. Overall, it is presumed that the 'red pill' provides a pretty fair bargain.

Such passive and generalised assumptions that the technology and the systems they are embedded in are benign and useful have been widely accepted. We know this because the monopoly platforms (and their investors) have grown so immensely rich and powerful on the proceeds (Bagshaw, 2019). A 'business-as-usual' view simply assumes that these arrangements are broadly acceptable – albeit requiring routine upgrades and related changes from time to time (improved 'personalisation', longer battery life, sleeker handsets etc). In the absence of countervailing perspectives and clear evidence, alternative views of high-tech modernity can be difficult or impossible to articulate. This is especially the case in less affluent nations where Facebook, for example, and its subsidiary

'WhatsApp,' are used by large numbers of people who confuse these invasive yet innocent-looking apps with the Internet per se. Given the strong tendency of social media to exacerbate dissent, extremism and even direct violence the consequences can be tragic. This has been seen in mass shootings, some of which have been streamed in real time. But a similar dynamic has occurred in other situations where social dissent has risen to such extremes that community violence and 'ethnic cleansing' have resulted. Two examples are the descent of the 'Arab Spring' into chaos and the expulsion of the Rohingya from their homes and villages in Myanmar to a precarious existence in nearby Bangladesh. Nor, given recent events, is the US immune from such consequences.

Clearly a 'blue pill' account requires real effort over time and a certain tolerance for discomfort and uncertainty. It raises disturbing questions that not everyone may be ready or able to pursue. It acknowledges the reality of what some regard as a true existential crisis with 'forks in the road' and pathways to radically different future outcomes. This view also suggests that the continuation and further development of surveillance capitalism leads directly to the kind of over-determined dystopian oppression already emerging in China (Needham, 2019). It therefore seeks to clarify just how the juggernaut works, to identify and name hidden factors, to expose the intangible forces that are working behind the scenes to shape our reality, and ourselves, in a variety of perverse ways. Yet before it can be tamed or directed toward different ends society needs to understand in some depth how we arrived at the point where societies are confronted by deformed versions of high tech and a fundamentally compromised Internet. Such an account clearly goes beyond the critique of technical arrangements to questions of purpose, history and context.



MISCONCEPTIONS, MERCHANDISING AND ADDICTION

The view explored here is that the IT revolution owes at least as much to human and cultural factors as it does to purely technical ones. For example, the barely qualified optimism with which it has been associated arguably owes more to marketing and merchandising – America's great unsought 'gifts' to the world – than it does to the services and distractions of any device whatsoever. The close association that's claimed to exist between technical innovations on the one hand and human progress on the other tells only part of the story and therefore remains problematic. Such generic 'optimism' is, perhaps, little more than a handy distraction used to conceal the predations of corporate power in this singularly heartless industry. As digital devices continue to penetrate nearly every aspect of human life, the forces driving them need close attention. They are shaped and enabled every bit as much by

unconscious pre-suppositions and cultural myths as they are by computer chips, hard drives and servers. Such underlying intangibles – values, cultures and worldviews – powerfully determine what forms technologies take and the uses to which they are put.

John Naughton, a seasoned observer of the shifting IT landscape has identified what he refers to as 'two fundamental misconceptions.' The first is 'implicit determinism' which he describes as:

> The doctrine that technology drives history and society's role is to adapt to it as best it can... that capitalism progresses by "creative destruction" – a "process of industrial mutation that continuously revolutionises the economic structure from within (Naughton, 2020).

In this view the second critical flaw in the worldview of Silicon Valley is 'its indifference to the requirements of democracy:'

> The survival of liberal democracy requires a functioning public sphere in which information circulates freely...Whatever public sphere we once had is now distorted and polluted by... Google, YouTube, Facebook and Twitter, services in which almost everything that people see, read or hear is curated by algorithms designed solely to increase the profitability of their owners (Naughton, 2020).

The 'determinism' and 'indifference' that Naughton refers to are two of many unacknowledged features that characterise this particular high-tech culture and degrade so many of its offerings. Another is the addiction to digital devices and the services they provide. Their appeal was 'designed in' with enormous care and strenuously promoted using every available marketing tool and technique. The language of advertising is, quite obviously, a projection of corporate interests and, as such, has no place for what might be called 'autonomous needs.' Its intrinsic conceptions of human beings, human life, are irredeemably reductive. The fact

that advertising has become the central pillar of the Internet is not something to be passively accepted. It requires an explanation.

During the post-war years, routine sales were regarded as too slow and uncertain, meaning that profits were always going to suffer. The advertising industry was a response to this highly 'unsatisfactory' situation. The whole point was to boost 'demand.' The strategy was so successful that over subsequent years 'consumer demand' became a 'meta-product' of this particular worldview (growthism) that expressed specific values (materialism, envy, consumerism etc). Buying and selling in this high-pressure mode made a kind of sense in the heady years of post-war America. The big mistake was to allow it to become so embedded, so much part of the 'American way of life' that it became normalised thereafter (Packard, 1962). Clearly times have changed, and those early imperatives make less sense than ever. Yet the present wave of IT-related selling continues to draw heavily on the very same manipulative tradition. One clear difference, however, with this new flood of products and services, is that entirely novel features appeared that seemed to by-pass rational thought and ethical evaluation. Compelling new devices and the apparently 'free' services that they enabled seemed to meet peoples' authentic needs for organisation, communication, and agency and so on. At the time they were mistaken for gifts. More recently, however, the nature, extent and costs of addiction to digital devices, especially for children and young people, have become impossible to ignore (Krien, 2020). Yet even now responses to such concerns remain slow, uncertain and largely cosmetic (Exposure Labs, 2020).

Heavily curated projections of IT as a neutral or positive enabler have clearly succeeded up to a point. But as more people experience the social, cultural and economic ramifications the legitimacy of digital manipulation will likely attract ever greater scrutiny. Societies permeated by powerfully networked digital devices not only operate along unconventional l lines, they also overturn earlier ways of life (Klein, 2020). The era of large-scale,

targeted and pervasive merchandising may not be over, but it does face new challenges that emerge from lived experience and the deep, irrepressible need for human autonomy. As people seek to understand their reality, their world, in greater depth they will be more willing to look beyond the photo app, the chat group and those innocent-looking Facebook pages where powerful AIs stare coldly back right into their soul. They will want to know why this unauthorised invasion happened and how it can be prevented from recurring. They will need a clearer understanding of the nuances of innovation and demand more honest explanations from those who shaped this revolution without regard to the consequences.

MONETISING DATA, INVENTING 'BEHAVIOURAL SURPLUS'

Google was incorporated in the USA in 1998 soon after the Mosaic web browser that opened up the Internet to the public. Data collected at that early stage was seen merely as raw research material for which authorisation was neither sought nor granted. Indexing the World Wide Web (WWW) provided reams of data which was analysed and fed back into the system for users' own benefit. It allowed users, for example, to fine tune their own searches. This arrangement recognised what had long been a standard feature of commercial practice – the inherent reciprocity between a company and its customers. But since Google did not have a distinctive product of its own the company was considered insufficiently profitable (itself a social judgement based on particular values and priorities). Subsequent discoveries, such as 'data mining' constituted a 'tipping point' that changed everything. Rich patterns of human behavior were progressively revealed but the research interest no longer applied; it was overtaken by commercial imperatives. These covert profit making operations were regarded as highly secret and were shielded from public view. A further critical shift occurred when it was realised that the

avalanche of new data could be manipulated and monetised. The vast potential was eagerly welcomed by Google's equity investors who, as Google announced at a 1999 press conference, had contributed some US$25 million to the company. These investors, with their value focus on money, expansion and profit, brought strong pressures to bear with the sole aim of boosting the company's financial returns in which they now held a powerful interest. None of these activities apparently broke any laws or regulations as they existed at the time, so were not considered illegal. The best that can be said is that they were, perhaps, 'non-legal' in that they took place in secret and within a regulatory vacuum.

Very few understood at the time that this constituted a critical point of transition from one form of commercial activity to another. But it was consistent with Google's priorities which had never been on improving peoples' lives or contributing to society in any meaningful way. A couple of years later one of Google's founders, Larry Page, spoke about further options that lay beyond mere searching operations. This was made explicit when he declared that 'People will generate huge amounts of data… Everything you've heard or seen or experienced will become searchable… Your whole life will be searchable' (Zuboff, 2019, p. 98). As Zuboff (2019, p.68-69) notes 'Google's users were not customers – there is no economic exchange, no price and no profit. Users are not products but sources of raw-material supply.' She adds that:

> Google turned its growing cache of behavioural data, computer power and expertise to the single task of matching ads with queries… It would cross into virgin territory. Search results were…put to use in service of targeting ads to individual users… Some data would continue to be applied to service improvement, but growing stores of collateral signals would be repurposed to improve profitability both for Google and its advertisers. These behavioural data available for use beyond service improvement constituted a surplus, and it was on the strength of this behavioural surplus that the young company would find its way to the

> "sustained and exponential profits" that would be necessary for survival (Zuboff, 2019, p.74-5).

To achieve this ambition the company simply ignored social, moral and legal issues in favour of technological opportunism and unilateral power. These were and are all human decisions, human inventions, not 'an inherent result of digital technology nor an expression of information capitalism.' This was an 'intentionally constructed at a moment in history (that represented) a sweeping new logic that enshrined surveillance and the unilateral expropriation of behavior as the basis for a new market form. (It) resulted in a huge increase in profits on less than four years' (Zuboff, 2019, p.85-7).

Greed and opportunism were, however, not the only factors involved. The dominant Neoliberalist ideology succeeded in reducing the scope and power of government regulation and promoting a structural shift toward market-led practices. Anti-trust strategies that had previously been used to constrain monopolies were also set aside leaving companies to expand seemingly without limit. As mentioned below, Zuboff and Snowden both refer to the aftermath of the 9/11 disaster when the CIA and other government agencies formed a powerful but hidden alliance with Google. The former made a fatal choice to draw as fully and deeply as possible on the very surveillance techniques pioneered commercially by Google. These two highly secretive entities then found ways to conceal their surveillance operations not merely from the public but also from Congress. The immediate result was a decisive shift away from 'privacy' toward a new and dangerous type of 'security,' (Snowdon, 2019; Greenwald, 2015). Earlier aspirations for an 'open Internet,' and the long-standing value assumption that human rights were paramount, were abandoned. The scope of these changes was admitted in 2013 by former CIA Director Michael Haydon when he acknowledged that 'the CIA could be fairly charged with militarising the World Wide Web' (Zuboff, 2019,

p.114). These developments arguably set the stage for the present dangerous and unstable geopolitical situation we now face.

Google became progressively stronger. Its targeted advertising methodology was patented in 2003 and the company went public in 2004. Profits rose precipitously and it soon became one of the world's richest companies. In its rush for dominance and profit it pursued a series of unsanctioned, non-legal projects such as Google Earth (2001), an eventually unsuccessful attempt to 'digitise the world's books' (2004); (Guion, 2012) and Street View (2007). While all have their uses, the company's supreme over-confidence and ignorance of common values repeatedly demonstrated its complete lack of interest in seeking or gaining legitimate approval. What it did obtain within the US was 'regulatory capture' of government policy. The question that will not go away, however, is whether any private company should be allowed to have this power and whether that power is better invested in public utilities charged with pursuing social well-being rather than private profit. Such distinctions matter a great deal and have implications beyond IT. In 2012, for example, Google paid its dues to its ideological friends by bestowing generous grants upon conservative anti-government groups that opposed regulation and taxes and actively supported climate change denial (Zuboff, 2019, p.126). Hence the regressive aspects of Google's business model and sense of entitlement clearly extend far beyond the surveillance economy per se.

Having opened out vast new and undefended territories of 'behavioural surplus,' Google's model was emulated by many others, beginning with Facebook (Taplin, 2017). Today Google's penetration into nearly every aspect of social and economic life is more extensive, more powerful than that of any nation state. Yet the legitimacy of these operations remains as problematic as ever. In order to understand and confront the Matrix cultural factors, powerful individuals and obscure decisions all need to be taken into account.

PART VI

WITNESSES TO THE REVOLUTION

Witnesses to the revolution

> *The application of Hayek's Big Idea to every aspect of our lives negates what is most distinctive about us. It assigns what is most human about human beings – our minds and our volition – to algorithms and markets, leaving us to mimic, zombie-like, the shrunken idealisations of economic models… As a result – the space where we offer up reasons and contest the reasons of others – ceases to be a space for deliberation, and becomes a market in clicks, likes and retweets. The internet is…magnified by algorithm; a pseudo-public space that echoes the voice already inside our head.* (Metcalf, 2017).
>
> *You only have to spend billions marketing something if its worth is in doubt* (Meadows, 2001).

The steady emergence of publications and new sources of insight into the substantive character of the IT revolution arguably constitutes a counter trend in its own right since understanding precedes action. Although it is beyond the scope of any single paper to survey these in detail, four sources qualify particular attention. They are *Permanent Record* (Snowden, 2019), *The Psychology of Silicon Valley* (Cook, 2020), *The Age of Surveillance* Capitalism (Zuboff, 2019) and *How to Destroy Surveillance Capitalism* (Doctorow, 2020). Snowden's (2019) focus is primarily on his experience as a trusted member of the US security apparatus. He explains how, in the normal course of his work, he was confronted by critical changes in the way his government reacted to geopolitical shifts and events. He was shocked to discover how the surveillance options enabled by newly emerging technologies

were turned upon the American people. Cook's career began as co-founder of a non-profit organisation focusing on the effects of technology. This, in turn, led her to consider how high tech affects society more generally. From here it was a short step to exploring the psychological dimensions of Silicon Valley, the single most influential incubator of these changes. Her conclusions add compelling detail to the overall picture.

Zuboff's (2019) was a university business professor with long-standing interests in how new technology affected workers and organisations. This earlier focus provided a sound basis for her detailed investigation into how the Oligarchs were created. Of greatest significance, perhaps, was her in-depth exposure of the stealth methods embedded in their business models that allowed them to successfully avoid detection and regulation for so long. From here she provided a rich account about how they undermined democracy and social norms in the pursuit of larger profits. Doctorow (2020), on the other hand, is a radical thinker with strong and well-established links within the IT subculture. His work embraces fictional and non-fictional approaches to IT-related issues. Thus, he has a distinctive 'insiders' view both of the tech itself and the critiques advanced against it. As such he provides his own critique of Zuboff's contention that the main culprit here is 'rogue capitalism.' For Doctorow (2020) the main issues concern the resurgence of monopolies and the need for far more comprehensive digital rights.

Taken together the authors of these works qualify as 'witnesses to the revolution.' As such, they serve as a corrective to the prevailing view that this revolution is primarily about technology and the growing array of high-tech digital devices. Readers of earlier works will also be aware that Integral approaches distinguish between inner and outer realities as well as individual and collective ones. Hence much of our interest here is how this revolution has affected, and is continuing to affect, the inner lives of people, organisations and cultures.

SNOWDON'S DILEMMA

In contrast to other, more in-depth treatments, Snowden's account is straightforward, almost banal. After being injured during army training his proficiency in IT enabled him to begin working in the security sector. He worked his way up through various government agencies and eventually earned the envied 'most trusted' status. With an unquestioned belief in the goals and purposes of this work he became adept at handling highly classified material. Until 9/11; after which everything changed. He discovered incontrovertible evidence that, contrary to accepted practice and in direct contravention of the US constitution, the US government had started spying on its own people. Back in 2004/2005 he'd been aware of an unclassified report that outlined some superficial details of the President's Surveillance Program (PSP). This allowed for 'warrantless wiretapping' of citizens' communications and was supposed to wind down within a couple of years. Several years later, however, the classified version intended only for a very highly restricted group turned up on his desk. It described a secret program known as STELLARWIND which described how 'the agency's mission had been transformed from using technology to defend the country to using it to controlling it.' This had been achieved by 'redefining citizens' private Internet communications as potential signals intelligence.' He realised that 'the activities it outlined were so deeply criminal that no government would ever allow it to be released unredacted.' The National Security Agency (NSA) argued that 'the speed and volume of contemporary communication had outpaced, and outgrown, American law … and that a truly global world required a truly global intelligence agency.' This, in turn, and according to 'NSA logic,' led to 'the necessity of the bulk collection of internet communications' (Snowden, 2019, p.177). In summary, the way that STELLARWIND was being used meant that instead of working to defend the US and its citizens,

the NSA had started to identify their private communications as standard 'intel' ripe for unlimited collection and analysis.

What Snowden had unwittingly discovered was what he called a 'culture of impunity' that had somehow circumvented the Legislative Board, the Judiciary, Civil Society representatives and even the US Executive Branch. Notions of 'privacy' that, as noted earlier, had supposedly been enshrined in the post-war UN Declaration of Human Rights, had been trashed without any real public justification, debate or explanation. These were political decisions taken under the protective cover of 'security' – but that was not all. There was something about the technology itself that opened it to such egregious misuse. Snowden realised that while regulatory regimes were specific to each country, technology crossed borders with impunity and remained largely intact. This meant that the spread of personal data was, in principle, unlimited. Moreover, its unconstrained proliferation extended throughout and beyond individual lives. It also struck him forcefully that no previous generation had ever had to face such a profound symbolic assault on their privacy and continued well-being. Since we were the first, it was essential that we faced up to what was happening and dealt with it.

Such conclusions are decidedly 'non-trivial.' They indicate global changes of state that cannot but affect humanity in powerful but little-understood ways. Among these are that the overreach of high tech and unconstrained power appear to lead, in Snowden's words, to 'a vision of an appalling future.' He is therefore justified in asking: is this indeed what we are willing to impose on present and future generations? In this view humanity appears to have reached what might be called 'a historical pivot' of unknown dimensions. While Snowden has been portrayed as a 'whistle blower' or even 'traitor' it's clear that he is neither speaking for himself, nor pursuing merely personal interests. He seeks to act on behalf of humanity and, indeed, of future generations. As such the values being expressed here are clearly world-centric in scope and the

worldview post-conventional. His decision to leave the US for what could well become a lonely and isolated life in exile became a moral imperative. Robert Mann's (2014) account of the Snowden story is exemplary. It not only accurately captures other personal aspects but also shows how decisions after the 9/11 attack at the very highest levels of the US government contradicted the constitution *and* normalised criminal uses of the internet. This, in turn, established a series of precedents that made it that much easier for other nations to follow suit. It was, at heart, a fatal abnegation of world leadership with immense long term costs into the future.

Two points stand out here. First, his view from the inner recesses of the US security apparatus raises deeply concerning questions about just what values are operating there. Second, if those values and their associated motivations serve to undermine, rather than protect civilised life, the capacity of US governance to deal firmly and decisively with the many dilemmas raised by its own agents of high-tech innovation can also be compromised. It follows that the identity, values and culture of Silicon Valley (SV) are central and need to be taken fully into account. The myths and stories it tells, the narratives it projects upon the wider world have real consequences, some of them contradictory and severe. A psychological profile of the Valley helps to provide a more nuanced understanding of how we arrived at this particular point in history. Equally, such a profile, if credible, might well provide useful insights into just what changes in its culture and worldview may be required.

PSYCHOLOGY OF SILICON VALLEY

Katy Cook's decision to explore the psychology of Silicon Valley began with questions that have occurred to many others. How, for example, was it that so many people were becoming addicted to successive waves of high-tech devices? What might be the

cumulative effects on health, wellbeing and relationships? Where is all this unregulated innovation taking us? Her initial involvement was with a non-profit organisation that considered the effects of technology and ran awareness campaigns on possible responses. The perspective she later developed is useful here because, in contrast to more common everyday external views of the IT revolution, she focuses on internal aspects that normally remain implicit, out of sight, and thus seldom considered. Viewed from a psychological perspective, however, the Valley and all it represents, looks decidedly darker and more problematic than the upbeat public persona it presents to the world. It highlights, for example, the fact that there are major differences between what this world-shaping entity would like others to believe and what it actually is. Cook's view is essentially that SiliconValley has been 'corrupted' because it prioritises the wrong (i.e. socially damaging) things. These include making profit and growth the ultimate values, owners and shareholders the ultimate beneficiaries and the use of outright lies and manipulative evasions as core strategies. At heart, she believes, the Valley fails to understand itself. This may seem an obvious point, but it has real implications. It means, for example, that in spite of its wealth and power (or perhaps because of them) it lacks the qualities that psychologists have long associated with 'emotional intelligence.' These are serious charges so it's worth summarising the evidence.

Under 'identity' she notes that the Valley sees itself as an 'ideas culture.' Whereas in earlier times this was linked with counter-cultural aspirations for a more open and democratic future, established businesses and their investors remained doggedly focused on the same old 'extractive' culture. Big ideas are said to thrive in Silicon Valley but they are narrowly applied in the search for technical solutions. This makes greater sense when key traits of programmers and computer specialists are revealed. A considerable body of evidence shows that they are skilled at puzzle solving but they neither like, nor are much interested in,

people. Moreover, the industry actively selects for 'anti-social, mathematically inclined males' (Cook, 2020, p.24). The author is not alone in suggesting that the 'high-fliers' of Silicon Valley should be considered, in some crucial respects, as 'under-educated.' This initially startling conclusion is supported by evidence that their educational backgrounds are strongly associated with science, maths and engineering but lacking when it comes to the human sciences. With this in mind we need look no further to explain what Cook (2020) regards as 'a staggering amount of unconscious bias.' In summary, she identifies three key issues:

- Tech tends to be an uncommonly homogenous culture, marked by a lack of diversity and an unwillingness to embrace pluralism.
- It is rife with discrimination, including sexism, ageism, and racism, as well as harassment.
- There is a disturbing level of immaturity that permeates many corporations, often emanating from the highest levels (Cook, 2020, p.39).

For these and related reasons the author concludes that, industry-wide, there's evidence of a 'working environment that is fundamentally broken and unhealthy.' It's entirely consistent with this view that the myths and stories promulgated by Silicon Valley have been carefully curated at huge expense by marketing experts with the sole purpose of exerting desired effects on affluent, but distinctly naïve, populations. A litany of manufactured 'sound bites' familiar to many, reveal attempts to portray Silicon Valley's major companies in a more positive light. They include 'Bring the world closer together'; 'Give everyone a voice' (Facebook); 'Organise the world's information' (Google); 'Broadcast yourself (YouTube); 'Make tools that advance humankind' (Apple); 'Work hard. Have fun. Make History' (Amazon) etc. (Cook, 2020). Thus, while they may claim

to reflect 'lofty aspirations' and 'benevolent ideals' they are just as likely to be 'false and toxic aphorisms designed to mask the true intentions of the companies who craft them.' Such slogans are intended to distract attention from the underlying aims of the industry which are to 'bring in the largest amount (SIC) of users, for the longest period possible, at the most frequent rate.' Hence, overall CV 'has managed to paint a self-serving picture of itself that fails to reflect the reality of its priorities and intentions' (Cook, 2020, p.70). The key point to note is the divergence between what Silicon Valley says and what it actually does. 'Capital' she notes, 'doesn't want to change the world. (It just) wants to make more capital,' (Cook, 2020). And this really is the heart of the issue. Many of the claims that emerge from Silicon Valley seek to promote 'desirables' such as engagement, connection, friendship and the like. But behind such pronouncements there is a barely concealed moral vacuum. There is no reality at all in shared 'background myths' such as 'tech knows best' or that these companies can in any way be considered 'trustworthy custodians.' The motivations and values underlying what they actually do clearly point in a quite different direction.

Cook (2020) points to the tension between 'socially liberal values and techno-capitalist incentives' noting that the latter remain focused on the kinds of limited short-term profit-oriented values mentioned above. But what she calls the 'transgression' of Silicon Valley 'is not so much a result of 'for-profit' and 'corporate priorities' so much as a 'gross misrepresentation of its motives,' (Cook, 2020). Sufficient time has now passed for some of the consequences to become clear. She adds:

> SV has spent years and billions of dollars persuading the public to worship an industry that claims to have its best interests at heart. (However) the tech industry is driven by the same market forces as any other market-driven industry … Placing greater importance on making money than on taking care of people's needs results in a society with deeply unhealthy values, in which people come second to financial objectives. A society built on such values loses

> a great deal of its capacity for humanity. We have allowed the tech industry, through a lack of regulation and the proliferation of unhealthy behavioural norms, to become the bastion of an economic order that has abandoned morality in favour of dividends for an elite few. (Furthermore), 'research has found evidence of an inverse relationship between elevated social power and the capacity for empathy and compassion' (Cook, 2020).

The divergence between what Silicon Valley claims to have delivered and what it has actually achieved is undoubtedly one of the chief underlying causes of the deep social divisions, disunity and perpetual conflict that have sadly become among the distinguishing features of American society. Having failed to rein in the Oligarchs and related financial and corporate interests the US appears to have suffered a 'collective breakdown of order, truth, and the psychological orientation they provide.' The profit and ad-driven business model that Silicon Valley adopted thrived on the back of social trends that have progressively undermined the coherence and status of truth, respect and fact-based debate. Those trends include radical individualism, market fundamentalism, polarisation, volatile dissent and a callous indifference to the well-being of others. Hence, 'digital disinformation' now constitutes a serious global risk not only to the US but also to the whole world.

Clearly, the spread of such disruptions and distortions across entire populations does not end at the level of damaged individual lives. The deliberate and forceful ramping up of 'engagement' by any means deemed necessary ensured that the overall costs continued to mount such that a full accounting is unlikely to ever be rendered. While the potential for good certainly existed at the outset, the combination of naivety, greed and lack of oversight / regulation allowed a toxic ecology of dangerous technology-enabled innovations not merely to emerge but also be normalised. Collectively these drove the overall costs of the IT revolution into quite new territory. It was no longer simply a

medium for individuals and powerful groups. it swelled with 'bad actors' of every kind, from petty criminals to nation states. What has since emerged even exceeds what the 'dark market' could achieve (Glenny, 2011). Both the disastrous 2016 US election and Brexit demonstrated that entire societies are no longer protected from digital manipulation. Which helps to explain why during 2019-2020 the world found itself backing uncertainly into a state of geopolitical instability and the ever-growing threat of global cyber war (Zappone, 2020).

FINDING OUR BEARINGS, CHALLENGING LEGITIMACY

Close to 700 pages *The Age of Surveillance Capitalism* is not, by any means, a 'quick read.' The language makes few concessions and the barely concealed passion behind some sections is perhaps not entirely consistent with standard academic conventions. Yet the effort to come to grips with this revelatory and courageous work could hardly be more worthwhile. In effect the author re-frames key aspects of the last few decades, the time when IT took on new forms and, literally invaded human awareness, ways of life, before anyone grasped the significance of what was happening. Now, that the details of this invasion have been documented in compelling detail, a fundamental reorientation (both to the high-tech systems and, more importantly, to those in whose interests the present deceptions are maintained) can be envisaged. Which is no small achievement. At the macro level revised understandings of the recent past allow for a re-consideration of the present from which may emerge distinctively different futures than earlier, more anodyne, default views had perhaps allowed. For example, Peter Schwartz' over-optimistic vision in *The Long Boom* (2000) is one of many that saw the coming IT revolution in highly overwhelmingly positive terms.

One question answered early on is: who was responsible for this invasion? There's a distinct cast of characters, prominent among which are the owners and investors of Google, Facebook and similar companies. Behind these organisations, however, are many others including neo-liberal ideologists, venture capitalists, several US presidents and powerful agencies closely associated with the US government. Yet even that's too simple. As is clear from Snowden's account, Bin Laden, the prime mover of the 9/11 attack, also had an influence since it was this event that led US security agencies to pivot away from earlier concerns about 'privacy' in favour of a particularly invasive form of 'security'. It's a bit like the 'rabbit hole' featured in the Matrix film trilogy: the further down you go, the more you find. Zuboff, however, is far from getting lost. She locates dates, events, players and consequences in a highly disciplined and comprehensible way. Her almost forensic methods open up the possibility of knowing what has happened, understand it and gain clarity about what responses may be needed.

Part of Zuboff's contribution is terminology. She provides a language and a framework that serves to reveal much of what's been hidden and to resource the projects and actions that are clearly needed. It's necessary to note, however, that no language is objective and early attempts to create one based on quite new phenomena are bound to require critique and modification over time. Language is, of course, anything but static. A couple of examples will suffice to demonstrate the relevance of these interventions. One is a notion of the 'two texts;' while a second is about learning to distinguish between 'the puppet' and 'the puppet master.' In the former case she makes a strong distinction between what she calls the 'forward text' and the 'shadow text.' The forward text refers to that part of the on-line world that users of, say, Google and Facebook, can see, use and be generally be aware of. This embraces the whole gamut of design features intended to keep people in the system where their actions and responses can be constantly harvested and sold to others (data processors,

advertising companies, political parties and the like). The simplest way to think of this 'text' is to view it as the 'bait' that keeps people returning for repeated dopamine hits. The 'shadow text' refers to the vast hidden world owned by, controlled by, and singularly benefitting from what Zuboff (2019) calls the 'extraction imperative'. This is a secretive world that, even at this late stage, has experienced minimal regulatory oversight, especially in the US, the country of origin. Similarly, in the second case, a so-called 'smart phone' can be regarded as 'the puppet' that appears to operate according to its proximate owner's bidding. Whereas the remote owners of hidden intelligences (a vast network of dedicated AI applications) are the invisible and currently unaccountable masters. Knowing how to use the former as a tool and enabler is one thing. Coming to grips with the hidden imperatives of the puppet masters is quite another. The separation between the two is corrosive, sustained and entirely deliberate. Knowing this can provide part of the motivation to respond by acting in defence of human autonomy itself.

The author carefully explores how this system became established and how it morphed from being something useful that initially supported peoples' authentic needs (for connection, communication, identity, location etc.) into an all-out assault on each person's interior life. The shift from serving customers with high quality search functions to ruthlessly exploiting their personal details is described in detail. Even now, following the Cambridge Analytica and similar scandals, few have yet grasped just how far this process of yielding their interiority to what Zuboff (2019) calls 'Big Other' has gone. For example, she documents how it exerts particularly savage consequences on young people at the very time when their identities, sense of self etc. are already unstable as they proceed through the upheavals of adolescence. She has strong words for what is involved (Zuboff, 2019). For example:

> Young life now unfolds in the spaces of private capital, owned and operated by surveillance capitalists, mediated by their 'economic

> orientation' and operationalised in practices designed to maximise surveillance revenues... (Consequently) ...Adolescents and emerging young adults run naked through these digitally mediated social territories in search of proof of life... (Zuboff, 2019, p456 & p.463).

Immersion in social media is known to be associated with a range of symptoms such as anxiety and depression but this particular rabbit hole goes deeper. Viewed through the evidence presented here a combination of 'rogue capitalism' with the far-reaching capabilities of digital technology are bearing down on matters of primary and non-negotiable interest to all human beings. That is, the capacity of everyone to know, value and, indeed, to maintain their inner selves. It's here that Zuboff (2019) introduces a pivotal concept – the primacy of what she calls 'the latency of the self'. She writes:

> What we are witnessing is a bet-the-farm commitment to the socialisation and the normalisation of instrumental power for the sake of surveillance revenues... In this process the inwardness that is the source of autonomous action and moral judgement suffers and suffocates (Zuboff, 2019, p.468).

Thus far from being the fulfilment of humanity's aspirations and dreams, what she calls surveillance capitalism leads to 'the blankness of perpetual compliance,' (Zuboff, 2019). Attentive readers may well ask 'have we not seen this before?' We have, not only in the great dystopian fictions of our time but also in recent history. History shows that when entire populations are deprived of their inner lives, their deepest sense of self, they become depressed, diminished and even disposable. Zuboff gives credit to some of the early responses, many by the European Union and some member states. Yet there's a long way to go before the myths promulgated by the Internet oligarchs are recognised by entire populations (and the politicians who represent them) and seen for what they are: a sustained assault by secretive but radically

indifferent private entities on the very foundations of their humanity.

PERILS OF MONOPOLY

Zuboff's opus has obviously contributed much to the process of 'de-mythologising' the IT revolution and revealing the practices of some of its key players. It is both an analytic triumph and, at to some extent, a personal crusade. It is to be expected that other observers will exhibit different and contrasting responses. E.L. Doctorow's account is informed by a more close-up, participant view of what the IT revolution is and does. His detailed view of how the new media actually work in practice suggests that the 'surveillance' side of the story, while dangerous and objectionable, may not be quite as trouble-free and all-powerful as it may first appear. In his understanding it is also, to some extent, a kind of double-edged sword with its own distinct weaknesses. So, rather than take on the Internet Oligarchs in a kind of 'frontal assault' he considers some of the traps and issues that make them appear less monolithic and somewhat less threatening. Specifically, he suggests that the primary focus needs to shift from surveillance per se to the raft of problems he associates with monopolies. For example:

> Zuboff calls surveillance capitalism a 'rogue capitalism' whose data-hoarding and machine-learning techniques rob us of our free will. But influence campaigns that seek to displace existing, correct beliefs with false ones have an effect that is small and temporary while monopolistic dominance over informational systems has massive, enduring effects. Controlling the results to the world's search queries means controlling access both to arguments and their rebuttals and, thus, control over much of the world's beliefs. If our concern is how corporations are foreclosing on our ability to make up our own minds and determine our own futures, the impact of dominance far exceeds the impact of manipulation and

> should be central to our analysis and any remedies we seek (Doctorow, 2020).

Or again:

> Data has a complex relationship with domination. Being able to spy on your customers can alert you to their preferences for your rivals and allow you to head off your rivals at the pass. More importantly, if you can dominate the information space while also gathering data, then you make other deceptive tactics stronger because it's harder to break out of the web of deceit you're spinning. Domination — that is, ultimately becoming a monopoly — and not the data itself is the supercharger that makes every tactic worth pursuing because monopolistic domination deprives your target of an escape route (Doctorow, 2020, p.10).

From this point of view the very real dangers and dysfunctions that Facebook, for example, imposes on users have a simple solution: break the company up into smaller elements and divest it of those it has monopolistically acquired. Of great interest in the present context, however, is that while Facebook's surveillance regime is 'without parallel in the Western world' and constitutes a 'very efficient tool for locating people with hard-to-find traits,' it cannot allow normal discussions to run unmolested. This is because the latter cannot deliver sufficient ads (or hits on ads) in the high-intensity mode demanded by the business model. The company therefore chose to boost what it calls 'engagement' by injecting streams of inflammatory material in order to create 'artificial outrage.' The fact that these can be dangerous and costly in the real world accurately demonstrates the perversity of the model and completely undermines any pretence that Facebook might contribute to social well-being. Thus, the writer is less concerned about the data capture per se than he is about the way the growth of monopolies forces people to consume the kind of material that makes them miserable! In this account the 'big four' (Facebook, Google, Amazon and Apple) all rely on such positions in order to dominate their respective market segments. In summary:

- Google's dominance isn't a matter of pure merit – it's derived from leveraged tactics that would have been illegal under 'classical' (pre-Reagan) anti-trust regulations.
- Similarly, Amazon's self-serving editorial choices determine what people buy on that platform. Consumers' rights are overwhelmed because the company's wealth and power enable it to simply buy up any significant and rivals or would-be competitors.
- On the other hand, Apple is the only retailer permitted to sell via its products on its own platforms. It alone controls what products are allowed into its 'secret garden' (the app store). It monitors its customers and uses its dominance to exploit other software companies as 'free-market researchers' (Doctorow, 2020, p16).

The fact that these monopolistic conditions have remained for well over a decade with little or no regulation once again reveals the inability of successive US governments to understand or respond to what has been happening in their midst. As Doctorow (2020) notes 'only the most extreme ideologues think that markets can self-regulate without state oversight.' He suggests three reasons for this:

1. They're locked in to (a) 'limbic system arms race' with our capacity to reinforce our attentional defence systems that seek to resist the new persuasion techniques. They're also locked in an arms race with their competitors to find new ways to target

people for sales pitches.

2. They believe the surveillance capitalism story. Data is cheap to aggregate and store, and both proponents and opponents of surveillance capitalism have assured managers and product designers that if you collect enough data, you will be able to perform sorcerous acts of mind control, thus supercharging your sales.

3. The penalties for leaking data are negligible (Doctorow, 2020, p17).

This is where things can appear confusing because, as Snowden's account suggested, state surveillance that had earlier been focused outward on the wider world was re-purposed to focus on the American people. In the process public / private distinctions became blurred. Similarly, big tech regularly 'rotates its key employees in and out of government service' meaning one or two years at Google could easily be followed by a similar time at the Department of Defence (DoD) or the White House, etc... This 'circulation of talent' leads to what's known as 'regulatory capture.' It indicates a diffuse but powerful sense of mutual understanding which emerges between organisations that previously had clear and distinct boundaries and quite different purposes. One of the consequences of such capture is that liability for questionable security practices can be shifted on to the customers of big tech and thence to the wider society. The question 'who is responsible?' then becomes more difficult to answer.

Doctorow (2020, p. 21-22) asserts that 'big tech is able to practice

surveillance not just because it is tech but because it is big;' also that (it) 'lies all the time, including in their sales literature'. It got this way not because it was tech but because the industry arose at the very' moment that anti-trust was being dismantled,' (Doctorow, 2020). The role that Robert Bork played in this process has been told by Taplin and others (Taplin, 2017). In essence, it meant that some 40 years ago, when anti-trust regulations were being framed, Bork ensured that they focused less on limiting corporate size and power than on attempting to restrain the costs of products to consumers. This judgement, and the legislative loophole in section 230 of the Communications Decency Act of 1996 (which ensured that media companies were protected from the consequences of any material that might appear on their sites) along with the lack of effective Congressional oversight, are essentially what allowed these companies to grow beyond any reasonable limit. The key clause in the legislation reads 'No provider or user of an interactive computer service shall be treated as the publisher or speaker of any information provided by another information content provider' (Harcher, 2020). The fact, as Cook noted, that 'capital wants to make more capital' supplied the motive and the rationale. And as Zuckerberg once pronounced, this also enabled them to 'move fast and break things.'

Doctorow (2020) differs most clearly from other commentators in his tendency to see surveillance capitalism as anything other than plain, old-fashioned capitalism. Thus, in his view, it does not need to be 'cured.' Rather, what needs beefing up and applied more widely is 'trust-busting' and bans on monopolistic mergers. For him, big tech is not as powerful as it would like others to believe and, although it has largely escaped thus far, it cannot actually overturn the rules to protect itself from the resurgence and renewal of anti-trust measures. For him the issue is – are we up to it? It's clear that the 'we' he has in mind is considerably wider than that of government agencies and the technically adept. For Doctorow (2020) the 'fake news' generated by monopolistic

systems that have shredded what was earlier regarded as shared reality is not merely an irritant but 'an epistemological crisis.' A widespread breakdown of shared meanings, and the radical uncertainty it creates suggest the 'terrifying prospect' of a widespread loss of control and capability. Yet, one of the distinctive points of this account is that at the heart of any technologically advanced society is a need for integration. This, according to Doctorow (2020), is what he calls 'the hard problem' of our species. If we can't coordinate different activities across multiple domains such a civilisation cannot but fail.

While for Zuboff (2019), the high-tech path to the future is what she calls a 'bet-the-farm-commitment' or choice, here it is portrayed as the only real option. But it is framed through two different strategies. Ultimately, Doctorow (2020, p. 33) believes, 'we can try to fix Big Tech by making it responsible for bad acts by its users, or we can try to fix the internet by cutting Big Tech down to size. But we can't do both'. In this view and outlook the preferred option is for a broad-based coalition spanning government and civil society to break up the monopolies, reform big tech and drive 'up and out' of the present dilemma.

PART VII

RESISTANCE AND RENEWAL

Resistance and renewal

> *The most interesting puzzle in our times is that we so willingly sleepwalk through the process of reconstituting the conditions of human existence* (Winner, 1986).

RE-CONSTITUTING THE PRESENT

This book has considered various aspects of the real-world matrix in order to know it, to deepen our understanding of what it is and what it means. The previous chapters provided substantive rationales and various proposals for taking informed action. This chapter discusses some of the innovations and responses now under active consideration. Table 5 provides a summary of various propositions and proposals that have surfaced in this space. The specifics of each will evolve and more detailed treatments no doubt follow. Yet even this limited sample provides clear evidence of an increasingly credible shared agenda. To the extent that if worked out, developed, valued and resourced it can become a valuable source of actions and strategies that can lead away from a high-tech Dystopia toward more desirable futures.

Table 5:	Suggested actions
Cook (2020)	Remember that 'tech cannot fix itself.' Understand what went wrong inside Silicon Valley (SV). Understand its psychological deficiencies and the full implications of the values it has chosen to follow. Monitor its (lack of) emotional intelligence and its structural biases. Promote healthier psychological norms and revise its ethical foundations.
Snowden (2019)	Question the widespread use of illegal surveillance. Challenge its legitimacy and that of those employing it. Enact new laws to prevent it re-occurring. To avoid a nightmare future, individuals need to take back ownership of their own data.
Doctorow (2020)	Recognise 'fake news' as an existential threat to social integration and the well-being of society as a whole. Rather than be distracted by arguments about surveillance per se, re-focus on the raft of issues that arise from the unrestrained re-growth of monopolies. Reduce or eliminate these using anti-trust and related regulations. Ensure that everyone's digital rights are respected.
Morozov (2018)	Introduce legislation to force companies to pay for the data they extract. Improve citizens' rights to access data obtained from public sources (such as CCTV). Combine data protection with a proactive social and political agenda. Use the 'data debate' to re-think other utilities and services (such as welfare, unions and bureaucracy).
Howard (2020)	Establish the principle that 'public life belongs to the public.' Require companies to routinely contribute such data to archives, libraries and similar public institutions. Explore new opportunities for civic, as opposed to commercial, engagement.
Cadwalladr (2020)	Regulate in relation to four main categories. I. Safety. No product should be sold / shipped until it demonstrates safety and is free from obvious bias. 2. Privacy. Treat all private data as a human right, not an asset. 3. Honesty. Remove the oligopolistic power now exercised by companies such as Facebook and Google, especially as they affect ad networks. 4. Competition. Strengthen and enact the relevant anti-trust laws that encourage entrepreneurism and innovation.
Tarnoff & Weigel (2019)	Don't see IT issues as separate. Human beings have co-evolved with technologies over time. The focus should therefore be on 'humanity/ technology co-evolution.' Society is not served well by having technologies imposed (or sold) from above. Society as a whole should be involved in deciding how to live with technology. IT companies should follow specific rules that retain democracy as a guiding principle
Lavelle (2018)	Invert operating principles of Facebook, Google etc. Users to opt in rather than search for escape routes. They should be provided access to clearly documented and user-friendly tools for managing their data. Calibrated fines needed to deal with knowing misuse of data. Users have option of retaining all their data for a fee.
Sample / Berners-Lee (2019)	In 2019 Tim Berners-Lee, an early internet pioneer, drafted a 'contract for the web.' It sought to protect human privacy, provide access to individuals' data and establish a right to not have the latter processed. It argued for community consultation prior to products being launched, for the web to be safe and remain open for all users. Berners-Lee has also created Solid, a more person-centred data system.

Table 5:	Suggested actions
Deibert (2020)	New laws to restrain how tech companies gather, process and handle personal information. Companies required to open up algorithms etc to external scrutiny and public interest auditing. Legal protection of worker's rights in the 'gig' economy. Repeal section 280 of the1996 Communications Decency Act. Apply 'Retreat,' 'Reform' and 'Reset' procedures grounded in strong underlying principles.
Eggers (2018)	Update the Universal Declaration of Human Rights and add two new amendments. 1. Assert that all surveillance is inherently abhorrent and undertaken only by law enforcement with judicial oversight. 2. Resist placing everything online. Ensure that human beings can continue to live real analogue lives offline as much as possible.

Zuboff's (2019) magisterial critique led her to articulate two fundamental needs of supreme and vital importance to all human beings. They are the need to recover the future tense and the need for sanctuary. Both are clearly of great significance to Futurists and foresight practitioners. In relation to the former she frames her decision to spend seven years working on this book as an act of will that constitutes part of her own personal claim to the future. She states:

> Will is the organ with which we summon our futures into existence…The freedom of the will is the bone structure that carries the moral flesh of every promise…These are necessary for the possibility of civilisation as a 'moral milieu'…(They are) the basis of contracts…collective decisions to make our vision real (Zuboff 2019, p.331-333).

The notion of 'civilisation as a moral milieu' is a powerful and compelling one. By contrast, the conditions and agreements demanded by Google, for example, require centuries of human legal practice to be set aside in favour of what she calls 'Uncontracts,' (Zuboff, 2019). These are forced 'agreements' created by the "positivist calculations of automated machine processes." In place of human qualities such as dialogue, problem solving and empathy, the 'Uncontract' leads back to 'the blankness of perpetual compliance' referred to above (Zuboff, 2019, p. 334-6). The 'right to sanctuary' is also of primary significance (Zuboff, 2019). It is among the most ancient of human rights and thus of vital and enduring

value. But it is far from impregnable when 'physical places, including our homes are increasingly saturated with informational violations as our lives are rendered as behaviour and expropriated as surplus,' (Zuboff, 2019). Moreover, the power of Big Other 'outruns society and law in a self-authorised destruction of (this right) as it overwhelms considerations of justice with its tactical mastery of shock and awe,' (Zuboff, 2019). What is required, therefore, are 'new forms of countervailing authority and power,' (Zuboff, 2019). In place of a swelling 'social void' this depth critique envisages both 'direct challenges' to the power of Surveillance Capitalism and a commitment to 'new forms of creative action' (Zuboff, 2019, p.479-86). Zuboff (2019) also advances a number of broad suggestions about what, in her view, needs to be done to rein in Surveillance Capitalism (SC). In summary they include:

- Naming and establishing our bearings, re-awakening our astonishment and sharing a sense of righteous dignity.
- Giving voice to our collective outrage and refusal of the diminished futures on offer.
- Becoming alert to the historical contingency of SC by calling attention to ordinary values and expectations that existed before it began its campaign of psychic numbing.
- Establishing new centres of countervailing civic power equipped with laws that reject the fundamental legitimacy of SC's declarations and interrupt its most basic operations (Zuboff, 2019, p.395-421).

A new regulatory regime equipped with adequate laws will clearly take time and effort to achieve. Of the three key suggestions that Zuboff makes at least two are based on historical precedents:

> First, interrupt and outlaw surveillance capitalism's data supplies and revenue flows. This means, at the front end, outlawing the

> secret theft of private experience. At the back end, we can disrupt revenues by outlawing markets that trade in human futures knowing that their imperatives are fundamentally anti-democratic… Second, research over the past decade suggests that when 'users; are informed of surveillance capitalism's backstage operations, they want protection, and they want alternatives. We need laws and regulation designed to advantage companies that want to break with surveillance capitalism… Third, lawmakers will need to support new forms of collective action, just as nearly a century ago workers won legal protection for their rights to organise, to bargain collectively and to strike. Lawmakers need citizen support, and citizens need the leadership of their elected officials (Zuboff, 2019b).

Kathy Cook's exploration of the psychology of Silicon Valley identified similar points of clarity and reached similar conclusions. She confirmed that we are facing an 'unprecedented transition,' (Cook, 2020). Related to this is a strong belief that that 'tech cannot fix itself.' For her 'the notion that more tech is the answer to bad tech is psychologically curious, irrational and self-serving; yet it happens constantly, not only within the tech industry, but within society,' (Cook, 2020). She adds that 'our increased reliance on technical solutions is rooted in a cultural narrative that purports the boundless power of technology' (Cook, 2020, p.233). Clearly the embedded symbolic power of such cultural narratives also needs to be accounted for and moderated. What might be called the 'dual nature' of technology also helps clarify why the values, beliefs and practices that drive its use in these forms won't be corrected by its promoters and developers. A staff writer for The Atlantic who attended a 2020 Las Vegas consumer electronics show concluded that all available 'solutions' on offer involved the use of yet more technology. Given that most existing forms have known faults and costs, she emerged with a strong sense that this high-tech industry was less concerned with solving real problems than 'capitalising on the anxieties of the affluent.' As such it clearly fits a wider pattern.

(Mull 2020). To be at all useful initiatives must originate elsewhere. Hence Cook's (2020) instance on:

- Understanding what went wrong in the first place.
- Understanding the psychology and values driving the industry ... (in the belief that) that the world can be a better place; and,
- Working to ensure the industry moves forward with better values and healthier psych norms (which, in turn) requires a revisioning of the tech industry's ethical foundations.

Snowdon's (2019) account originated within the privileged spaces of the intelligence community. He saw how, under the pressure of the 9/11 attack and a renewed sense of threat, the character of that 'intelligence' gained new and problematic features (Snowdon, 2019). This is where events in Silicon Valley connect back directly to themes, narratives, values and priorities in the wider culture of the US. It is a nation that has a long track record of sponsoring ideologies, trends and, indeed, technologies without paying a great deal of attention to the likely consequences. Snowdon (2019) is far from alone in wanting us to 'reclaim our data' and, in so doing, take active steps to avoid the kind of diminished future that his own experiences have led him to fear. As noted, Doctorow (2020) has a closer, more fine-grained view of the structures, processes and products of the IT revolution and he sees 'fake news' as a particularly serious existential crisis. His main concern is to bring back anti-trust regulation in order to reduce or eliminate the extremes of monopoly power.

TURNING THE TIDE?

Steps are slowly being taken that seek to challenge and limit the power of the Internet Oligarchs. They're driven by actors in several countries working on behalf of governance and civil society. For example, during 2019 the French data watchdog fined Google Euro50m 'for failing to provide users with transparent and understandable information on its data use policies' (Hern, 2019). The European Union (EU) has flexed its regulatory muscles on several occasions in relation to privacy, taxation and monopolistic behaviour and especially via General Data Protection Regulation (Wikipedia, 2020). The UK has begun the process of establishing critical infrastructure to enforce a new raft of regulations. It includes a new Competition and Markets Authority (CMA) that contains a dedicated Digital Markets Unit (DMU) with the power

to levy serious fines upon companies that fail to abide by the new rules. Even the USA, which has been so slow to react, has shown signs of following suit. For example, in October 2020 the US justice department sued Google for illegal monopoly in the online search market. In December the US Federal Trade Commission sued Facebook for breaking anti-trust laws and threatening to break it up into smaller units (Canon, 2020). Only time will tell if Congress will have the courage to repeal the infamous Section 230 of the Communications Decency Act of 1996 mentioned above. In the absence of strong and coordinated regulatory efforts, however, attempts by individual nations to enforce a comprehensive international tax regime upon the oligarchs have proved ineffectual thus far.

During 2020 the Australian government took several small but significant steps. It confronted Google and Facebook and forced them to compensate news organisations for the loss of their advertising income and the illegal use of their material (Spears, 2020). Concerns were also expressed about how children and young people in particular are exposed to both the opportunities and the very real dangers of the on-line world. Cyber bullying is of particular concern (Ham, 2020). Very young children are particularly vulnerable since they have no defence against the digital incursions that have occurred through children's TV programs, games, YouTube and so on. During late 2020 a report surfaced about the fact that 'always on' digital assistants in the home were attracting the attention of very young who were unconsciously providing family information to the remote listeners (Tapper, 2020). In response the Australian government announced that it would create an 'online harms bill' to augment other measures such as its existing 'e-safety' site. The very real threat of direct exploitation of children and young people for criminal purposes also led to increased support to the Australian Federal Police (AFP). This was part of an even larger grant of AUD$1.66 billion for a cyber-security package provided to the AFP to help

the nation defend itself from the growing threat of cybercrime and cyberwar (Galloway, 2020). Tangible results did not take long to appear.

In mid-2021 the AFP, in collaboration with the FBI, revealed an undercover sting operation known as 'Ironside' that severely disrupted prominent drug cartels, uncovered large amounts of illegal drugs and of money and led to multiple arrests both in Australia and overseas. Instead of being frustrated by the co-option of encryption technology by criminals, law enforcement had turned it to positive use by clandestinely making the AnOm app available to them. Messaging between criminal networks previously considered 'secure' proved to be anything but. The operation not only led to many arrests it also demonstrated that law enforcement would, henceforth, be there in the background using the very latest tech themselves. It was a watershed moment. While what Peter Harcher calls the 'cat and mouse game' will certainly continue, criminal organsations everywhere were placed on notice that they were no longer as safe as they'd assumed (Harcher, 2021).

Taken at face value such practical responses on the part of various Western governments may appear to support the notion that the 'tide' may indeed be turning. Yet 2020 was not merely another year. Covid-19 pandemic was a classic 'wild card' familiar to futurists and foresight practitioners. As is well known it impacted humanity with all the force of an unstoppable biological hurricane. Under the pressure of necessity large numbers of people were driven online. Almost everyone learned how to use Zoom but few grasped how increased dependence on an already dysfunctional system would place them at greater long term risk. In the midst of a torrent of unwelcome change it's all too easy to lose one's bearings. All of which evokes a playbook and a text that is decidedly less optimistic. As Klein (2017) explains in her analysis of 'disaster capitalism,' it is during just such times of shock and disruption, while public attention is diverted, that powerful entities quietly but actively pursue their own specific interests.

As Covid-19 proceeded physical money almost disappeared only to be replaced by digital alternatives such as card and 'contactless' payments. Few were disposed to consider the longer-term costs of a cash-starved society, but they are considerable, especially for informal uses and the poor (Kale, 2020). They include greater anxiety for, and increasing exploitation of, unbanked people; fewer options for women fleeing abusive relationships; and reduced funding for for charities that previously relied on physical money for their cash flow. Overall, the wider public becomes more fully locked into a private banking system from which they have no escape and decreasing autonomy (Kale, 2020). Many organisations dispensed with offices requiring decision-makers and other employees to work from home and meet 'virtually.' Once again, the products and services offered by the Internet giants took centre stage and few involuntary 'customers' had time or opportunity to think beyond the moment. Journalist Anna Krien (2020), however, took a close look at the online 'distance learning' arrangements adopted by many schools during the pandemic. She found disturbing connections between companies like Apple and Microsoft, whose dedicated delivery platforms and content were widely taken up by schools and parents alike. During school visits she expressed her growing concerns, but to little avail. Since these companies had been courting them quietly for years it was easy for schools to slip all-too-readily into using commercially designed packages rather than those created by educators according to educational criteria (Krien, 2020).

Ronald Deibert (2020) and the Citizen Lab at the University of Toronto have considered these and similar questions. In their view too much attention has been focused on micro-issues, such as the uses and misuses of particular apps. Meanwhile, 'an entire landscape has been shifting beneath our feet.' Specifically, and in relation to the pandemic they suggest that:

> This explosion of pandemic-era applications will invariably amplify the defects of the mobile marketing and location tracking industry

> – a sector made up mostly of bottom-feeder companies whose business model relies on collecting billions of user-generated data points, later sold and repackaged to advertisers, law enforcement, the military, customs and border agencies, and private security services (not to mention bounty hunters and other dubious characters). A shocking number of entrepreneurs and policy makers are nonetheless turning to this cesspool of parasitic firms – poorly regulated and highly prone to abuses – as a proposed pandemic solution... The entire ecosystem presents a bonanza for petty criminals, ransomware opportunists, spyware firms and highly sophisticated nation-state spies alike (Deibert, 2020).

Moreover, such concerns are unlikely to recede once the pandemic is over. Indeed:

> Some argue that this COVID-19-era innovation cycle will pass once there is a vaccine. But the more we embrace and habituate to these new applications, the deeper their tentacles reach into our everyday lives and the harder it will be to walk it all back. The "new normal" that will emerge after COVID-19 is not a one-off, bespoke contact-tracing app. Rather, it is a world that normalizes remote surveillance tools such as Proctorio, where private homes are transformed into ubiquitously monitored workplaces and where shady biometric start-ups and data analytics companies feed off the footloose biosurveillance economy (Deibert, 2020).

This raises the very real question as to just how societies already weakened by the virus and its multi-faceted aftermath will be able to gather the will, imagination, resources and organisational capacity to somehow 'disembed' themselves from these very same devices and systems. As mentioned in a previous chapter there is one country where a very different dynamic has been underway for some time. For reasons best known to itself, the Chinese government has already exceeded the predations and incursions of Western Internet Oligarchs into civil society and is proceeding with the construction its very own high-tech digital dystopia. The retreat of American leadership over recent decades and the impacts of the pandemic have allowed it to proceed with its strangely arid and

inhuman desire for complete state manipulation and control of its population. A valuable study by Khalil on *Digital Authoritarianism* examines how China viewed the pandemic as a 'proof of concept' opportunity to show that 'its technology with 'Chinese characteristics' works and that surveillance on this scale and in an emergency is feasible and effective.' She continues:

> With the CCP's digital authoritarianism flourishing at home, Chinese-engineered surveillance and tracking systems are now being exported around the globe in line with China's Superpower Strategy. China is attempting to set new norms in digital rights, privacy, and data collection, simultaneously suppressing dissent at home and promoting the CCP's geostrategic goals.' Khalil considers this dangerous for other countries since it may well 'result in a growing acceptance of mass surveillance, habituation to restrictions on liberties, and fewer checks on the collective use of personal data by the state, even after the public health crisis subsides.' (Khalil, 2020).

An obvious lesson to be drawn from this particularly dangerous precedent is the greatly increased need for Democratic nations to work together and be 'vigilant in setting standards and preserving citizens' rights and liberties.' If anything, it adds urgency and salience for the free nations of the world to get their own houses in order and, in so doing, present a common front. What will this take?

As discussed earlier, it's useful to consider responses at several levels of aggregation, each of which may be appropriate to different tasks and actors. Effective coordination between different levels and types of response would certainly increase the chances that more effective options for de-coding and re-constituting the matrix will emerge. At the individual level, for example, we've already seen how, over the past two decades, powerful insights have constantly emerged from the efforts, the sense of agency and commitment, of particular individuals. Of the many others that could be included we should mention Tim Berners-Lee's Contract for the Internet,

Pascale's New Laws of Robotics and author Dave Eggers bid to re-imagine the UN Declaration of Human Rights are worthy of mention (Sample, 2019; Funnell, 2020; Eggers, 2018). At the next level progressive community organisations play a strongly facilitative role. While some, such as the Oxford Internet Institute and the University of Toronto's Citizen Lab, are located overseas, Australia also happens to be well-resourced in this area. For example, the Australia Institute hosts the Centre for Responsible Technology which published *The Public Square Project* (Guiao & Lewis, 2021). The report usefully identifies a number of vital themes and strategies for creating and extending public digital infrastructure. Similarly, a related organisation known as Digital Rights Watch also speaks for civil society by, for example, seeking a ban on facial recognition systems and the 'microtargeting' of individuals for political or commercial gain. Both organisations have active campaigns underway in relation to such matters and are easily located online. Finally, we've noted that government agencies have not been idle. We have recent, highly relevant proof that Australian citizens and organisations have the active support of powerful digital defence capabilities at the national level to moderate digital crime and cyber-aggression. Nor has the Australian Human Rights Commission been idle as its final and substantial report to the government, *Human Rights and Technology,* clearly demonstrates (Santow, 2021). In summary, while such contributions may be far from the public mind at any particular time, they are each vital players in the fight to 'delete dystopia.'

Other, perhaps less obvious, factors may also serve to focus and undergird these efforts. For example, one of the most serious charges to be laid against the internet oligarchs, their supporters, investors and other interested parties is that in pursuit of unlimited self-interest they have worked to sustain an environment characterised by stress, conflict and confusion when what the times call for are clarity, integrity and far-sighted care. Yet at present, few seem to be explicitly aware that none of these over-confident,

over-powerful entities possess anything remotely like a social licence for the intensive extractive and merchandising procedures they've undertaken, or for the many unauthorised uses to which this stolen 'behavioural surplus' has been put. To say nothing of those who divert high-tech equipment and expertise to support openly criminal enterprises. A case in point is the way that Mexican drug cartels are reported to have purchased hightech spyware from their country's own police force (Schillis-Gallego & Lakhani, 2020). In principle, therefore, democratic agencies have every right to strip them of their illegitimately acquired dominance and power. There is certainly a huge task of institutional innovation and 'back-filling' to accomplish first. Ironically enough, some parts of the necessary institutional infrastructure do not need to be re-created from scratch. It may be recalled that back in 1972 an Office of Technology Assessment (OTA) was established to advise the US Congress on the 'complex scientific and technical issues of the late 20th Century.' By 1995 it had produced studies on a wide range of topics including 'acid rain, health care, climate change and polygraphs.' It was highly successful and widely emulated yet abolished in 1995 by the Reagan administration which claimed it was 'unnecessary' (Wikipedia, 2015). The point is that, prior to the emergence of the IT revolution and the development of surveillance capitalism, prevailing political elites in the US chose to eliminate this core institutional capability leaving the nation (and world) ever more vulnerable to the unanticipated costs of high-tech innovation (and, as we now know to our cost, entirely foreseeable events such as global pandemics). Almost three decades on Institutions of Foresight (IoFs) remain uncommon. Very few nations have a high-quality foresight capability installed at the national level to advise governments on the issues such as those discussed here. But this could change fast if what has been learned from previous iterations were to be taken up and consistently applied.

In the absence of high-quality scanning, foresight and technology assessment societies remain profoundly vulnerable to a wide

variety of future hazards. These obviously include further high-impact technological innovations and their accompanying disruptions. This is particularly the case with poorer and less developed nations such as the Pacific Islands which, at the time of writing, were about to be connected to the internet by high-speed undersea cable. Needless to say, scant preparation for the ensuing social and cultural impacts had been carried out (Higginbothom, 2020). This particular example is a reminder that there are still few or no effective, non-commercial, 'filters,' 'barriers' or 'testing / proving grounds' through which new technologies and applications are required to pass prior to implementation.

The steady rise of Artificial Intelligence (AI) is among the most serious issues of concern, especially when united with new generations of high-tech weapons (Chan, 2019). Google's Deep Mind project generates headlines each time it makes new discoveries but as the property of a vast private company it raises far more questions than it answers. For example, a 2020 Guardian editorial in noted that 'Only 25% of AI papers publish their code. DeepMind, say experts, regularly does not.' Lanier goes as far as to suggest that AI should be seen less as a technology than as an ideology. The core of the ideology is that a suite of technologies, designed by a small technical elite, can and should become autonomous from and eventually replace, rather than complement, not just individual humans but much of humanity' (Lanier, 2020). Similar issues also proliferate in the open market as consumer electronics become more complex and powerful. Apple has, for example, been working to develop its 'consumer smart glasses' without reference to any substantive external foresight evaluation. These devices are intended to be worn like regular glasses but include a visible layer of digital information known as AR (Artificial Reality). While this may sound useful it raises profound questions indeed not merely about data access, privacy, regulation and so on, but about the kind of 'cyborg' society that would result. If, as suggested here, current IT frameworks and installations are

frequently pernicious and defective, we need ways of enquiring at the social level whether such devices have any legitimate place at all in our lives, let alone those of our children.

AR glasses would not be free standing. They would become one of countless other devices engaged in what's being called 'world scraping.' That is, the constant recording and up-loading of information on more or less everything. It was referred to by one IT developer as 'a big tech dream – and a privacy activist's nightmare.' He added that:

> Smart glasses turn people into walking CCTV cameras, and the data a company could gather from that is mindboggling. Every time someone went to a supermarket, their smart glasses would be recording pricing data, stock levels and browsing habits; every time they opened a newspaper, their glasses would know which stories they read, which adverts they looked at and which pictures they lingered on (Hern, 2020).

In this context the need for more appropriate values, enhanced worldviews and a new sense of reality and purpose is paramount. New institutions and institutional settings are required to provide the means by which societies can refresh their view of the past, present and possible futures. The hard questions are indeed right there in plain sight. How, for example, can a society 'find its bearings' without putting in place learning contexts in which the broad issues of history, the constitution of the present and the span of possible future options can be freely examined and discussed? How can any social entity make considered choices about its present commitments and aspirations for the future without access to high quality, dedicated foresight capabilities and services? How can anyone gain a critical purchase on existing and new technologies without the embodied social capacity to do so? It takes years of effort and application to produce highly trained people who qualify as pathfinders and guides to the chaos ahead. None of these things can happen until societies wake up to the existential predicament that humanity has created for itself. But

there are distinct signs of hope. The 'pushback' against the Internet as a medium of extraction, exploitation and abuse has already progressed from a few lonely voices to a growing chorus of dissent. If the means can be rapidly put in place to invest in state backed, cooperatively owned and operated social media, the Oligarchs can be retired from history. They will become redundant as the character and functions of IT shift from one cultural universe (invasion, dispossession and exploitation) to another (respectful fulfillment of authentic needs).

Conclusion

> *The sleeping giant is one name for the public; when it wakes up, when we wake up, we are no longer only the public: we are civil society, the superpower whose nonviolent means are sometimes, for a shining moment, more powerful than violence, more powerful than regimes and armies. We write history with our feet and with our presence and our collective voice and vision* (Solnit, 2016).
>
> *Tech companies have had a monopoly on utopian thinking for their own benefit, defining them as large-scale top-down projects requiring submission to capital's desires. But this means that resisting them can also become a large-scale project, a utopian project that touches us all and includes us all* (Sadowski, 2021).

This book has argued that current trends are far from inevitable. Intimations of dystopia are best viewed as warnings that inspire us in many different ways to take decisive action. 'Deleting Dystopia' is not about working to eliminate a powerful idea but, rather, getting behind those human and social forces that collectively move us away from its realisation as a radically diminished condition of human life. 'Understanding the matrix' is a vital and necessary step in that direction. But 'technology' per se is not the only, or main concern. Interior human characteristics such as ignorance, greed, self-regard and what E.O. Wilson once called our 'paleolithic obstinacy' have affected the trajectory of human development every bit as much as any conceivable array of devices and tools. The compromised condition of the Internet suggests that they are still doing so today. Navigating around a global, high-tech dystopia

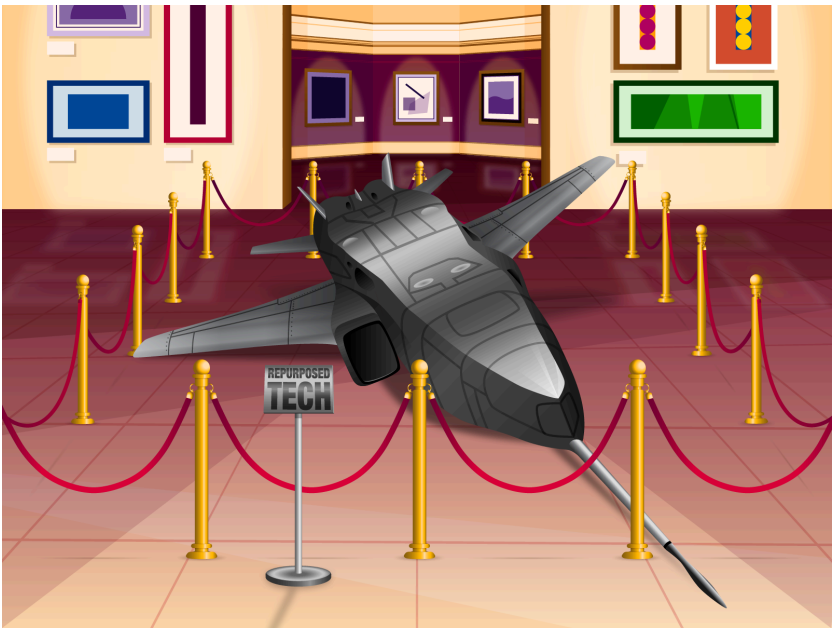
confronts humanity with one of its most difficult and challenging tasks. It also suggests a new or renewed emphasis on the most positive and inclusive human qualities such as foresight, self-knowledge, empathy and perceptiveness. Which is why developmental psychology, integral theory and related fields constitute vital assets at this time (Gidley, 2017; Slaughter, 2012).

Throughout this period countless warnings have been voiced about the failure of humanity to come to terms with the implications of its growing impacts on the global system. In September 2020, in the middle of a global pandemic, the United Nations (UN) published a 'state of nature' report which revealed that the world had failed to meet any of the targets set decade earlier to stem the tide of destruction (Greenfield, 2020). The UN's head of biodiversity was quoted as saying that 'Earth's living systems as a whole are being compromised… The more humanity exploits nature in unsustainable ways and undermines its contributions to people, the more we undermine our own wellbeing, security and prosperity' (Greenfield, 2020). We know that coral reefs are disappearing while glaciers and ice sheets are melting at alarming rates. The declines in wildlife populations have been precipitous over the last half-century even as humanity's population has exploded from around 2 to over 7 billion people. We know that in relation to the remaining 'carbon budget' (the amount of CO_2 that can be put into the atmosphere) humanity has no more than a decade to avoid the chaos of irreversible global heating (IPCC, 2021). The environment is, of course, 'only' one source of long-term systemic risk but our health and well-being depend entirely upon it.

The sober fact is that many human / cultural / technical combinations are unsuccessful and disaster-prone (Oreskes & Conway, 2016; Diamond, 2005). This is certainly the case within our fractured present when extreme degrees of self-regard took flight within a socially sanctioned economic system designed to maximise private profit at all costs. This, in turn, occurred within

an over-confident, expansionist worldview that encouraged the world's richest nations to believe that they had the right to promulgate a limitless economy of acquisition and greed. In order to sustain the illusion, dominant players gave themselves permission to view the world as little more than a vast array of resources offering endless extractive opportunities and infinite wealth. A process that continues up to this day regardless of global heating and rother well-known hazards. (Neate, 2019).

Few realised at the time that the design template perfected in 1950s America contained no limiting principle and had tended toward 'overshoot and collapse' from the very outset (Slaughter, 2010). Yet it was within these very specific human and technological circumstances that the IT revolution took root. The ruthlessness of raw capitalist imperatives, along with the radically limited value set of the oligarchs, encouraged them to grow rich by invading unprotected human space. The defects and dangers associated with these particular human and cultural combinations were and are well known and obvious, but the voices of those who understood them, and sought alternatives, were overwhelmed. Pathways to other and more viable human futures were deliberately cast aside. The result is a world in which extractive hyper-cultures are failing, having reached the early stages of their own entropic breakdown (Wallace-Wells, 2019).



The key to moving forward is a paradigmatic shift, or several, from passively accepting the views of reality tenaciously promulgated by Silicon Valley and its agents toward a different reality altogether. Views based on broader, more embracing worldviews and life-affirming values provide far more productive starting points. It's time to replace the self-centred and defective values of the Internet oligarchs with others that respect our common humanity and the fragility of the world upon which we depend. Together these provide a more appropriate and durable basis for civilised life. The proposition that knits together so much of what needs to be done is that the IT revolution has been wild, unauthorised, secretive and subversive of our humanity and our world.

The practical shift away from what is already a 'failed future' has two parts. The first is to comprehensively deny continued, 'rubber stamp' social validation to the Internet oligarchs. It was never theirs to begin with. This means creating and enforcing new or renewed

rules and regulations upon a recalcitrant and self-serving sector. We have seen that some governments have already started on this path. The second pathway, which again already has its champions and start-ups-in-waiting, is to transfer or duplicate the most socially useful parts of their operations from closed private infrastructures to a range of civil equivalents, each equipped with suitable codes of practice operating exclusively in the public interest. It is indeed an opportunity to 'reset and rethink the entire technological ecosystem from the ground up' (Deibert, 2020). None of this, however, is a quick fix. It will take time and there will be setbacks along the road. The goal, however, is clear: an international IT system that is benign, effective, respectful and safe for each and every legitimate need or purpose.

The future before us continues to look threatening not because of any built-in necessity but because societies, and those in positions of power and authority, have still not woken up to the full costs of raw, unrestrained capitalism and the very real threats that now confront humanity. Does it make sense to stand by and passively watch the world's most powerful organisations carelessly generate new waves of technological disruption regardless of the consequences? If so, we can say farewell to what remains of our environment, our autonomy, our privacy and humanity. If not, then we need to act together without further delay.

The Language of Shoshana Zuboff

> "Every threat to human autonomy begins with an assault on awareness."

DEFINITIONS

Behavioural futures markets

A new kind of marketplace for behavioural predictions.

Behavioural surplus

Raw data that is scraped or extracted from human experience and fed into a variety of manufacturing processes.

Big other

The transformation of the market into a technologically enabled project of total certainty and control that is unimaginable outside of the digital milieu and surveillance capitalism.

Conditioning

Method of inducing behaviour change. Encourages use of 'schedules of reinforcement' that are used to reliably shape behavioural routines.

Data exhaust

The 'spare' or unused data that in the very early days clogged Google's filters and had little value but later became available for extraction and use.

Digital dystopia

A condition of society in which the imperatives of technical

development have overtaken and overwhelmed those that promote human and cultural development. Utilitarian impulses (such as efficiency, prediction and control) become widely applied to human beings and ways of life. Supports misguided and untenable association between technical change and social development. Becomes incoherent since such phenomena effectively constitute different worlds. Also contains the seeds of its own failure by ignoring, or seeking to eliminate, in-built human requirements for autonomy and freedom from oppression.

Economies of action

Brought into play as a consequence of new methods that go beyond tracking, capturing, analysing and predicting behaviour.

Economies of scale in surplus accumulation

The consequence of automated systems that track, hunt and induce more behavioural surplus.

Economies of scope, scale, variation and volume

Required by more powerful prediction products. Occurs along two dimensions: extension (across a wide range of activities) and depth (of predictive detail within each activity).

Extraction imperative, the

A dynamic that became established as 'machine intelligence' increased the ability to produce 'better,' ie. more effective, prediction products.

Herding

A common form of mass manipulation that relies on controlling key elements in peoples' immediate context. Enables remote orchestration of human situations, forecloses alternatives and shifts behaviour in specific ways toward desired ends.

Means of behavioural modification

Machine processes, techniques and tactics designed to shape individual, group and population behaviour in ways that continuously improve their approximation to guaranteed outcomes. Also see **tuning, herding** and **conditioning**.

Prediction imperative

Became a strategic necessity as increased competition drove supply challenges to new levels.

Prediction products

Fabricated data that is used to predict what you do now, soon and later.

Two texts (1) the forward text

Those aspects of the on-line world that users can see, use and be consciously aware of. They include software interfaces, design features of compelling websites, 'like' buttons and related devices to support user engagement Otherwise known as 'the bait.'

Two texts (2) the shadow text

The vast hidden world of dedicated machine intelligence that facilitates the 'extraction imperative.' Comprised of a vast network of AI applications that exclusively serve the owners of the system and are devoid of broader oversight and regulation. Contains depth knowledge about users but is unseen by, and unavailable to, them.

Puppet and puppet master

The 'puppet' is a device such as a mobile phone, security camera or other 'smart' device (such as a TV) that appears to operate according to its proximate owner's bidding. But it actually operates according to the 'designed-in' dictates and hidden imperatives installed by the 'puppet masters' who 'pull the stings' in remote and unseen ways.

Rendition

A process in which something is formed out of something else that is previously given. Also refers to the way the original is transformed to something else in the process. Applies to all human products, needs and processes that are subject to the competition for surveillance revenues.

Right to the future tense

Based on the freedom of will, the openness of the future and the notion of civilisation as a 'moral milieu.'

Right to sanctuary

Elemental human right to be free of oppression and invasion.

Aligned with right to justice. Under extreme and sustained threat from **big other's** '**digital dystopia'** and the rise of untamed and unregulated conditions.

Surveillance capitalism (SC)

A mutant form of capitalism that unilaterally claims human experience as free raw material.

Surveillance revenues

Extremely large sums of money generated within the hidden economy facilitated by 'surveillance capitalism' based on the extraction and use of private information for unlimited exploitation and use. A kind of 'parallel economy' that exerts hidden, mostly malign, pressures on 'real' economies based on the tangible exchange of goods and services. Similar in many respects to the parallel 'negative economy' of speculative financialisation and with equally disturbing real-world consequences.

Social media

Electronically enabled and thus highly attenuated interactions between people at a distance. Highly attractive, especially to the young, at superficial levels. Has become increasingly dangerous and divisive. For example, facilitating the invasion of private lives, demonising individuals, ethnic and other groups, facilitating the rise of disinformation, hatred and extremism. A classic case of applying a technology far too soon before its wider costs were properly appreciated.

Tuning

The use of subliminal cues designed to shape the flow of behaviour at specific times and places for maximum influence. Closely related to Nudging and Choice Architecture, both of which refer to situations designed to alter people's behaviour in predictable and pre-programmed ways.

Uncontract

Contributes to 'economies of action' by leveraging the wealth created though 'behavioural surplus' to pre-empt and foreclose other alternatives. Replaces the indeterminacy of open-ended

social processes with pre-programmed machine processes, thus undermining human autonomy. Hence represents *the annihilation of contract* per se.

Useful resources

Useful resources

Australian Centre to Counter Child Exploitation: https://www.accce.gov.au

Australian eSafety Commissioner: https://www.esafety.gov.au

Australian Human Rights Commission: https://humanrights.gov.au/?_ga=2.105525635.1073371494.1623023089-213867029.1622423351

Australia Institute. Centre for Responsible Technology, Programs: https://www.centreforresponsibletechnology.org.au/foundation_programs

Australia Institute. Centre for Responsible Technology, Public Square Project: https://australiainstitute.org.au/report/the-public-square-project/

Citizen Lab, University of Toronto: https://citizenlab.ca

Digital Rights Watch: https://digitalrightswatch.org.au

Human Rights and Technology, Final Report (2021): https://tech.humanrights.gov.au/downloads?_ga=2.130363209.758525281.1622423351-213867029.1622423351

Oxford Internet Institute: https://www.oii.ox.ac.uk

Public Square Project Report, April 2021: https://australiainstitute.org.au/wp-content/uploads/2021/04/210428-public-square-paper-WEB.pdf

Reset Australia: https://au.reset.tech

Ron Deibert, Berkman Klein Centre, Harvard University: https://cyber.harvard.edu/node/91536

Shoshana Zuboff: https://shoshanazuboff.com/book/shoshana/

The Emerging Technology Lab, Monash University: https://www.monash.edu/emerging-tech-research-lab

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