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BOOK

# THE SOCIAL, CULTURAL AND ENVIRONMENTAL COSTS OF HYPER-CONNECTIVITY:

SLEEPING THROUGH  
THE REVOLUTION

MIKE HYNES

# **The Social, Cultural and Environmental Costs of Hyper-Connectivity**

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# **The Social, Cultural and Environmental Costs of Hyper-Connectivity: Sleeping Through the Revolution**

BY

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INVESTOR IN PEOPLE

# Dedication

*For Nora and Larry.*

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# Acronyms

AI	Artificial Intelligence
AIGS	Artificial Intelligence Global Surveillance
ARPANET	Advanced Research Projects Agency Network
AWS	Amazon Web Services
BRI	China's Belt and Road Initiative
CDMA	Code-Division Multiple Access
CEO	Chief Executive Officer
CERN	European Organisation for Nuclear Research
DARPA	Defense Advanced Research Projects Agency
DRC	Democratic Republic of the Congo
EEA	European Economic Area
EEE	Electrical and Electronic Equipment
EU	European Union
FCC	Federal Communications Commission
FTC	Federal Trade Commission
GDPR	General Data Protection Regulation
GPRS	General Packet Radio Service
GPU	Graphics Processing Unit
GSM	Global System for Mobile Communications
http	hypertext transfer protocol
ICT	Information Communication Technology
IoT	Internet of Things
IPCC	Intergovernmental Panel on Climate Change
IPO	Initial Public Offering
IRS	Internal Revenue Service
MIT	Massachusetts Institute of Technology
MOSFET	Metal-Oxide-Semiconductor Field-Effect Transistor
NMT	Nordic Mobile Telephony

*xii* *Acronyms*

NTT	The Nippon Telegraph and Telephone Corporation
PDA	Personal Device Assistant
PDF	Portable Document Format
R&D	Research and Development
REM	Rapid Eye Movement
SST	Social Studies of Technology
TCP	Transmission Control Protocol
WHO	World Health Organization
WWW	World Wide Web

## About the Author

Mike Hynes is a Sociologist and Lecturer in the School of Political Science & Sociology at the National University of Ireland (NUI), Galway, Ireland. He holds a first-class honours' Bachelor of Science degree in Information Technology (IT) and an honours' Master's degree in IT from NUI Galway. His teaching and research interests focus on efforts to improve urban and rural liveability, in addition to digital information and communication technology and the societal changes stimulated by online social media platforms and policy design in relation to work and environmental decision-making. He lives in Galway City, Ireland, with his wife Annette and has three adult sons.

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# Foreword

When the devastating impacts of the Covid-19 coronavirus forced the social and economic shutdown of nations and regions across the world, many turned to digital information and communication technology (ICT) to remain in touch with family, friends and work colleagues. Digital technologies became our vital lifeline to those we love and cherish in a time of great stress and anxiety and allowed many to continue to work, albeit from home. It is exactly because our digital devices and global networked technologies have become some integral and embedded into our daily practices that we need a much deeper insight and understanding into the ways such technology has enhanced our everyday lives but also how some of the more darker elements of the digital age are being left unchecked in an environment of often blind techno-utopianism. We must strive to strengthen the elements of digital ICT that support and promote human flourishing and well-being and equally endeavour to limit or eliminate the structures and features of digital technologies – including the ways the digital tech industry itself is organised – that are proving to be socially, culturally, economically and environmentally harmful. This text is an attempt to add to more enlightened discussions and debates on the utility, or otherwise, of digital information and communication innovation and technology and seeks a better understanding of a number of key areas of concern that will grow more conspicuous in the coming months and years ahead. The vast number of ways digital tech has enhanced our lives – in the fields of medicine, education, work, leisure and in staying connected to others – is regularly acclaimed by public commenters, tech writers, journalists, celebrities, politicians and key decision-makers, and these are unchallenged in this book. What is discussed is the often-hidden societal, cultural, economic and environmental dangers that lurk in the darker corners of digitalisation, and the discussions in this text will shine a light into these more shadowy locations. The digital tech visionary Jaron Lanier suggests that it is the tech critics that drive improvements, and it is exactly that spirit in which this book was written.

On a personal level, I regularly use digital tech and appreciate the many ways it has enhanced my own life. It is again the very reason that I seek to advance overall knowledge of the ways we design, develop and adopt our digital devices and see grave dangers in how just a small cohort of organisations and individuals have come to dominate and control all our digital tech futures and the digitalisation narrative. This digital oligopoly exploit our personal data at every opportunity and in ways that have made them the most powerful corporate entities in the world, while at the same time undermine states and societies by avoiding paying

their fair share of tax while heavily influencing legislation and state actions solely in pursuant of their own individual commercial agendas. They are actively shaping societal norms by selectively justifying a hands-off approach on policing certain content on their platforms, on the one hand, while also making other content deliberately available, thereby actively shaping views and public opinion. Furthermore, are the guiding principles underpinning some of these digital innovations and technologies themselves deeply flawed in that they work to diminish, limit or destroy some of our uniquely human competences and adversely affect our overall well-being, while continuing to support and promote a destructive consumerism lifestyle that escalates the damage to our environment and hastens climate breakdown?

This text is aimed at a broad readership, and chapters can be taken as stand-alone pieces of work rather than a singular linear monography. The genesis for this book was born from class discussions and reactions to several topics in 'Digital Citizenship', a module undertaken by applied social sciences undergraduate students at NUI Galway. While not intended to cover all existing debates and aspects of digital ICT's impacts and consequences, or digitalisation futures, it is an attempt to explain some of the potential problematic issues and concerns now emerging in this new digital era and to add to much-needed deliberations that have, heretofore, remained marginalised or silent. I, therefore, would appeal to the reader for some forbearance with respect to the subjective licence taken in some sections of the text, in particular in the later parts of the chapter on Digital Democracy in which I search for my own grasp of modern political realities. The overall intent of this book is not always to fully explain or indeed to be definite about all possible digital futures. Rather, the text also seeks to prompt deeper thought and contemplation about potential and possible impacts and consequences of digitalisation, so some opinion and commentary will be noted at times. Indeed, the reader should feel provoked on occasions and may agree or disagree with some of the lines of argument presented. This, it is hoped, will trigger new reflection, understandings and debates on subjects of some significant societal importance and offer a better awareness of the forces and challenges we are now facing in shaping all our collective digital futures. As a global digital community, we have hitherto collectively failed to fully engage in the critical public debates that would allow us to consider and plot the trajectory of digital ICT innovation and development so that it happens in a way that primarily serves humanity and the planet. Such digital technologies should help limit or eliminate human suffering and ecological destruction. This text, thus, is an effort to add to all our collective knowledge in seeking a more humane and responsive digital technology future.

## Acknowledgements

The process of writing this book has been a challenging but extremely rewarding experience over the past number of months, but the ideas for the text have been in gestation for about two years. When the Covid-19 coronavirus pandemic paused life as we know it, we were all forced to pivot into new and strange realities, and much of the writing for this book also ceased temporarily. To Ramya, Carys, Jen, Kim and all the publishing team at Emerald Publishing, I thank you for your patience and consideration during this time and for all your efforts and work on getting this text from concept to completion. I have had the good fortune of ongoing conversations about relevant topics with colleagues in the School of Political Science & Sociology at NUI Galway, which began with an opportunity to pitch my ideas in a weekly seminar to school members. I have also been fortunate to have had continuous discussions with undergraduate students of the Applied Social Sciences programme about their lived experiences and understanding of the digital world. To my colleague and students, I am extremely grateful for your time and contribution to my journey of discovery and own personal understanding of the issues. I further wish to acknowledge the ongoing support of the Social Sciences Research Centre (SSRC) at NUI Galway and, in particular, Tony Varley for the encouragement and support to continue developing my thoughts and writing. To Ken Bruen for reading a very crude early draft but giving me hope that my efforts had legs, I thank you. And to Barbara Heisserer who meticulously went through an initial draft and provided constructive and beneficial feedback, I deeply appreciate all your practical and helpful comments but, more importantly, your support and friendship which has been an invaluable motivation. To my parents, for all your love and care: words will never be enough, but I've made a start here! And to my wife Annette, everything that I have been able to achieve and have been able to experience over the past number of years has all been down to your help, support and love, and I will be forever grateful.

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# Chapter 1

## Introduction

One of the great liabilities of history is that all too many people fail to remain awake through great periods of social change. Every society has its protectors of status quo and its fraternities of the indifferent who are notorious for sleeping through revolutions. Today, our very survival depends on our ability to stay awake, to adjust to new ideas, to remain vigilant and to face the challenge of change.

Martin Luther King (1968)

Electrical information devices for universal, tyrannical womb-to-tomb surveillance are causing a very serious dilemma between our claim to privacy and the community's need to know.

Marshall McLuhan (1967)

## Our New Digital Age

In the twenty-first century, digital technologies have, and continue to have, profound effects on our individual and collective lives. They have been the catalyst for some incredible progress in the fields of medicine, work, education and communications broadly, and this has allowed us stay better connected to family and friends over distance than any time in human history. Cheap, lightweight, portable, mobile, digital information and communication devices are not only connecting the world, but they are providing individuals with extraordinary access to vast stores of news and information through always-on internet connectivity and allowing people to organise and manage their daily routines effortlessly. But our new digital age has also brought a unique set of societal, cultural, economic and environmental challenges that have yet to be fully appreciated and confronted. By and large, the internet is dominated and controlled by some of the largest and most influential corporations we have known since the beginning of the

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**The Social, Cultural and Environmental Costs of Hyper-Connectivity:  
Sleeping Through the Revolution, 1–17**



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## 2 *The Social, Cultural and Environmental Costs of Hyper-Connectivity*

industrial age. Such megacorporations operate across international borders and are immune to the conventional regulation and controls considered necessary for such large organisations to operate in liberal democracy societies in an ethical and socially responsible manner. In the absence of effective oversight and control, harmful and sometimes sinister forces are organising with almost impunity: harvesting, monetarising and weaponising vast quantities of our personal data in the Wild West environment of this new digital age. The noble aspirations of Tim Berners-Lee, the often-cited creator of the internet, to develop an information superhighway that would empower the individual and be an instrument for human flourishing have largely given way to vast stores of worthless trivia and deceit that is hijacking our attention at every opportunity, a plethora of extremism and hateful speech, cyberbullying, trolling and a bountiful supply of dancing cats and skateboarders falling over.

This book aims to build upon a previous call for a stronger sociological engagement with the design, development and adoption processes of digital information and communication technology (ICT).<sup>1</sup> In the absence of robust sociological investigation and imagination at the conceptual stages of digital technology development, the probability of such technologies delivering changes that are deeply personally, socially, culturally and environmentally damaging will continue to grow apace. An enhanced and more critical exploration and understanding of the personal, organisational, social, political and environmental context of the emergence of digital ICT is, therefore, urgently required. Without such critical investigation and reflection, digital technologies will continue to be left to their own devices to determine and influence the social, economic and cultural values of our societies, for better or worse. But it's not just features such as the internet and social media; there is a headlong rush towards digitalisation driven by an almost unstoppable technological determinism and utopianism that does not match the realities of what is now emerging from the first decades of this new digital age. Many individuals across society have now awoken to real and genuine concerns and fears about the influence and overreach of such digital technologies in the transformation and shaping of individual lives and community behaviours. Immense changes in how we coordinate our lives, in our homes, in the organisation of work and leisure, are all been driven at breakneck speed by technologies controlled by a handful of individuals and organisations, leaving many helpless as to their oversight, course and influence on our overall well-being. We thus begin this chapter with a brief exploration of the impacts and consequences of a digital-based surveillance technology that has emerged with little debate and almost undetected over the recent past: facial recognition.

### **Big Brother Knows Exactly Who You Are!**

When you post a photo on a social networking website and the platform automatically tags an individual in the image, you might not give a second

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<sup>1</sup>Hynes (2018).

thought about the technology that underlies such a convenient and useful feature. In addition to this automated process, individuals themselves can tag photos and identify persons on social media or in cloud storage facilities on Microsoft, Apple or Google. We will soon be able to check out at supermarkets and department stores without having to pull out our money or credit cards; our faces simply scanned and matched to the store's customer database and financial management systems. Retail outlets have already begun to use technology to generate vast detailed purchase data on their customers, tracking our every move and shopping habits and micro-targeting in-store marketing and advertising. At an artificial intelligence (AI) bar or restaurant, facial recognition technology will soon be used to identify customers who approach the counter to provide a speedy, more efficient and personalised service, matching your drink and food preferences to that previously stored on their point-of-sale systems. Churches are now beginning to use facial recognition technology to monitor attendance at religious services, and schools are seeking to use it to keep tabs on students who may be trying to skip class and teachers who take longer than normal coffee breaks. Biometric authentication is being used by Chinese authorities in Beijing now combating a toilet paper stealing epidemic by locking the supplies away behind a dispenser powered by such facial recognition software.<sup>2</sup>

As facial recognition becomes mainstream, your face will soon become your password, unlocking everything from your smartphone to your bank account. Phones like the iPhone X, Galaxy Note 9 and LG G7 all use biometric information which allow you unlock your device, and we can only expect other smartphone manufacturers to improve upon this facial unlocking feature into the future. Want to know who is at your door? A video doorbell with facial recognition software will not only let you know someone is there but who that someone is, regardless of whether you know the person or not. Marketing departments and advertisers are quickly getting in on the act, and thanks to such technology, billboards can now micro-target advertisements based on exactly who individuals are: their sex, age, how they are feeling at a given time of the day or evening and other personal information that can be gleaned from their social media profiles to create a holistic picture of who the person is and how they are feeling.

One of the key advantages of facial recognition technology may well be safety and the potential to enhance our overall security. Police forces are now using the technology to track down criminals, to find missing children, the elderly or other vulnerable people in the community. In cities and towns where police do not have adequate manpower to tackle petty crime, business owners are beginning to install facial recognition systems to watch people and identify individuals of interest when they enter their premises. Airports are increasingly turning to such technology to allow passengers pass through their facilities without the need to

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<sup>2</sup>Hernández, J. C. (2017). China's high-tech tool to fight toilet paper bandits. *The New York Times*, March 20. Retrieved from <https://www.nytimes.com/2017/03/20/world/asia/china-toilet-paper-theft.html>

#### 4 *The Social, Cultural and Environmental Costs of Hyper-Connectivity*

check their passports; the US Department of Homeland Security predicts that it will be used on about 97 per cent of travellers to America by 2023.<sup>3</sup> Facial recognition is also being used at live music events. A system was in place during Taylor Swift's Rose Bowl concert in May 2018, according to *Rolling Stone*, in which a kiosk set up to allow fans watch a recording of Swift's rehearsal had a camera hidden inside.<sup>4</sup> Each image of a face was sent to a command post in Nashville where a facial recognition search was conducted against a database of known Taylor Swift stalkers. Being upfront about this use of the technology may have decreased its usefulness, but it does call into question the ethics of doing so without informing most law-abiding music fans whose faces were scanned and image then analysed. And what subsequently happened to this store of collected personal data after the event?

Facial recognition is the process of recognising and verifying the identity of an individual using a captured image of the person's face, and the technology has developed rapidly over the recent past as the tech industry continues to build upon progress made in the underlying technology known as machine learning. It captures, analyses and compares features and patterns based on the person's facial details, information gleaned from our insatiable desire to continually share our images and personal information with friends and family online. Thanks to Flickr, Pinterest, Instagram, Facebook, Google and a host of other sharing platforms, the internet now stores billions of photos of people's faces, which have been scraped from our social media profiles and gathered into massive image datasets. These are then used to train deep neural networks, a mainstay of modern AI, to detect and recognise facial features using powerful graphics processing units (GPUs). When an image is captured on a security camera trained on a crowd or in a shopping centre, a 'faceprint' of elements – such as a person's eye colour, shape and size, eyebrow thickness and contours of their nose – will organise and classify these features together. And much like a fingerprint record, by distinguishing a unique set or pattern of characteristics taken together distinctively identifies a person. This faceprint is then compared with images of known individuals in an image database to confirm identification, or a faceprint can be compared to a large database of facial images in the hope of identifying an unknown person. But this ability to record, store, analyse and easily access enormous amounts of images of individual faces on such an enormous scale leads to some fundamental challenges to our notion of privacy, equality and trust.

China, for instance, has enthusiastically embraced biometric authentication and automated facial recognition on a vast scale. Cameras now screen hundreds of thousands of citizens on a daily basis and have been used effectively, for example, to identify and control the Uighur population, a largely Muslim minority in

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<sup>3</sup>DHS (2019).

<sup>4</sup>Knopper, S. (2018). Why Taylor Swift is using facial recognition at concerts. *Rolling Stone*, December 13. Retrieved from <https://www.rollingstone.com/music/music-news/taylor-swift-facial-recognition-concerts-768741/>

the Xinjiang autonomous region persecuted on religious grounds, many of whom are now held in vast detention centres that dot the north-west of China.<sup>5</sup> Over the recent past, authorities have considerably ramped up their ability to spy on the country's nearly 1.4 billion people to new and disturbing levels, giving the world a blueprint for how to build the basis of a digital totalitarian state.<sup>6</sup> The Chinese state is hurriedly refining technologies like facial recognition and combining this with phone and other identifying data allowing matches to be made much easier. Authorities in Russia ordered 260 million roubles (\$4 million) of facial recognition technology for surveillance cameras to monitor protests and other mass gatherings in cities right across the country.<sup>7</sup> Moscow claims to have one of the world's largest networks of some 160,000 surveillance cameras, some equipped with facial recognition technology, and had plans to boost the number to 200,000 by the end of 2019. Proponents of these facial recognition-equipped cameras in Russia point to the role they have played in maintaining public order and safety, while critics warn of false matches and surveillance overreach.

DARPA – the US Defence Advanced Research Projects Agency – have several facial recognition projects in the works. Using drones and unmanned aircrafts with mounted cameras and flying at up to 20,000 feet, one such project can identify objects as small as six inches and can monitor everyone's movements in a 10-square mile radius. With the addition of facial recognition technology, it will soon be possible to target an individual from this distance, but worryingly, all this is being exclusively developed for covert operations into the future. This is leading to growing concerns from some quarters. Civil rights advocates in the United States are adamant that software that seeks to identify people using image databases should be banned in many instances because it too often misidentifies people with darker skin and contributes to police bias against black communities.<sup>8</sup> Facial recognition systems consistently perform differently for darker skin tones and reportedly misidentify black people at rates 5–10 times higher than they do white people.<sup>9</sup> On a micro level, such technology can now be used by individuals to identify people from simple snapshots taken at random. By matching the

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<sup>5</sup>Byler, D. (2019). China's hi-tech war on its Muslim minority. *The Guardian*, April 11. Retrieved from <https://www.theguardian.com/news/2019/apr/11/china-hi-tech-war-on-muslim-minority-xinjiang-ughurs-surveillance-face-recognition>

<sup>6</sup>Mozur, P., & Krolik, A. (2019). A surveillance net blankets China's cities, giving police vast powers. *The New York Times*, December 17. Retrieved from <https://www.nytimes.com/2019/12/17/technology/china-surveillance.html>

<sup>7</sup>Nikerichev, A. (2019). Moscow to deploy facial-recognition tech at rallies. *The Moscow Times*, October 2. Retrieved from <https://www.themoscowtimes.com/2019/09/06/moscow-to-deploy-facial-recognition-tech-at-rallies-a67174>

<sup>8</sup>Petty, T. (2020). Defending black lives means banning facial recognition. *Wired*, July 10. Retrieved from <https://www.wired.com/story/defending-black-lives-means-banning-facial-recognition>

<sup>9</sup>Simonite, T. (2019). The best algorithms struggle to recognize black faces equally. *Wired*, July 22. Retrieved from <https://www.wired.com/story/best-algorithms-struggle-recognize-black-faces-equally/>

captured image with an individual's social media profile, it is possible to uncover personal information, family and friends and even the area where they live. And to what ultimate end authoritarian and democratic governments will eventually end up using facial recognition technology should be deeply concerning for us all, and heightened vigilance and action against its abuses and any assault on our privacy must be a civic duty in the digital age.

So, while there are potential positive outcomes from the use of facial recognition technology, there are also numerous hidden dangers that have now begun to emerge into the light. This theme is the principal argument repeatedly emphasised throughout this book; we are failing to fully appreciate – or at times even attempting to debate and beginning to understand – the true negative consequences and impacts of new digital ICT before their universal circulation and normalisation across society. While many do make important and significant contributions to individual lives and society in general, not all digital technologies are desirable, nor is its rapid rate of development and deployment in our best interests. Whether digital technologies develop in a positive or negative manner is very much at the discretion and behest of those who promote its design, development and growth from within the tech sector. Some digital technologies, such as facial recognition, may be emerging as the greatest threat to individual freedoms we now face partially because of the intimacy and sensitivity of the information it takes and gives to the state or large megacorporations with or without an individual's consent but also because we really do not know what is actually being done with such sensitive and personal information. The fundamental question needs to be asked. Whom does new digital technology serve, and for whose benefit?

Digital technological design, innovation and development are very much a social activity with, primarily, economic objectives at its core. But it needs much more appropriate social controls and oversight and should not be technical advances for its own sake, lacking the necessary oversight. Someone or organisation seeks to develop and implement such technologies for financial gain ordinarily, but much of this may be at the expense of individual privacy and freedoms which we may, or may not, choose to give away. Indeed, it may not only be just our privacy we stand to lose. Some new digital ICTs may be even impacting our uniquely human cognitive abilities in ways we have yet to fully comprehend and appreciate. For example, automating processes that have previously keep our minds active and muscles exercised may work to diminish these human capacities over time. If we don't use it, we may well lose it. Meanwhile, the data now being collected by online platform megacorporations are being analysed, packaged, monetised and in some cases weaponised against some of our traditional and once stable institutions of state, and democracy itself may be under threat. We should always know what is being done with our personal information and for what purpose and gain. Facial recognition, for instance, is expected to become a \$9.6 billion burgeoning market,<sup>10</sup> but regulation of the industry has failed to keep pace with the development of

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<sup>10</sup>Facial recognition market overview. *Allied Market Research*. Retrieved from <https://www.alliedmarketresearch.com/facial-recognition-market>

the underlying technology. Instead, companies and states are expected to police themselves and are not held to account for how they collect, store and use our personal data and information. The barn door is open and the horse ready to bolt.

## Understanding Technology: Who Designs the Future?

It is important to begin with an historical perspective on how, over many centuries, new technology was understood and valued in the societies of its day. Some key influential social thinkers of the past were never afraid to meet technology development head-on and to ask difficult and searching questions to help shape its design, development and deployment. Reflecting on these debates may offer important insights into how contemporary digital technologies now lack the scrutiny and attention of the technology of the past. Philosophical discussions and questions relating to technology design and development in Europe date back to the very dawn of Western philosophy. The word ‘*techne*’ in ancient Greece signified the knowledge or the discipline associated with a form of *poiésis*. For instance, medicine was a *techne* that sought to heal the sick. A number of prominent themes emerged from that early period of European history, one of which was a view of technology as an imitation of nature, a position endorsed by Greek philosophers such as Heraclitus and Democritus.<sup>11</sup> For example, based on what we see in nature, we learn and adapt to copy creatures like bird and spiders to construct out dwellings and other such buildings.

A more developed viewpoint, principally put forward by Aristotle, was that technology did not merely imitation nature and that there was a fundamental ontological distinction between natural things and artefacts in that nature, inherently, had the principles of generation and motion. Animals and plants have the capacity to move, grow, change and reproduce over time, driven by the overall purpose of nature itself. Artefacts, on the other hand, have only outward cause based on human aims and forms; they cannot reproduce themselves and need a guided human purpose and hand. This thesis, that there is an essential difference between man-made products and nature, has had a long-lasting influence which continues to the present day. Aristotle’s doctrine of the four causes – material, formal, efficient and final – is regarded as a third early contribution to the philosophy of technology and is also still present in contemporary discussions and debates of technologies and artefacts. An additional theme from this era was the extensive employment of technological images by both Plato and Aristotle. Both found technological imagery indispensable for expressing their belief in the rational design of the universe.<sup>12</sup> Yet, while the ancient Greeks made important contributions to many sciences – most notably mathematics, astronomy, optics and acoustics – actual Greek technological achievements were far less impressive than their enlightened discussions and broad scientific achievements.<sup>13</sup>

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<sup>11</sup>Franssen, Lokhorst, and van de Poel (2018).

<sup>12</sup>Lloyd (1973).

<sup>13</sup>Volti (2015, p. 54).

The epoch of the Roman Empire and throughout the Middle Ages were times of considerable technological progress, yet, peculiarly, philosophical and social reflection on such technology did not grow at a corresponding rate. Roman contribution to the sciences was limited, yet their engineering achievements reached a very high level of sophistication and accomplishment. Following the fall of the Roman Empire and the decline in Greek civilisation and knowledge, most parts of Europe were cut off from an important source of ancient learning, although a small number of Christian clerics and scholars maintained the spirit of rational inquiry with regard to science and technology throughout the Dark Ages. Indeed, there appeared a disconnect between scientific and technological development throughout the sixteenth and seventeenth centuries leading Thomas Khun to speculate that for the bulk of human history technology flourished in societies where science had remained underdeveloped and vice versa.<sup>14</sup>

The Renaissance led to much greater appreciation of human endeavour and creative efforts, including technology, and as a result, philosophical reflection on technology and its impact on society once again began to flourish. Francis Bacon was one of the first modern authors to put forward such considerations; his works credited with developing the scientific method and remained influential through the scientific revolution. Many of the views expressed in his fantasy novel *New Atlantis* in 1627 were overwhelmingly positive, and this positive mindset lasted well into the nineteenth century and incorporating the first half-century of the Industrial Revolution.<sup>15</sup> Other profound thinkers at that time, such as René Descarte, Jean-Jacques Rousseau and Immanuel Kant, were among key figures of the Enlightenment who argued that the human mind and human society were akin to nature inasmuch that they were ‘rational’ – they were ordered and governed by laws which could be understood through the application of a rigorous scientific approach or, in short, the application of reason.<sup>16</sup>

The Industrial Revolution was largely characterised, stimulated and shaped by the design and development of major new transformative technologies such as the steam engine, the spinning jenny and other mechanical machines that replaced human effort and brawn. The great technological innovations and changes that began in the mid-fifteenth century with improvements in ship building and ocean navigation were closely associated with the rise in capitalism and the emergence of a market system in the late eighteenth and early nineteenth centuries.<sup>17</sup> Karl Marx and Friedrich Engels attributed fundamental importance to technical improvement and change in their analysis of forms of capitalist production. Marx focussed much of his early writings on the social effects of machinery, namely on the replacement of workers and a wide-ranging deterioration of working conditions brought about the widespread adoption of new technology in the workplace. But he also examined the relationship between

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<sup>14</sup>Kuhn (1977).

<sup>15</sup>Franssen et al. (2018).

<sup>16</sup>McIntosh (1997, pp. 1-2).

<sup>17</sup>Volti (2015, p. 46).

machinery and economic development.<sup>18</sup> Indeed, at the time, a market economy driven by the activities of self-interested businessmen had produced the most receptive environment for technological change and innovation. There was much in Marx's writing – in the pages of *Capital*, for example – to suggest that he regarded the capitalist–work relationship as a key factor affecting the technology mode of production.<sup>19</sup> Many industrial sociologists cast Marx as a technological determinist and suggest that he attributed social change principally to alterations in the forces of production,<sup>20</sup> while others suggested that through his writings he showed how capitalists shaped technology, with the class struggle in mind.<sup>21</sup> Through such thoughtful interpretations on the broad understanding of how society should organise and function and how to give some account of the nature and impacts of technological change in the context of work established Sociology as a cornerstone discipline of the social sciences.

The discipline suffered a contraction during both world wars as many, particularly in Europe, were killed, died or fled their countries before, during and after these extreme global conflicts. There was an absence of systematic attention to technology and its social impacts and consequences for much of the twentieth century, but a notable 'turn to technology' in studies of the social science began again in the late 1980s and early 1990s.<sup>22</sup> Many of the questions in relation to technological change began to be addressed by sociologists and historians working in the realm of what can be loosely termed the Social Studies of Technology (SST). In this broad interest of sociotechnical change, the field included a number of different approaches which Bijker, Hughes and Pinch divided into three categories: social constructivism, systems and actor network.<sup>23</sup> All such SST perspectives share an understanding of technology not as something distinct from social relations, culture, politics, economics or science but rather as part of a 'seamless web' linking all these elements together in a manner that makes it less convincing to talk about any one element in isolation.<sup>24</sup> In designing and developing technologies, engineers do not think in discrete, discipline-bound ways and instead call upon scientific, technical, financial or legislative means and methods where they deem it appropriate.<sup>25</sup> Thus, technological change involves multilayered social constructions, and there is a shared assumption within SST approaches that sociotechnical change is heterogeneous, messy, contingent and emergent, and that technologies are born out of conflict, difference or resistance.<sup>26</sup> Tech-

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<sup>18</sup>Roth (2010) explored the origin and development of his views in greater detail referring to the whole of his legacy, not only to his writings but also to his numerous excerpts from the technological literature of his time.

<sup>19</sup>MacKenzie (1984).

<sup>20</sup>Burns (1969).

<sup>21</sup>MacKenzie and Wajcman (1999).

<sup>22</sup>Woolgar (1991).

<sup>23</sup>Bijker, Hughes, and Pinch (1987).

<sup>24</sup>Hughes (1986).

<sup>25</sup>Hughes (1986, p. 287).

<sup>26</sup>Law and Bijker (1992).

nology does not develop according to its own internal dynamics, but they are social creations, and any reasonable or successful attempt at understanding what particular technology is chosen, and why, must take into account the social context of its design and development. Building upon many of these constructivist approaches, Manuel Castells framed his 'Network Society' concepts on the basis that 'technology does not determine society, nor does society script the course of technological change'.<sup>27</sup> Castell's position on the network society is that it is not purely the technology that defines modern societies but also cultural, economic and political factors, but that all these key social structures and activities are organised around electronically processed information networks.

## **Understanding the Digital Age**

Towards the end of the 1990s and into the new millennium, the technical features of the new emerging world of digital ICT increasingly came to dominate explanations of contemporary change and progress right across society. This new digital or information age was largely characterised by the rapid shift away from traditional industry that the Industrial Revolution had brought about through industrialisation to economies primarily based upon information technologies closely linked to the development of transistor technology. Transistor technology – particularly the MOSFET (Metal-Oxide-Semiconductor Field-Effect Transistor) – became the fundamental building blocks of digital electronics in the emerging Information Age.

The origins of the internet lie in efforts to develop wide area networking that originated in several computer science laboratories in the United States, UK and France. It was the result of some visionary thinking by people in the early 1960s who saw great potential and value in allowing scholars and engineers working with computers share information on their research and development and specifically in the United States where the Department of Defence sought a network to link scientists and university professors from around the world. Scientists and military experts, at that time, were especially concerned about what might happen in the event of a Soviet attack on their nation's telephone system and any subsequent communications breakdown. In 1962, a scientist from the Massachusetts Institute of Technology (MIT), J.C.R. Licklider, proposed a solution to this problem: an enormous network of computers that could talk to one another. Such a wide and diverse network would allow national leaders to communicate even if the telephone system had been destroyed. On 29 October 1969, ARPANET<sup>28</sup> delivered its first message: a 'node-to-node' communication from one computer to another.<sup>29</sup> An important element in this communication system was the

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<sup>27</sup>Castells (2000, p. 5).

<sup>28</sup>The Advanced Research Projects Agency Network (ARPANET) was the first wide-area packet-switching network with distributed control and one of the first networks to implement the TCP/IP protocol suite.

<sup>29</sup>For a good understanding of the origins and technical development of the internet (Leiner et al., 2009).

division of each block of data into a number of smaller discrete packets. This way the capacity of the network could be maximised by sending each packet over the route that was least congested at the time, to be reassembled at the receiving node. Computing networking and secure communications of this nature remained largely in the military domain well into the 1970s.

Near the end of the 1970s and into the 1980s, Vinton Cerf, a computer scientist working at the DARPA, had begun to solve the difficult task of integrating the multiplying packet-switched computer networks into a single worldwide network and developing a way for all of the computers on all of the world's mini-networks to communicate with each another. He called this innovation procedure Transmission Control Protocol or TCP.<sup>30</sup> At that time, email traffic dominated the network, but programmers had begun to build and develop new systems that allowed users to access other network sites by keyboarding various code. Tim Berners-Lee, at the European Organisation for Nuclear Research (CERN), was the primary developer of a software system for accessing files from computer networks, which became known as hypertext transfer protocol (http). Released in 1991, this formed the basis of what became known as the World Wide Web (WWW), but significantly CERN did not attempt to patent or claim any copyright for this coding system resulting in a key philosophy of the initial Web: that there would be no restrictions to access or further development of the network.<sup>31</sup> Berners-Lee envisioned the web as the means to bring people together and make knowledge freely available to all citizens across the globe, regardless of means or technical ability. Interestingly, much of the effort for such development was driven by the appeal of using computer networks for electronic mail and to access other networks, a function that had not even been considered when ARPANET was first established. Therefore, the World Wide Web can be seen as a social construct, one that resulted from its users taking it well beyond its intended or imagined purpose.<sup>32</sup> The network has grown exponentially since the mid-1990s, but the social scientific study of digital ICT and its impacts has often struggled to keep pace with its rapid developments and evolution, with some notable exceptions.

A seminal conference publication that tried to capture these earlier discourses on the potential consequences of digitalisation and the computer's possible impacts on society emanated from the proceedings, edited by Mumford and Sackman, from the International Human Choice and Computers Conference in Vienna in 1974.<sup>33</sup> The overall tone of the conference suggested an unease and uncertainty about the likely impact of computers and the way they could affect key social institutions, although there was also an important underlying belief that the computer and its social effects were one of human choice:

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<sup>30</sup>Later, he added an additional protocol, known as Internet Protocol. The acronym we use to refer to these today is TCP/IP.

<sup>31</sup>A little history of the World Wide Web. *The World Wide Web Consortium (W3C)*. Retrieved from <https://www.w3.org/History.html>

<sup>32</sup>Volti (2015, pp. 213-214).

<sup>33</sup>Mumford and Sackman (1974).

Society should deliberately lead and direct the application of computers in the image of its most cherished values and ideals rather than be the unwitting victim of the vagaries of technology and the fluctuations of the market-place.<sup>34</sup>

The broad argument emanating from the conference was for the need of democratic oversight and vigilance with regard to new digital computer technologies and how they are designed, developed and deployed right across society. The editors pointed out that a consensus view emerged that the design of computer systems must include formal and explicit values and ideas from both workers and management, while broader community and state interests should not be neglected or ignored. This, at the time, set the course for the perceived role of social scientists with regard to the study of new digital computer technology. It was suggested they should take an active role in support of trade unions, and a justification of a research mission in terms of the perception that social scientists pursue the development of 'logical objective knowledge' on ICT and society.<sup>35</sup> However, neither of these views remains widespread today, and researchers in this area have tended to view their task as increasingly producing interpretive and phenomenological epistemologies.<sup>36</sup>

Many sociologists have viewed digital technology and change as merely the impetus for the fundamental social trends and transformations and to think about, understand and conceptualise these technologies in terms of their properties and to construct the relation to the sociological world as one of the applications and impacts.<sup>37</sup> There is a tendency to be much more reactionary than proactive in confronting the societal challenges brought about by these new digital technologies, a common narrative among many technological determinists. There appeared a certain sense of inevitability and helplessness about what types of digital technologies were being developed and the impacts and consequences, both positive and negative, they are having on society. Technology determinists view technology as the driving force for social change, for better or worse, and argue that it should be 'left to its own devices' on the direction and implication of these changes based on its own internal logic. Such popular accounts convey a vivid sense of efficacy of the power of technology as the mainspring of history, and such narratives give credence to the idea of technology as an independent entity, a virtually autonomous agent of change.<sup>38</sup> Such views are not confined to the fringes and are frequently widely found in popular media.

To counter such positions, throughout the 1980s and into the 1990s, an agency-centred approach began to emerge and challenge determinism viewing technology as the product of individual choices and actions and the site of much social contestation, alternatives, choices and indeed conflict. These constructivism

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<sup>34</sup>Mumford and Sackman (1974, p. v).

<sup>35</sup>Avgerou, Ciborra, and Land (2004, p. 4).

<sup>36</sup>Avgerou et al. (2004, p. 4).

<sup>37</sup>Sassen (2002).

<sup>38</sup>Smith and Marx (1994, p. xi).

theories drew together several areas of research, and central to their approach was the notion that we have choices inherent in the design, development and trajectory of innovation and digitisation. Different routes lead to different technological outcomes, and such choices, although sometimes not necessarily conscious, have different implications for society or particular groups within society.<sup>39</sup> While this was an attempt to move away from the independent and powerful position technology holds in determinism approaches, there were limitations in these constructivism approaches with regard to its overly narrow focus and for failing to address general issues of context.<sup>40</sup> It is all very well to attempt to embed a particular structure or importance at the design and development stage, but technologies often change meaning for people once introduced into society, and we can use these technologies differently in changing and differing social circumstances.

As we move into the third decade of the twenty-first century many of these debates remain relevant but are, perhaps, superseded by incredible advancements and changes in technologies, made possible by digitisation. Moore's Law – the observation that the number of transistors in a dense integrated circuit doubles about every two years – may now be slowing somewhat,<sup>41</sup> but the rapid, dynamic and disruptive nature of digital ICT over the recent past has left sociology scrambling for relevance with regard to this crucial driver of social transformation. This text does not set out to cover all aspects of digital technology's impacts, consequences or futures, nor is it a deep sociological explanation of social change brought about by digitisation. It is an effort to discuss and debate some of the key areas of concern and fear with regard to the design, development and widespread adoption of some digital ICT. It should not be viewed as an attempt to undermine the technology itself, nor ignore the many positive changes and developments they have been responsible for. Digital technological developments over the recent past have had some profoundly positive impacts and consequences for individuals and communities, and these must certainly be applauded. That said, this text will shine a light into the darker corners of digitalisation, and it will, at a minimum, begin conversations that have, heretofore, been largely absent from many of the debates and discussion on what is possible and acceptable with new digital ICT. The text does not need to be read in linear fashion, and the reader is encouraged to dip in and out of the various chapters to explore the arguments presented and make their own minds up as to the merits or validity of such arguments.

## Coming in the Following Chapters?

Chapter Two will explore the genesis and guiding values of four of the more significant megacorporations that currently dominate the internet and

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<sup>39</sup>Williams and Edge (1996).

<sup>40</sup>Hamilton (2016).

<sup>41</sup>Simonite, T. (2016). Moore's law is dead. Now what? *MIT Technology Review*, May 13. Retrieved from <https://www.technologyreview.com/2016/05/13/245938/moores-law-is-dead-now-what/>

digital landscape. From social media platform Facebook to e-commerce company Amazon, these organisations are having profound and frequently disruptive impacts upon the economic, social, cultural and environmental realms, not always resulting in positive outcomes. For example, Facebook has been heavily criticised for failing to act on evidence of the damaging consequences of third-party manipulation of its data, most noticeably with the election of Donald Trump and the 2016 Brexit vote, while corporations such as Amazon, Apple and Google have been condemned for their aggressive international tax avoidance.<sup>42</sup> The following chapter will present the argument that the internet, as it is currently organised, is creating a Westernised monoculture which ignores significant aspects of traditional more established cultures that promote and encourage sustainable lifestyles and contribute to human flourishing. It will challenge the dominant myth that digital technologies have always been beneficial, benign and culturally neutral. In better understanding the negative cultural outcomes of digital ICT, we reveal attempts to marginalise and colonise other cultures and systems of intelligibility that have always been necessary for civil and ecological sustainability, a form of cultural homogenisation. The internet and social media platforms are powerful tools that are also detrimental to the arts and artistic endeavour in many developed countries, and the business model of ‘ask for forgiven not permission’ is damaging creativity and originality in significant ways.

Chapter Four focuses on the widespread adoption of automation and AI as a future direction for digital technologies and its effects on work, society and, indeed, the individual. While automation will have far-reaching implications for work and society, the impacts and consequences from a deeply human perspective need to be better explored and understood. Drawing on psychological and neurological studies that underscore how tightly people’s happiness and satisfaction are tied to performing work in the real world; shifting our attention to computer screens can often leave us disengaged and discontented. By accepting that automation and AI will take over more and more of the daily work routines, we may well be risking our long-term cognitive health and well-being. There is a striking decrease in mental performance that comes when we stop engaging in cognitively

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<sup>42</sup>Facebook have openly admitted to a large-scale data breach in the case of the Cambridge Analytica scandal - which will be discussed in detail in later chapters - leading to voter manipulation in the 2016 US election and Brexit vote in the United Kingdom. Facebook’s CEO Mark Zuckerberg subsequently gave testimony to US Senate committees in light of these revelations: see <https://www.commerce.senate.gov/2018/4/facebook-social-media-privacy-and-the-use-and-abuse-of-data>. Five of the top 10 biggest tax avoiders are big tech companies, with Apple ranked as number one, Microsoft at number three and Google at number seven, according to a study published in 2016: see [https://uspirg.org/sites/pirg/files/reports/USP%20ShellGames%20Oct16%201.2\\_FINAL.pdf](https://uspirg.org/sites/pirg/files/reports/USP%20ShellGames%20Oct16%201.2_FINAL.pdf). The Institute on Taxation and Economic Policy (ITEP) reported that Amazon, in 2018, nearly doubled its profits, from \$5.6 billion to \$11.2 billion, but far from paying the statutory 21% income tax rate, it reported a \$129 million federal income tax rebate for the year - an effective tax rate of -1%: see: <https://itep.org/amazon-in-its-prime-doubles-profits-pays-0-in-federal-income-taxes/>

complex tasks; the brain is no longer challenged enough to maintain normal cognitive function. Chapter Five examines the present day phenomenon of the smartphone and its impacts, particularly on young adults. What is the history and the qualities of such small lightweight, portable communication devices and how, and in what way, are they responsible for substantial changes to many aspects of our daily lives and routines? We will trace the rise of behavioural addiction and explain why so many of today's digital products appear to be so irresistible for users. Thanks to our ever-present, always-on smartphones – and other such digital devices – we are connected to powerful computing networks throughout our waking hours, but what we risk losing is our personal agency and a sense of fulfilment and belonging that comes from acting with awareness and intent in the real world. In the modern world, users now perceive smartphones as part of their extended selves, and being disconnected from such technology is highly stressful leading to extreme bouts of anxiety.

The following chapter looks at critical issues of privacy and surveillance. Even when people state they are concerned with online privacy and surveillance, these concerns are often not strong enough to drive us to digital abstinence or even reduce our use of such technology. So often the question is not what people allegedly plan to do about their privacy but what they do in reality. When presented with the potential privacy risks associated with social media platforms or other such online activity, people somehow believe that those risks do not apply to them, they just happen to others. The perceived benefits of using free applications and disclosing personal information on social media platforms outweigh the perceived risks for many. Most people use social networks to gratify fundamental psychological needs and to display their values and identity, and given the choice to pay for their online services for the chance to withhold all of their personal data, many would probably decline preferring instead to pay with their personal data and information. This is great news for big tech behemoths, and those who wish to manipulate and misuse our personal information for their own ends. The digital divide, which is discussed in Chapter Seven, is the term given to the gap between demographics, communities and regions that have access to new digital ICT and those who have restricted or no access at all. It is largely a social issue raising concerns about access to essential information: the haves and have-nots of the Digital Age. Such a gap will not close without concerted efforts by policy- and decision-makers, and such efforts must include not only the hardware and underlying infrastructure of a modern ICT network and system but also the promotion and support of computer illiteracy among overlooked populations. Digitalisation also continues to divide in terms of gender, ethnicity, race and income. These are all issues of mounting concern in the Digital Age as the inequalities between those who remain under-represented and often excluded and those who make the strategic long-term decisions on behalf of the tech sector become more apparent.

The contemporary digital world is also having 'hidden' effects on the environment, while spreading and encouraging a damaging (over)consumption mindset. Chapter Eight will focus on our continuing fixation with digitalisation arguing that these new technologies and services may well be creating new pressure points on the ecological world, hastening the climate emergency. The Digital Commons

environmental impacts are frequently underestimated and often unclear to many who use services such as streaming that appear intangible in real time but which consume vast quantities of energy at a distance from the end user. Data centres now have the same carbon footprint as the airline industry and the volume of energy consumed by these centres – the repositories for billions of gigabytes of information – will treble in the next decade putting even greater strain on energy supplies and dealing a substantial blow to efforts to contain climate breakdown. Chapter Nine explores the issue of democracy as it is affected by the contemporary digital online world. The promise, at the beginning of the twenty-first century, was that the internet would liberate the world and promote democratic processes universally, but internet freedom is but an illusion, and such technology has failed in any meaningful way to democratise the world. Digital ICT has instead contributed to a crisis in democracy which has overwhelmed our collective capacity to tell truth from falsehood and reason from its absence. Being dependent on forms of communication and information-sharing that we neither control nor fully understand has meant that the terms on which democracy must now operate has been greatly complicated and may even be compromised. In the space of one election cycle, populist governments, wealthy elites and fringe hackers have figured out how to game elections, circumvent democratic processes and turn social media platforms into public battlefields.

The concluding chapter will attempt to pull together the previous arguments and debates and outline some guiding principles for possible digital technology futures. Some moves towards seeking more responsible digital technology outcomes are evident in the emergence of advocacy organisation such as The Center for Humane Technology and The Future of Life Institute, but these efforts need to become deeper embedded into the practices and cultures of digital technology companies and platform corporations, whether by choice or regulation. We must remain cognisant that the digital ICTs that are having individual, societal, economic, cultural and environmental impacts on our lives are social constructs and the direction they take can always be modified to better serve and support human flourishing, given the necessary social consensus and willingness. We must continue to foster innovation and provide opportunities and the freedom for individuals to use their technology expertise for social, cultural and ecological well-being and not just economic worth. There is a bright future ahead, and digital technology will play a significant role. Whether that role is for overall societal good or harm remains within our grasp. But before we investigate these possible societal and environmental impacts and consequences, we must first explore the dominant digital corporations that have come to define the broad online experience for many in the twenty-first century.

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## Chapter 2

# The Digital Behemoths

Instead of enlarging our overall economy by creating more value that is on the books, the rise of digital networking is enriching a relative few while moving the value created by the many off the books.

Jaron Lanier – Who Owns the Future?

He's f—king destroyed this town [Silicon Valley]. Any time there's an inkling of innovation here, any time a new idea comes up, Zuckerberg either buys it and shuts it down, or copies it and shuts it down anyway.

Venture Capitalist speaking to Nick Bilton of *Vanity Fair*<sup>1</sup>

## The Big Four

There is a strong view expressed by some public commentator and technology utopians that the digital online world is a bastion of freedom, where small start-ups happen by chance and are encouraged in great numbers and where everyone has an equal voice, opportunity and share in the success of this libertarian stronghold. This is the all-powerful and self-confident narrative that emanates from Silicon Valley. Meanwhile, internet access has quickly become a necessary utility for many people around the world and is seen as a crucial medium through which people can express themselves and share ideas and, it is suggested, has become an increasingly important tool through which democracy and human rights activists mobilise and advocate for political, social and economic reform.<sup>2</sup> Only a few decades ago, the use of the internet was limited and its availability and reach restricted.

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<sup>1</sup><https://www.vanityfair.com/news/2019/11/how-mark-zuckerberg-became-the-most-reviled-man-in-tech>

<sup>2</sup>For an example of such activism, the 'Freedom House' at <https://freedomhouse.org/>.

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### The Social, Cultural and Environmental Costs of Hyper-Connectivity: Sleeping Through the Revolution, 19–37



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Today, access has become almost universal, but even as the network and the numbers of users have grown exponentially over the recent past, control of the internet itself has contracted into the hands of the few. A small number of very powerful digital corporations now dominate the internet and digitalisation experience and environments. The Big Four tech companies – also known as the Gang of Four or the Four Horsemen<sup>3</sup> – the mammoth US multinationals offering online services, computer hardware and software applications and social media platforms, have come to dominate our experience and understanding of the online digital world over the past decade. These foremost corporations are Google,<sup>4</sup> Amazon, Facebook and Apple. Google now controls nearly 90 per cent of search engine advertising, Amazon about 75 per cent of all online sales and Facebook almost 80 per cent of mobile social media online traffic. Apple is now the company with the highest market capitalisation in the world. Such dominance is essentially monopolistic, and these digital oligopolies are even more powerful than the corporations that have preceded them, which tended to have been limited to a single product, market or service.<sup>5</sup> These four digital behemoths effectively control the tech industry, and it is next to impossible for newer nimble rivals to challenge or overtake them to any significant extent. In this chapter, we will trace the beginnings of these tech giants and attempt to uncover the reasons why these specific corporations have come to dictate and control our online experiences. Later in this chapter, we will look at some of the controversies that have come to dog these mammoth concerns over the recent past and have begun to dent and damage their carefully choreographed image and credentials as ‘do no harm’ progressive digital pioneers.

## Google

The Google story began in the summer of 1995 when Larry Page first met Sergey Brin, who was then a second-year graduate student in the computer science department at Stanford University. Gregarious by nature, Brin had volunteered as a guide for potential first-year students at the university. His duties included showing recruits the campus and leading a tour of the nearby San Francisco area. Page, an engineering major from the University of Michigan, joined Brin’s group and the two reportedly clashed incessantly on the first day of their meeting debating, among other things, the value of various approaches to urban planning and design. Both, it is suggested, shared a passion for jousting with an intellectually worthy antagonist, even if it meant taking absurd positions. But this early relentless banter and verbal sparring laid the groundwork for what was to become a partnership imbued with mutual respect, even though each found

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<sup>3</sup>Galloway (2017).

<sup>4</sup>Google changed its corporate structure and name in 2015 when the search company became a wholly owned subsidiary of Alphabet Inc., but for clarity, we will use the name Google as it is more widely publicly recognised as such.

<sup>5</sup>Taplin (2017).

the other cocky and obnoxious at first.<sup>6</sup> By January 1996, the pair had begun collaborating on writing a programme for a search engine they called *BackRub*, named after its ability to do backlink analysis. The project resulted in a widely popular research paper titled *The Anatomy of a Large-Scale Hypertextual Web Search Engine*.<sup>7</sup> The search engine was novel in that it used a particular web technology they developed called *PageRank*, which determined a website's relevance by taking into account the number of pages, along with the importance of the pages, which linked back to the original website. They had created an algorithm ranking system that rewarded links that came from sources that were important and penalised those that did not. Prior to this, efforts to help computer users find information on the internet – including *AltaVista*, *WebCrawler*, *Infoseek*, *HotBot*, *Magellan*, *Excite* and *Lycos* – left many well short of their expectations. Such search engines merely ranked results based on how often a search term appeared on a webpage and were often meaningless. Buoyed by the positive reaction to *BackRub* and the many enthusiastic reviews it received, the pair set about working on further developing this particularly unique internet search platform. In the autumn of 1997, both Brin and Page decided that *BackRub* was a cumbersome name and that they needed something catchier and that would fit the image of their new innovative platform and tech environment. Having originally come up with the name *Googleplex*, they later shortened this to just *Google* and registered *Google.com* that very same evening. They released the first version of *Google* on the Stanford University website in August 1996, almost one year after they first met, and both took leave of absence from the university in late 1998 to pursue the building of their search engine and company.

Brin and Page were perfectly positioned to pounce when the internet.com bubble spectacularly bust at the turn of the century. As a private enterprise start-up, they were protected from the worst excesses of the crash which destroyed many of the publicly owned digital technology companies of the day. What *Google* was very successfully able to leverage was the wealth of talent that now found themselves out of work. This outstanding pool of software engineering and mathematical talent presented a one-time opportunity for *Google* to add enormous brainpower and depth to the company that would not have been possible under more normal circumstances. By early 2001, *Google* was performing an estimated 100 million web searches per day, which equates to 1,000 searches a second. The term 'Google' had by now entered the American lexicon as a verb, a trend documented by a *New York Observer* article that chronicled New Yorkers 'googling' each other before dates.<sup>8</sup> By now, Eric Schmidt had arrived as the new CEO of the company tasked with expanding the business beyond the United States and to aggressively generate new advertisement sales abroad. By 2003, millions of people worldwide were searching online using *Google* in their own native language, and by spring 2004, Brin and Page had added their 'Gmail' service to their growing

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<sup>6</sup>Vise (2005, p. 21).

<sup>7</sup>Brin and Page (1998).

<sup>8</sup>Vise (2005, p. 99).

list of accomplishments. This led to mounting concerns among politicians and privacy advocacy groups about the company's ad-driven profiteering from their email service and issues concerning overall unwarranted invasion of privacy.<sup>9</sup>

Google founders Brin and Page have always maintained that they ran their business with a specific motto in mind: don't be evil. They sought to explain what they meant by this in terms of their web search philosophy:

Our search results are the best we know how to produce. We do not accept payment for them or for inclusion or more frequent updating. We also display advertising, which we work hard to make relevant, and label it clearly. This is similar to a well-run newspaper, where the advertisements are clear and the articles are not influenced by the advertisers' payments.<sup>10</sup>

By April 2004, they had filed an Initial Public Offering (IPO) to go public with Google and, although they had some initial setbacks and adverse headlines, when the company made its first public offering on the NASDAQ exchange on 19 August, the stock jumped from \$15.01 to \$100.01, raising \$1.67 billion and giving the company an initial market value of some \$23.1 billion.<sup>11</sup> For Brin and Page, they had pulled off one of the biggest IPO's ever made on the stock exchange, while earning the respect of corporate leaders by maintaining control over the process without comprising the Google culture. By the time the company held its first annual general meeting of stockholders in May 2005, the stock price had passed \$225, and by July that year, it had broken through the \$300 barrier. As John Battelle maintained in his book *The Search*, as we move our private data to online company servers, we are making an implicit bargain, one that the public at large is either entirely content with or, more likely, one that most have taken at heart. That bargain is that we trust you to 'not do evil' with our information, which we freely give you. We trust that you keep it secure, free from unlawful government interference or private search and seizure and under close control at all times. We understand that you might use data in aggregate to provide us better and more useful services, but we trust that you will not identify individuals personally through our data, nor use our private data in a manner that would violate our own sense of privacy and freedom.<sup>12</sup>

## Amazon

In 1994, Jeff Bezos, who had formerly worked in New York's Wall Street as a hedge fund executive, incorporated Amazon.com which has today expanded to become the largest online retail website in the world. From its humble beginnings

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<sup>9</sup>Vise (2005, p. 156).

<sup>10</sup>Vise (2005, pp. 177-178).

<sup>11</sup>Vise (2005, p. 190).

<sup>12</sup>Battelle (2011, p. 15).

in a garage at his home in Bellevue, Washington, to an international goliath employing one million people worldwide,<sup>13</sup> the company has enjoyed remarkable growth and success over the last two decades, enlarging still further during the recent pandemic. It has been suggested that in choosing the Amazon name, it was primarily because it began with the first letter of the alphabet and thus it would be at the top of any alphabetised list and also because of its association with the vast South American river of the same name.<sup>14</sup> Bezos was thinking big from the very start. At the outset, he commissioned market research which indicated that selling books online offered the best possible route to success in retail online sales. But Bezos wanted Amazon to be much more than a simple online retail platform; he set his sights to also creating an entire online community, and an early indication of this was the website's feature that enabled readers to add their own personal book reviews for other customers to examine. On 5 July 1994, Bezos incorporated the first version of Amazon as a company in Seattle, Washington, and on 15 May 1997, the company went public. The IPO was set at \$18, but by the end of the day, public demand had pushed the share price to more than \$30 per share, and Amazon went on to raise \$150 million by the end of that year.<sup>15</sup>

In the beginning, the Amazon business model was derided and met with scepticism from some financial journalists and sector analysts who mocked the company by referring to it as Amazon.bomb.<sup>16</sup> Such doubters claimed Amazon ultimately would lose in the marketplace to established bookseller chains once these incumbents launched competing e-commerce websites, and the lack of profit in the early years seemed to justify such criticism. Investors began questioning Amazon's ability to ever reach profitability on the back of deepening financial losses over these early years. But Bezos dismissed these cynics for not fully appreciating and understanding the enormous growth potential of leveraging the power of the internet. He argued that to succeed as an online retailer, a company needed to 'get big fast', a slogan he adopted and had printed on employee T-shirts. And get big quickly they did. After its first full year in operation, it had some 1,000,000 customer accounts. Its revenue jumped from \$15.7 million in 1996 to \$148 million in 1997, followed by \$610 million in 1998, and Amazon's success propelled its founder to become *Time* magazine's 1999 Person of the Year.<sup>17</sup> The company was growing at an incredible rate from just selling books, but Bezos wanted to expand beyond just a single product and thus began to sell other goods

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<sup>13</sup>Sumagaysay, L. (2020). Amazon reaches 1 million workers amid pandemic hiring frenzy. *MarketWatch*, July 30. Retrieved from <https://www.marketwatch.com/story/amazon-reaches-1-million-workers-as-pandemic-pushes-total-up-11596136565>

<sup>14</sup>Byers (2007, pp. 46-47).

<sup>15</sup>Krishnamurthy (2004).

<sup>16</sup>Doherty, J. (1999). Amazon.bomb. *The Wall Street Journal*, May 31. Retrieved from <https://www.wsj.com/articles/SB927932262753284707>

<sup>17</sup>Jeffrey Preston Bezos: 1999 person of the year. *Time*. Retrieved from <http://content.time.com/time/magazine/article/0,9171,992927,00.html>

and items online to raise the profile and dominance of Amazon and move to becoming the ‘everything store’.<sup>18</sup>

In the spring of 2001, Bezos met personally with Costco founder Jim Sinegal, who managed to change Bezos’ mind on Amazon’s pricing strategy. The Costco model is all about customer loyalty; it does not advertise and earns most of its profit from annual membership fees, but Costco then uses its heavy sales volume to negotiate better deals from suppliers. In July 2001, Amazon announced that it was cutting the price of books, music and videos by 20–30 per cent to build customer loyalty and increase its customer base. But Bezos also repositioned Amazon as not just an online retailer but also a technology company.<sup>19</sup> To underscore this, in 2002, the company launched Amazon Web Services (AWS), which initially offered data on internet traffic patterns, a website popularity index and other statistics for digital technology developers and marketers. In 2006, the company expanded its AWS portfolio with its Elastic Compute Cloud (EC2), which rents out computer processing power in small or large increments to companies. That same year the Simple Storage Service (S3), which rents data storage over the internet, became available.<sup>20</sup> In November 2005, Amazon launched Mechanical Turk, a service which allows the hiring of workers to preform low-cost, hard to automate services like image recognition and data categorisation. It is a system that allows often well-educated workers complete microtasks on Amazon’s platform for small amounts of money: new workers unfamiliar with Amazon Mechanical Turk tips and tricks making as low as \$2–3 an hour, while the average worker makes just about \$8 hourly.<sup>21</sup> Jeremias Prassel suggests that the plan was to ‘rent out Amazon’s guts and become the world’s leading provider of web services’.<sup>22</sup> Software developers requiring processing power and data storage would no longer need to purchase expensive hardware to meet their needs; they could tap into Amazon’s vast servers instead and pay just a fraction of the cost for the services they required.

Throughout the last two decades, Amazon’s retail sales gained formidable momentum, and its experimental digital tech projects began yielding fruit. In its 2019 financial accounts, Amazon reported a net sales increase of 20 per cent to \$280.5 billion, compared with \$232.9 billion in 2018.<sup>23</sup> In addition to announcing

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<sup>18</sup>Stone (2013).

<sup>19</sup>In Stone (2013), Chapter 4 discusses a breakfast meeting between the two at which Sinegal outlined the Costco business model, which primarily focusses on building customer loyalty and setting a coherent pricing strategy.

<sup>20</sup>Hall, M. (2008). Amazon.com. *Britannica*, May 5. Retrieved from <https://www.britannica.com/topic/Amazoncom>

<sup>21</sup>Matsakis, L. (2016). Fifty percent of Mechanical Turk workers have college degrees, study finds. *Vice*, November 7. Retrieved from <https://www.vice.com/en/article/mg-79bv/fifty-percent-of-mechanical-turk-workers-have-college-degrees-study-finds>

<sup>22</sup>Prassl (2018, pp. 1-2).

<sup>23</sup>Amazon.com announces fourth quarter sales up 21% to \$87.4 billion. (2020). *Amazon*, January 30. Retrieved from <https://ir.aboutamazon.com/news-release/news-release-details/2020/Amazoncom-Announces-Fourth-Quarter-Sales-up-21-to-874-Billion/default.aspx>

a host of new innovations, developments and releases, net sales for the first quarter of 2020 were expected to grow between 16 per cent and 22 per cent compared with the first quarter of 2019. Amazon's 2020 third-quarter earnings soared to new heights as pandemic sales tripled profits at the company.

## Facebook

Mark Zuckerberg, along with fellow classmates Eduardo Saverin and later Dustin Moskovitz and Chris Hughes, founded Facebook while in his second-year studying Psychology at Harvard University. A keen computer programmer, Zuckerberg had already developed several basic social networking websites for use by fellow students on campus. One of these networking sites – *Coursematch* – was a modest project which allowed students to pick classes based on who else was taking that particular class. You simply clicked on a course to who was signed up or clicked on a student's name to what courses he or she was signed up to. He also created *Facemash*, a frivolous website where you could rate people's overall attractiveness. The images for Facemash came from the so-called facebook maintained by each of the Harvard houses where undergraduate students lived. These were the photos taken on orientation day and Zuckerberg cunningly found a way to unscrupulously appropriate and use these images from nine of the 12 Harvard houses.<sup>24</sup> In most cases, he simply hacked in to their databases over the internet, but in other cases, he obtained log-in details from a friend and even, in one instance, crept into the house, plugged an Ethernet cable into the wall, and downloaded the names and photos from the house computer. He was starting as he intended to go on, asking for forgiveness not permission. The website became an instant underground hit with the students. Zuckerberg was later accused of violating the college's code of conduct in the way the site handled security, copyright and privacy and was called before the Harvard Disciplinary Administrative Board. The resulting inquiry had Zuckerberg put on probation, and he was required to a counsellor.<sup>25</sup> What Facemash did show was that Zuckerberg had a knack for making software that others found irresistible.

In February 2004, Zuckerberg launched what was then known as *Thefacebook*. This was the title taken from the sheets of paper distributed to all freshmen, which profiled all students and staff across the university. While both *Coursematch* and *Facemash* were hosted on-site on the Harvard network, this time he found an off-site hosting company called *Manage.com* where *Thefacebook's* software and data were to reside. Within 24 hours of the launch upwards of 1,200 Harvard students had signed up, and after just one month, over half of the undergraduate population had a profile on the online social networking site. Six days after the launch, Harvard seniors Cameron Winklevoss, Tyler Winklevoss and Divya Narendra accused Zuckerberg of stealing their ideas for their intended social networking website called *HarvardConnection*. They claimed they had hired Zuckerberg to

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<sup>24</sup>Kirkpatrick (2011, p. 23).

<sup>25</sup>Kirkpatrick (2011, p. 25).

work on their programme and that he had advised them their plans were unlikely to succeed.<sup>26</sup> The claimants later filed a lawsuit against Zuckerberg, and the matter was eventually settled out of court.

Membership of the social networking website was initially restricted to Harvard students, but the team behind the project later extended the site to include other Boston universities, Ivy League schools and eventually all other universities and colleges across the United States. In 2004, Napster founder Sean Parker became the company's president after impressing Zuckerberg with his entrepreneurial zeal. Parker was among a growing number of Silicon Valley executives who were convinced that online social networking would become very big business having himself created Plaxo, an online address book and social networking service that integrated with Microsoft Outlook. At this stage, Zuckerberg and Moskovitz had also moved to a new Palo Alto location, one of the principal cities of Silicon Valley. In the summer of 2005, the company changed the site's name from TheFacebook to just Facebook after purchasing the domain name facebook.com for \$200,000 from a company called *AboutFace*.<sup>27</sup> The following year, venture capital firm Accel Partners invested a significant sum in the company, which enabled the creation of a version of the network site for high school students. Facebook would later expand to encompass other collectives, such as employees of companies. US high school students could sign up to the website by September 2005, and from there, it spread worldwide reaching UK universities the following month. In September 2006, Facebook announced that anyone who was at least 13 years old and had a valid email address could join the network. By 2009, it had become the world's most used online social networking platform, displacing and finishing off many of its competitors in the process.<sup>28</sup> With offices in more than 70 cities worldwide, 17 data centres globally and some 53,534 full-time employees,<sup>29</sup> Facebook now has approximately 2 billion monthly active users on their platform.<sup>30</sup> The Covid-19 coronavirus pandemic and resulting lockdowns and restrictions were also the catalyst for some significant growth for Facebook and its suite of apps. Daily users of Facebook increased 12 per cent year over year, to 1.79 billion. Monthly usage across its family of apps, which also include Instagram and WhatsApp, rose 14 per cent, to 3.14 billion. And Facebook's

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<sup>26</sup>Kirkpatrick (2011, pp. 40-41).

<sup>27</sup>Kirkpatrick (2011, p. 145).

<sup>28</sup>Bellis, M. (2019). The history of Facebook and how it was invented. *ThoughtCo*, October 20. Retrieved from <https://www.thoughtco.com/who-invented-facebook-1991791>

<sup>29</sup>Facebook company information. (2020). *Facebook*, June 30. Retrieved from <https://about.fb.com/company-info/>

<sup>30</sup>On the afternoon of 27 June 2017, Mark Zuckerberg posted a brief message on his Facebook page stating, '[a]s of this morning, the Facebook community is now officially 2 billion people! We're making progress connecting the world, and now let's bring the world closer together. It's an honor to be on this journey with you': <https://www.facebook.com/zuck/posts/10103831654565331?pnref=story>.

mostly ad-based business rose accordingly with the company's revenue up 11 per cent year over year to \$18.69 billion.<sup>31</sup>

## Apple

Steve Jobs and Steve Wozniak co-founded Apple in 1976 in the Job's family garage, primarily to sell Wozniak's Apple I personal computer. It was claimed they funded their joint entrepreneurial venture when Jobs sold his Volkswagen bus and Wozniak sold his beloved scientific calculator.<sup>32</sup> The two had been members of the HomeBrew Computer Club, building the blue boxes phone phreakers used to make free calls across the United States during the 1970s. Both were college dropouts, but both had a definitive vision of developing a computer small enough for people to have in their own home or office. Building upon the Apple I, the duo gained fame and some wealth a year later with the development of Apple II, one of the first highly successful mass-produced microcomputers. The Apple I had been sold without a monitor, keyboard or casing but the Apple II transformed the entire industry by including these, in addition to the introduction of the first ever colour graphics. Sales jumped from \$7.8 million in 1978 to \$117 million in 1980, the year Apple went public.<sup>33</sup> Both Jobs and Wozniak are widely credited with revolutionising the computer technology industry with their vision for Apple by democratising the technology and making computers smaller, cheaper, intuitive and accessible to everyday consumers. After Apple became a publicly traded company in 1980, the company's subsequent products suffered some significant design flaws resulting in several recalls and general consumer dissatisfaction and disappointment. IBM surpassed Apple in sales around that time, and the industry effectively became an IBM/PC-dominated business world.<sup>34</sup> Wozniak left Apple in 1983 because of his diminishing interest in the day-to-day running of the company, and Jobs subsequently hired the president of PepsiCo John Sculley to be Chief Executive Officer (CEO).<sup>35</sup>

In February 1985, Jobs did a celebrated interview with *Playboy* magazine. Journalist David Sheff painted a picture of a guy: 'in jeans and worn sneakers, running a company that prides itself on having a mixture of Sixties idealism and

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<sup>31</sup>Newton, C. (2020). Facebook usage and revenue continue to grow as the pandemic rages on. *The Verge*, July 30. Retrieved from <https://www.theverge.com/2020/7/30/21348308/facebook-earnings-q2-2020-pandemic-revenue-usage-growth>

<sup>32</sup>Steve Jobs. (2017). *Biography*, April 27. Retrieved from <https://www.biography.com/business-figure/steve-jobs>

<sup>33</sup>Brashares (2001, p. 21).

<sup>34</sup>Steve Jobs. (2017). *Biography*, April 27. Retrieved from <https://www.biography.com/business-figure/steve-jobs>

<sup>35</sup>Milestones along the way for Apple's trip to \$1 trillion. (2018). *The Associated Press*, August 2. Retrieved from <https://apnews.com/article/fec7df0cf9ec4b7aaddc37f016dff3b7>

Eighties business savvy, Jobs is both admired and feared'.<sup>36</sup> When asked how computers were going to change our collective personal lives Jobs responded:

A computer is the most incredible tool we've ever seen. It can be a writing tool, a communications center, a supercalculator, a planner, a filer and an artistic instrument all in one, just by being given new instructions, or software, to work from. There are no other tools that have the power and versatility of a computer. We have no idea how far it's going to go. Right now, computers make our lives easier. They do work for us in fractions of a second that would take us hours. They increase the quality of life, some of that by simply automating drudgery and some of that by broadening our possibilities. As things progress, they'll be doing more and more for us.<sup>37</sup>

Shortly after this interview, and with increasing tension and conflict about the direction of the company, the Apple board of directors sided with Scully against a now combative Jobs. The previous year Apple had released the Macintosh, which was marketed on its design, style, youthfulness and representing a creative and a counterculture lifestyle. Despite good initial sales and a superior performance to that of the existing IBM/PC, the Macintosh was still not compatible with the PC, and Scully disagreed with Jobs over the pricing of each individual unit. Having initially being sidelined, Jobs left the company before the end of 1985. Away from Apple, Jobs invested in and developed animation producer Pixar and then founded NeXT to create high-end computers. Throughout the remainder of the 1980s, Apple continued to do well, and in 1990, it posted its highest profits to that date. This was, however, mainly due to the plans that Jobs had set in motion before he left the company, most notably his deal with a tiny company by the name of Adobe, creator of the Portable Document Format (PDF). Together the two companies created the phenomenon known as desktop publishing.<sup>38</sup> Meanwhile, Job's NeXT was receiving considerable industry attention with the development of its operating system and when Apple sought a replacement for its backbone software, it was drawn to NeXT and the systems capabilities. Apple acquired the company in 1997 and Steve Jobs returned as Apple's CEO after just a few months in waiting.

Apple had, by this time, gone through a particularly rocky patch and was facing into a mounting financial crisis. It had struggled as inexpensive PCs running

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<sup>36</sup>Sheff, D. (1985). Playboy interview: Steven Jobs. *Playboy*, February 1. Retrieved from <http://www.thecosmosphere.com/wp-content/uploads/2011/10/Playboy-Interview-With-Steve-Jobs.pdf>

<sup>37</sup>Sheff, D. (1985). Playboy interview: Steven Jobs (p. 7). *Playboy*, February 1. Retrieved from <http://www.thecosmosphere.com/wp-content/uploads/2011/10/Playboy-Interview-With-Steve-Jobs.pdf>

<sup>38</sup>Brashares (2001, p. 59).

Windows flooded the computer marketplace. Apple was busily haemorrhaging money at an alarming rate and was on the verge of bankruptcy. Jobs quickly regained control and took drastic steps to turn around Apple's decline. The company requested, and received, a \$150 million investment from Bill Gates and Microsoft in 1997,<sup>39</sup> which was used to ramp up advertising and highlight the successful products Apple already offered, while Jobs also choked off Research and Development (R&D) money in non-productive areas. He began working closely with designer Jony Ive to develop a new line of products that had wider and superior cultural ramifications, beginning in 1997 with the 'Think Different' advertising campaign and leading to the *iMac*, *iTunes*, *iTunes Store*, *Apple Store*, *iPod*, *iPhone*, *App Store* and the *iPad*. When Jobs stepped down as CEO of Apple, he was replaced by Tim Cook. Jobs had been diagnosed with a rare form of pancreatic cancer in 2003 and had undergone major reconstructive surgery. Throughout 2008 and 2009, he had suffered additional health problems leading to a liver transplant, and two months after stepping down as Apple CEO, in August 2011, he passed away. Apple continued to prosper under the leadership of Cook developing several iterations of its iOS (Operating System) and its flagship iPhone, iMac, iPad and music systems. In October 2019, the company posted a quarterly revenue of \$64 billion, an increase of 2 per cent from the previous year's quarter returns, and quarterly earnings per diluted share of \$3.03, up 4 per cent. International sales accounted for 60 per cent of the quarter's revenue.<sup>40</sup> Apple was thriving and even a worldwide pandemic could not slow its extraordinary growth. At the end of July 2020, the company posted quarterly revenue of \$59.7 billion, an increase of 11 per cent from the previous year's quarter.<sup>41</sup>

## So, What's the Problem?

Such business success and accomplishments should surely be generally applauded, and the drive and the spirit of entrepreneurship shown by Page, Brin, Bezos, Zuckerberg, Jobs and Cook – among others – widely acknowledged and celebrated. And it is. They have been lauded by public commentators, politicians, decision-makers and governments worldwide and acclaimed for their ability to create well-paid employment for workers in the United States, Central America, Europe, Asia, India and Africa. Not only are such positions highly prized in many developed and developing nations, these global corporations also add to a country's image and sense of self-worth in the new digital twenty-first century.

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<sup>39</sup>Silver, S. (2018). August 6, 1997 - The day Apple and Microsoft made peace. *Apple Insider*. Retrieved from <https://appleinsider.com/articles/18/08/06/august-6-1997--the-day-apple-and-microsoft-made-peace>

<sup>40</sup>Apple reports fourth quarter results. (2019). *Apple Press Release*, October 30. Retrieved from <https://www.apple.com/uk/newsroom/2019/10/apple-reports-fourth-quarter-results/>

<sup>41</sup>Apple reports third quarter results. (2020). *Apple Newsroom*, July 30. Retrieved from <https://www.apple.com/newsroom/2020/07/apple-reports-third-quarter-results/>

Such appeal adds further weight to the strength and influence these companies already have, making them more powerful than most countries on the planet. These corporate beasts of the Information Age – Google, Facebook, Amazon and Apple – are four of the most influential companies in the world today and have been influencing our daily routines and lives so completely; they are almost impossible to ignore, avoid or boycott. They have become much more powerful than nation states and their reach across international borders have made them untouchable super-rich mega-entities. As virtual digital monopolies, they have been allowed prey on competitors and incumbents for some time, either outmuscling them financially or simply swallowing them whole and meshing them into their own organisational structures and corporate cultures. This is not only having the effect of stifling competition and innovation; it's also leading to these digital behemoths becoming impervious to any form of real competition. Google, Facebook and Amazon are built on a model of personal data collection, analysis and monetisation. These data are not just ordinary mundane figures. This is the personal, sometime imitate, information people freely give to these platforms to avail of the free services on offer. However, by monetising this personal information, there is now widespread acceptance that such data have real tangible value, but such value only accrues to these platforms and not the individuals from whence it came. In fact, once such data are analysed, transformed and redirected, it may be causing us harm.

Jaron Lanier – the American computer philosophy writer, computer scientist and believed founding father of the field of virtual reality – suggests that in this new digital world order, money and power are concentrated in the hands of the few, and these dominant digital technology firms are becoming the new global ruling class. In *Who Owns the Future?* he argues that our insatiable demand for information and entertainment, and for access to instant communications and trivia, has come at a heavy price.<sup>42</sup> Lanier likens the online economic model to that of offline retail giant Walmart, with its low-cost, low-value, low-payment principles. Lanier posits that the middle class is increasingly disenfranchised from online economies by both eroding employment and job security, along with various protections that give the economic middle stability. By convincing users to give away valuable information about themselves in exchange for free services, these dominant tech giants can accrue large amounts of vital personal data at virtually no cost. Lanier calls these firms *Siren Servers* – companies, technological tools and platforms that Hoover up vast quantities of our personal information and our work for commercial gain – and instead of paying each individual for their contribution to the overall data pool, wealth is concentrated in the hands of the few, who control the data centres. He claimed that the early internet years had fetishised open access and knowledge-sharing in a way that has distracted most digital technology users from demanding fairness and job security in an economy predicated on data flows. His solution to this disparity is a humanistic information economy, one in which participants achieve some level of economic dignity

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<sup>42</sup>Lanier (2013).

by being proportionally compensated for all their contributions to the immense constellations of information we leave on the internet, and that is continually monetised by these digital giants.

In *Move Fast and Break Things*, Jonathan Taplin offers a powerful overview of how online life has come to be shaped by the values of these modern entrepreneurs that created these technological giants.<sup>43</sup> Taplin argues that digital information and communication technology has become critical and central to all our daily lives, as well as the world economy, and yet no decision on how it is designed, organised and managed has ever been democratically voted upon. Indeed, discussions and debates about these digital technology business models are only now, belatedly, emerging into the mainstream. Fundamental design and development decisions are almost wholly made by the engineers and libertarian executives at Google, Facebook and Amazon – among other tech giants – and levied upon an unsuspecting public without any regulatory scrutiny or oversight. The ordinary citizen, who has come to rely heavily on the internet for work, to stay connected and interact with friends and family, to purchase goods and services online, has never been given an opportunity to shape their own personal digital online experiences nor been given the choice over what personal information they wish to be monetised by digital technology corporations. Since the inception of the internet politicians and policy-makers have acted as if the rules that apply to the rest of the economy in the offline world do not apply to the digital realm. But we must better understand and acknowledge the underlying dangers to our social, cultural, political and economic systems associated with an ever-increasing concentration of power, wealth and influence in the hands of just a few individuals in a globalised world. The immense fortunes created over the last two decades by the digital revolution may also have done more to increase global economic inequalities, and the associated negative externalities, than almost any other factor in the recent past. Yet there is a belief that the oversize gains of many digital technology billionaires are the result of a genius entrepreneur culture, and that inequality at this scale is a choice and the result of laws and taxes that we, as a society, choose to establish and embrace.<sup>44</sup> Such an unequitable view, of course, comes almost exclusively from within the tech industry itself and is strongly libertarian in its stance.

The substance of many of Taplin's arguments are based on the dominance of this libertarian ideology amongst these new technological elite. The early online digital world was based on the countercultural revolution and the vision and idealism of people like Doug Engelbart, Stewart Brand, Vint Cerf and Tim Berners-Lee and a host of other architects of the early internet. Most of this initial research and work came about through funding from the US government's Defence Advanced Research Projects Agency (DARPA), set up to expand the frontiers of expertise beyond the immediate and specific requirements of the military. Significantly, these early pioneers saw the computer and the internet as

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<sup>43</sup>Taplin (2017).

<sup>44</sup>Taplin (2017, p. 9).

primarily tools to augment human flourishing, not damage, substitute or replace it. But this ideological slant shifted significantly in the mid- to late 1990s with the emergence of a new breed of tech entrepreneurs heavily funded by investors and venture capitalists who saw a different future for this newly emerging online digital world. For many of these new Turks, their philosophical heroine was Ayn Rand. Born in Russia, this New York-based writer and philosopher is widely known for two best-selling novels, *The Fountainhead* and *Atlas Shrugged*, and for developing a philosophical system called Objectivism. Her belief system is best summed up by her most famous quote:

achievement of your happiness is the only moral purpose of your life, and that happiness – not pain or mindless self-indulgence – is the proof of your moral integrity, since it is the proof and the result of your loyalty at the achievement of your values.<sup>45</sup>

It is a libertarian value that dismisses altruism and cooperation and, Taplin argues, has become the conventional guiding philosophy for both Silicon Valley and today's US Republican Party.<sup>46</sup>

The libertarian faith in the supremacy of the free market as the natural order of things has led some to pursue a low or no tax, non-regulatory regime, a value which permeates the digital tech sector. But in the absence of rules or some agreed norms, darker and more sinister forces gain a foothold. Former US President Barack Obama decried this environment as a 'wild, wild west' environment for allowing conspiracy theorists a broad platform and for destroying a common basis for debate, and he called for a new era of cooperation between governments and the private sector to defeat a range of fast-evolving online threats.<sup>47</sup> Speaking to *Vanity Fair* in 2018, Tim Berners-Lee declared; 'for people who want to make sure the web serves humanity, we have to concern ourselves with what people are building on top of it'.<sup>48</sup> Berners-Lee has spent most of the latter part of his career striving to protect and guard the internet against the injurious assault by those who would seek to only profit from his invention, at the expense of human flourishing and well-being:

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<sup>45</sup>Rand (2011).

<sup>46</sup>Rand (2011, pp. 73-74).

<sup>47</sup>Perlroth, N., & Sanger, D. S. (2015). Obama calls for new cooperation to wrangle the "Wild West" internet. *The New York Times*, February 13. Retrieved from <https://www.nytimes.com/2015/02/14/business/obama-urges-tech-companies-to-cooperate-on-internet-security.html>

<sup>48</sup>Brooker, K. (2018). I was devastated: Tim Berners-Lee, the man who created the World Wide Web, has some regrets. *Vanity Fair*, July 1. Retrieved from <https://www.vanityfair.com/news/2018/07/the-man-who-created-the-world-wide-web-has-some-regrets>

We demonstrated that the Web had failed instead of served humanity, as it was supposed to have done, and failed in many places. The increasing centralisation of the web has ended up producing – with no deliberate action of the people who designed the platform – a large-scale emergent phenomenon which is anti-human.<sup>49</sup>

But these digital oligopolies may not have it all their own way for much longer. In 2019, the US Department of Justice (DOJ) announced a vast antitrust investigation into the big four tech companies to determine if they are, in fact, engaging in monopolistic anticompetitive activities and behaviour.<sup>50</sup> This announcement comes hot on the heels of the largest penalty ever levied by the Federal Trade Commission (FTC) against Facebook, and the European Union (EU) opening an antitrust inquiry into Amazon's business practices with outside sellers. Facebook was ordered to pay \$5 billion to settle the FTC's investigation into assertions that it misused customer data.<sup>51</sup> Because of the power and influence these digital megacorporations enjoy, and the ease in which they move data between jurisdictions, they have also managed to limit and avoid paying an equitable and fair share of tax in the nation states in which they are due through a host of aggressive tax avoidance mechanisms and instruments. They have also been able to dominant and influence policy decisions to their advantage in some small European states such as Ireland and Luxembourg.

In Ireland, for instance, this has led to an extraordinary situation in which Apple, due to its tax liabilities in other EU states, were levied with a €13 billion tax bill payable to Ireland as the country in which it had moved most of its major tax obligations. Court papers suggested the Head Office of Apple Sales International had no staff or physical presence in Ireland, and crucially, it had no tax residency in the country. Nevertheless, Apple Sales International held the rights to use Apple's intellectual property to sell and manufacture Apple products outside the Americas. It was a convenient arrangement for Apple, duly approved by the Irish government. It ensured that the digital giant's tax liability for sales of its products across Europe in the decade between 2003 and 2014 dropped from 1 per cent of profits to 0.005 per cent.<sup>52</sup> In 2013, the European Commission's competition

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<sup>49</sup>Brooker, K. (2018). I was devastated: Tim Berners-Lee, the man who created the World Wide Web, has some regrets. *Vanity Fair*, July 1. Retrieved from <https://www.vanityfair.com/news/2018/07/the-man-who-created-the-world-wide-web-has-some-regrets>

<sup>50</sup>Kelly, J. (2019). Justice Department is investigating Google, Apple, Facebook and Amazon for monopolistic activities. *Forbes*, July 24. Retrieved from <https://www.forbes.com/sites/jackkelly/2019/07/24/justice-department-is-investigating-google-apple-facebook-and-amazon-for-monopolistic-activities/>

<sup>51</sup>Shepardson, D. (2019). FTC to announce \$5 billion settlement with Facebook as early as this week: Sources. *Reuters*, July 22. Retrieved from <https://www.reuters.com/article/us-facebook-ftc-idUSKCN1UH25S>

<sup>52</sup>Smyth, P. (2019). Explainer: Apple's €13bn tax appeal has huge implications. *The Irish Times*, September 13. Retrieved from <https://www.irishtimes.com/business/economy/explainer-apple-s-13bn-tax-appeal-has-huge-implications-1.4017044>

directorate began an investigation into the arrangement, and in June 2016, Commissioner Margrethe Vestager pronounced what amounted to the largest corporate tax fine in history. Technically speaking, however, it was not a fine. Instead, a very reluctant Irish government was ordered to recover the €13 billion in taxes allegedly underpaid by Apple, regarded by the Commission as improper state aid.

However, in an extraordinary move, the country set about challenging this directly with the EU on behalf of Apple. On 7 September 2016, the Irish government secured a majority in Dáil Éireann – the Irish Parliament – to challenge the EU decision and reject the collection of the back-taxes.<sup>53</sup> The government formally appealed the ruling on the grounds there was no violation of Irish tax law, and that the Commission’s action was an intrusion into Irish sovereignty as national tax policy is excluded from EU treaties. In November 2016, Apple CEO Tim Cook announced Apple would also appeal, and in September 2018, Apple lodged €13 billion to an escrow account pending this appeal. In May 2019, the Irish Public Accounts Committee was informed by officials from the Department of Finance that defending the Apple case had, to date, cost the Irish state €7.1 million in mostly legal fees, and that the case could take a decade to reach a final verdict.<sup>54</sup> Ireland won their case in July 2020, a decision that is likely to be subject to further EU appeal. In shielding Apple from paying its fair share of tax, Ireland has placed itself in an unenviable position where the Nobel laureate and economist Joseph Stiglitz, speaking to the *Irish Times*, suggests: the state is ‘robbing’ its European neighbours by allowing Apple pay such a low tax rate.<sup>55</sup>

Apple are not alone in seeking to exploit lax internationally coordinated tax regulation and the other digital technology behemoths actively work to limit their tax liabilities to each state in which it is due. In January 2020, it was reported that Google had been using the ‘double Irish’<sup>56</sup> to funnel billions in global profits through Ireland and on to Google Ireland Holdings, the parent company for Google Ireland, which is located in Bermuda, effectively putting them beyond the reach of US tax authorities. Google Ireland Holdings recorded \$14.5 billion in untaxed profits in 2017, on turnover of \$22.3 billion, while having no staff

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<sup>53</sup>O’Halloran, M., & O’Regan, M. (2016). Dáil Apple debate: Government wins appeal motion. *The Irish Times*, September 7. Retrieved from <https://www.irishtimes.com/news/politics/d%C3%A1il-apple-debate-government-wins-appeal-motion-1.2782484>.

<sup>54</sup>McMorrow, C. (2019). State’s appeal of EU Apple tax ruling has cost €7.1m so far. *RTÉ News*, May 30. Retrieved from <https://www.rte.ie/news/business/2019/0530/1052573-apple-tax-case/>

<sup>55</sup>Hamilton, P. (2020). Ireland “robbing” European neighbours with low tax rate - Stiglitz. *The Irish Times*, June 15. Retrieved from <https://www.irishtimes.com/business/economy/ireland-robbing-european-neighbours-with-low-tax-rate-stiglitz-1.4279638>

<sup>56</sup>The Double Irish was a base erosion and profit shifting (BEPS) corporate tax tool used mostly by US multinationals to avoid corporate taxation on non-US profits. It was the largest tax avoidance tool in history and by 2010 was shielding US\$100 billion annually in US multinational foreign profits from taxation: <https://www.ft.com/content/f7a2b958-4fc8-11e4-908e-00144feab7de>.

on its books.<sup>57</sup> The US Internal Revenue Service (IRS) is also in a decade-long battle with Facebook. The case is rooted in a series of so-called transfer pricing arrangements between Facebook's US parent and its Irish hub, which were put in place prior to the company's flotation on the stock market in 2012.<sup>58</sup> Under these arrangements, Facebook's Irish hub paid royalties to its US parent for the use of the social media company's intellectual property. The lower the value Facebook placed on the intellectual property, the less royalties the Irish unit would have to pay to the United States, thus leaving more profits in the Irish unit where it would face lower taxes – much less than in the United States where it would have been taxed at 35 per cent. If the IRS' case is fully accepted by the San Francisco court, Facebook could be hit with a US tax bill of more than \$9 billion.<sup>59</sup>

Amazon's zeal for tax avoidance is also extremely concerning, and in its 20-year of history, they have carved out exceptional competitive tax positions as the company expanded globally. In documents seen by Newsweek from a landmark court case in Seattle between Amazon and the IRS, it was revealed how the company has attained global dominance over competitors in part by moving its global headquarters to the small, landlocked state of Luxembourg at the heart of Europe.<sup>60</sup> The court documents shed light on allegations of large-scale tax avoidance and also raised serious questions and concerns about how and why Luxembourg handed one of the world's largest and wealthiest companies a tax deal that private citizens can only have dreamed about. It was also reported that Amazon received €294 million in tax credits in 2019 that it could deduct from future bills for its European operations, as revenues at the online retailer rose significantly to €32 billion.<sup>61</sup> The company said it received the tax credits because it made a loss

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<sup>57</sup>Burke-Kennedy, E. (2020). Explainer: Google and its double Irish tax scheme. *The Irish Times*, January 2. Retrieved from <https://www.irishtimes.com/business/economy/explainer-google-and-its-double-irish-tax-scheme-1.4128929>

<sup>58</sup>Paul, M. (2020). Facebook's \$9bn Irish tax row due to begin in US court. *The Irish Times*, February 10, Retrieved from <https://www.irishtimes.com/business/economy/facebook-s-9bn-irish-tax-row-due-to-begin-in-us-court-1.4168386>

<sup>59</sup>The current and former Irish governments are believed to have very close relationships to key individuals from many of the significant technology industry players in the country. In correspondences obtained by the Irish *Sunday Independent* in 2019, then-government leader Leo Varadkar had penned a number of letters, notes and emails demonstrating the warm and very close relationship between Mark Zuckerberg of Facebook and the government, with Mr Varadkar personally thanking Mr Zuckerberg for his 'ongoing investment in Ireland': <https://www.independent.ie/opinion/comment/wayne-oconnor-leo-varadkars-cead-mile-failte-emails-to-facebook-chief-mark-zuckerberg-38351927.html>

<sup>60</sup>Marks, S. (2016). Amazon: How the world's largest retailer keeps tax collectors at bay. *Newsweek*, July 13. Retrieved from <https://www.newsweek.com/2016/07/22/amazon-jeff-bezos-taxes-479814.html>

<sup>61</sup>Sweney, M. (2020). Amazon given €294m in tax credits as European revenues jump to €32bn. *The Guardian*, April 21. Retrieved from <https://www.theguardian.com/technology/2020/apr/21/amazon-given-294m-in-tax-credits-as-european-revenues-jump-to-32bn>

the previous year due to its investment programme and the highly competitive retail environment in the UK and across Europe. Meanwhile, after increasing warehouse workers' pay in recognition of the increased risks they faced while doing their jobs during the recent pandemic – routinely calling them 'heroes' in public communications – Amazon rolled back their \$2 per hour hazard pay and petitioned the US Congress to pass a law to protect the company from lawsuits in illegal price gouging cases.<sup>62</sup>

## Digital Age Sloganism

Entrepreneurship, innovation, invention: these are all the hallmarks of a thriving society and economy and rightly should be celebrated and applauded. Properly focussed and with social and environmental integrity and goodwill, such dynamism can, and does, bring great improvements to people's lives right across all sectors of society and can keep us better connected and informed. But for too long now, we have bowed down to a small number of individuals at the head of some of the largest corporations the world has seen since the inception of the industrial age to decide and dictate the values and direction of our societies. These individuals have been given power and influence well beyond the imagination and comprehension of kings and presidents of the past and present. Apple, Google, Facebook and Amazon pride themselves in their benevolence and humanity, reflected in many of the slogans they have adopted. *The Power to Be Your Best, Think Differently, Don't Be Evil, Do the Right Thing, It's Free and Will Always Be*; all conjure images of altruism, compassion, charity and support for people and communities. Yet the dominances of these mammoth digital technology corporations coincide with the climate emergency, an age of extreme economic inequality between and within nations, excessive amounts of fake, harmful and downright dangerous misinformation, the rise of autocratic rulers across the world, wage stagnation, longer working hours and diminished home life and the growth in sedentary lifestyles resulting in alarming rates of obesity and ill-health. They may not be to blame for all these societal concerns, but we deserve to interrogate their business models and ask them difficult questions when they're needed to be asked, and we deserve answers and action to protect against the growing dominance of just a few technology companies and privileged individuals and a headlong rush towards digital plutocracy. Moreover, the domination of the online environment but just a handful of megacorporation and individuals is generating a uniform digital experience based on a white, male, US-centric perspective that is harmful to the diversity that makes life so interesting. An examination of possible shifts towards cultural homogenisation facilitated by aspects of digitalisation follows in the next chapter.

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<sup>62</sup>Newton, C. (2020). How Amazon is growing its power during the pandemic. *The Verge*, May 14. Retrieved from <https://www.theverge.com/interface/2020/5/14/21257313/amazon-delivery-times-worker-raises-price-gouging-liability-pandemic>

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## Chapter 3

# Towards Cultural Homogenisation

[T]his mode of consciousness [inherent in digital technology] makes a virtue of ignoring the forms of intergenerational knowledge and skills essential to the world's diversity of cultural commons that enable people to live less consumer-driven lives. It also makes a virtue of being rootless; that is, not being long-term inhabitants of place.

C.A. Bowers

'Do you mean to tell me that you're thinking seriously of building that way, when and if you are an architect?'

'Yes'.

'My dear fellow, who will let you?'

'That's not the point. The point is, who will stop me?'

The Fountainhead – Ayn Rand

## Is There Digital Diversity?

There is a dominant value system evident in how the internet is organised and operates, which leaves little room for other differencing or opposing cultural beliefs and world views. With so much of the tech sector headquartered in Silicon Valley, the principles and rules of the web as we know it are being set there in California and by their politicians and leaders in Washington. Smaller nations and non-Western societies receive scant attention on the English-language-dominated internet diminishing their relevance and cultural significance for many in the digital age. But the importance of culture for individuals and communities alike lies very much in our sense of place and the close association with our general ways of thinking and living in that place. The cultural values that many people inhibit

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**The Social, Cultural and Environmental Costs of Hyper-Connectivity:  
Sleeping Through the Revolution, 39–54**



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form the basic principles of an individual's life, and in this way, culture has a significant effect on our personal and collective social lives and well-being. In this chapter, we will pose the following question: is modern digital information and communication (ICT) technology facilitating and promoting a singular dominant US-centric world view and way of understanding humanity and our effects on the planet, to the detriment of other cultures, values and norms that we may truly fail to understand and appreciate? And what have we lost, or are beginning to lose, from our own existing global cultural value set and what does this mean for all of us in the long term? A universal cultural homogenisation is already sweeping the world, dominated by United States and Western values systems and lifestyles, driven by a consumer-based, free market ideology and supported and promoted by the massive digital entertainment-industrial complex. Driven by digitalisation, a global monoculture may be about to permeate every corner of the planet, but what does that mean for existing offline cultures, societies and communities?

According to the Internet World Stats, the penetration rate of world internet usage stood at 59 per cent in the first quarter of 2020.<sup>1</sup> However, with an access and connection rate of just over 39 per cent in Africa and 55 per cent in Asia, there is incredible potential for expansion over the coming years and decades, allowing a particular digital culture to spread and seep into parts of the world that have, heretofore, remained insulated from such cultural assault. Digital ICT will play an important and critical role in the development of many countries in the global south in the coming decades but driven by what set of values, by whom and at what expense to their cultural survival? Homogenisation is understood to be the process of exchange of elements and the mixing of different cultures to propagate into one, and US-centric big media and technology are now seen to be playing a much bigger and domineering role in this process. The ascendancy of Hollywood, the vast reach of the US music industry, the extraordinary global coverage of the recent US elections and the presidency of Donald Trump are examples of this dominance in practice. Contemporary digital online culture is largely organised and driven by just a few US Western corporations and individuals who have seized control and been given carte blanche to promote and legitimise their own personal world view and free market values without any possibility of regulation or due oversight. These all-powerful companies and individuals are directly influencing the transformation and destruction of cultures, imposing and establishing a planetary cultural homogenisation that consolidates in a society where digital ICT and Western, white, male values dominant. For those of us interested in learning from other cultures and the different ways our own culture is exhibited – rather than simply through an online screen – and the value we place on artistic endeavour and general creativity in our lives, these are troubling shifts and we have important questions to ask before it's too late to turn back the clock and protect what may be lost forever sometime in the very near future.

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<sup>1</sup>World internet users and 2020 population stats. (2020). *Internet World Stats*, March 3. Retrieved from <https://internetworldstats.com/stats.htm>

## **The Rise of European Culture**

Since the dawn of human civilisation Asia, South America and Africa have had significant cultural, economic and technological impacts on the world. There have been some exceptions, most notably Ancient Greece and the Roman Empire, but Europe, in general, lagged many of these civilisations for centuries. But the European colonial period from the fifteenth century saw colossal shifts towards that continent in terms of global power and influence. Historian Philip Hoffman estimated that by 1800, just before the Industrial Revolution, European countries had conquered and already controlled at least 35 per cent of the globe, and by 1914, they had gained control of 84 per cent.<sup>2</sup> What became commonly known as the First Industrial Revolution<sup>3</sup>; the subsequent era ushered in a rapid transition to new and formidable manufacturing processes in Europe and the United States and also led to an unprecedented rise in the population of these countries and regions.<sup>4</sup> It also marked a major turning point in human history with almost every aspect of daily life being affected or influenced in some way. One of the major outcomes of the Industrial Revolution was that the standard of living for the general population in the Western world began to increase steadily for the first time. This period in human history saw a considerable increase in material wealth for some individuals in Europe and the United States; a restructuring of large parts of society; and the creation important new schools of thinking and philosophy about work, life, governance and power. The social and cultural impacts of industrialisation were profound as people began to work outside of the local immediate environs of their homes and villages for the first time. They rose each morning by the clock and travelled to their place of employment and work, often in a factory setting in a town or city that also began growing exponentially. The new technology and machinery of the Industrial Revolution was very large and sometimes required acres of floor space to hold the numbers needed to keep up with consumer demand and facilitate large numbers of workers, all of which led to urbanisation on a mass scale. With such increase in material wealth in the West came increasing life longevity and an acceleration in the growth of the middle class. It helped to create a modern and progressive world view that through the fruitful use of science and technology, a better quality of life could be achieved by everyone who worked towards a common goal.

Western culture sometimes equates to Western civilisation, Western lifestyle and values, or European civilisation. It is a term used broadly to refer to a heritage of social norms, ethical values, traditional customs, belief systems, political systems and specific artefacts and technologies that have origins or associations with Europe, in particular. In this way, Western culture is the set of literary, scientific, musical and philosophical principles which set it apart from other great civilisations of the world. Western culture has come to be applied to other countries

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<sup>2</sup>Hoffman (2015).

<sup>3</sup>The manufacture of steel is often cited as the first of several new areas for industrial mass-production, which are said to characterise a Second Industrial Revolution.

<sup>4</sup>Hobsbawm (2010).

whose history is strongly marked by European immigration, such as the countries of the Americas and Australasia, and thus is not restricted solely to the actual continent or location of Europe. Historical records of Western culture in Europe began with Ancient Greece and Ancient Rome, which were characterised by a host of artistic, philosophic, literary and legal themes and traditions. The heritage of Germanic, Jewish, Celtic, Hellenic, Slavic, Latin and other ethnic and linguistic groups, as well as Christianity, all played an important part in the shaping of Western civilisation since at least the fourth century. Western culture is also a pretty fluid and loose term because it encompasses some of the central characteristics of democracy, rational thinking, individualism, Christianity, Capitalism, modern technology, human rights and scientific thinking. This was a specific and important feature of the Western world: a focus on science and technology and its ability to generate new processes, materials and material artefacts. The millennium between the end of the Roman Empire in the fifth century and the beginning of the colonial expansion of Western Europe in the late fifteenth century became known as the Middle Ages, and the first half of this period consists of the five centuries of the Dark Ages. Few records exist of this period, and it is often difficult to explain how particular innovations were introduced to many parts of Western Europe during this time. The problem is especially challenging because it is known that many inventions of this period had been developed independently and previously in other civilisations, and it is sometimes difficult, if not impossible, to determine whether something is a spontaneous innovation or an invention that had been transported by some as yet undiscovered route from other societies or regions of the world.<sup>5</sup> There is little doubt that in its early centuries, at least, Western civilisation regularly looked to the East for many of its ideas and inspirations, and the trajectory of technological development would be slow without such influence. The West had previously suffered invasions from Africa, Asia and non-Western parts of Europe for many centuries. But by the 1500s, Europeans took advantage of adopting and developing new technology innovations in energy and construction, some gleamed for other cultures, to sail and adventure to uncharted waters and lands. They expanded their power and the Age of Discovery began, with Western explorers from seafaring nations like Spain and Portugal, and later France, Holland and England, setting out to chart faraway shipping routes and discover 'new worlds'. What was particularly novel about this age was the linking up through maritime exploration of the oceans of the world into a single system of navigation, and the ways in which this mastery of the sea became the basis for the eventual extension of European influence into almost every inhabited and uninhabited continent of the world.<sup>6</sup> As these Western powers expanded, they also began to compete for newly discovered and conquered land and resources, and writers and thinkers as diverse as Adam Smith, Karl Marx and Frederick Engels saw these discoveries of the Americas and other continents as among the principle

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<sup>5</sup>From the Middle Ages to 1750. (2020). *Britannica*. Retrieved from <https://www.britannica.com/technology/history-of-technology/From-the-Middle-Ages-to-1750>

<sup>6</sup>Arnold (2002).

events in history and laying the foundations, economically and politically, for the modern world. Yet, in most parts of the world, these European explorers arrived to find not just lands that were new to them but also complex and long-established thriving cultures, traditions and societies very different from their own.<sup>7</sup>

The years following Britain's victory in the Napoleonic Wars was a period of great expansion for both that country and its former American colonies, which now went to make up the United States. This period of growth would help establish English as the dominant language, and a liberal ideology and British and Anglo-American culture as the dominant one on two continents and many other lands outside the British Isles.<sup>8</sup> The British went on to colonise and govern roughly a quarter of the world's population, covering about the same proportion of the earth's surface and dominating its oceans, and this empire is the most commonly cited precedent for the global power now wielded by the United States.<sup>9</sup> In many ways, over time, the centre of world power merely shifted from London to New York and Washington. With the transition to new manufacturing processes, a shift from hand production to machine, changes in energy use, socio-economics and culture, all heralded the Industrial Revolution in Europe and the United States. Average income and the population began to exhibit unprecedented and sustained growth signalling the emergence of many modern capitalist economies. The identifiable changes in the methods and characteristics of economic organisation included the widespread and systematic application of modern science and empirical knowledge to the process of production for the market; specialisation of economic activity directed towards production for national and international markets; the shift from rural to urban communities; the enlargement and depersonalisation of the typical unit of production to that of corporate or public enterprise; movement of labour to the production of goods and services; intensive and extensive use of capital resources as a substitute for and complement to human effort; and the emergence of new social and occupational classes determined by ownership of, or relationship to, the means of production other than land, namely capital.<sup>10</sup> These features – economically, socially and politically – largely continued to define the capitalist economic system that still exists in most nations and states of the West. Despite two devastating world wars, the West as an economic juggernaut continued to lead globally, and as countries emerged from the second of these international conflicts, America now assumed a dominance that was to push them to the forefront economically and culturally for the subsequent decades and up to the present day.

## **The United States and Big Tech Takes the Reigns**

Americanisation is defined as the influence American culture and economics has on other countries and regions outside the United States and includes areas such

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<sup>7</sup>Arnold (2002, p. 2).

<sup>8</sup>Darwin (2009).

<sup>9</sup>Ferguson (2008).

<sup>10</sup>Deane (1979, pp. 1-2).

as media, cuisine, business practices, popular culture, technology and political approaches and techniques. This cultural, political and economic influence of the United States played an important role in the reshaping of modern Europe after the Second World War. In media and popular culture, Hollywood and the US television industry have proven extremely popular worldwide with many of the highest grossing movies over the recent past in many countries being US productions. American popular music has, likewise, had a significant international appeal and reach. Debates about Americanisation and cultural imperialism point towards a widespread anxiety about the over-influence that the United States has on the cultures and traditions of other countries, where a dominant American culture is also seen to challenge and erode ‘authentic’ local cultures.

Although there is no precise definition, the term ‘cultural imperialism’ appears to capture the idea that political and economic power is being used to ‘exalt and spread the values of a foreign culture at the expense of the native culture’.<sup>11</sup> There is little doubt that American-dominated mass media are constantly and quickly evolving and expanding in terms of technical power and penetration, coverage and representation of both public and private life in the West and beyond. To this extent, it is tempting to view the media as the central cultural reference point of modern Western capitalism. If this is so, then cultural imperialism ought to be seen as centring on media in two ways; either as the dominance of one culture’s media – text and practices – over another or as the global spread of mass-mediated culture as such.<sup>12</sup> While these two elements may have different dimensions of implication both involve the media as at the crux of modern culture. Into this sphere of influence and thinking steps the global digital tech giants, who now possess an extraordinary worldwide reach and appeal. In particular, there is growing concern about Americanisation and cultural imperialism brought about by the likes of Google, Facebook, Twitter and Amazon, among other American and Western-based tech media industry companies and organisations. Even in other English-language countries, there is a fight for relevance and meaning on the web and as expressed by Helen Lewis in *The Atlantic*:

sharing the internet with America is like sharing your living room with a rhinoceros. It’s huge, it’s right there, and whatever it’s doing now, you sure as hell know about it.<sup>13</sup>

Yet the argument prevails; are these US-based tech behemoths mass-influencing media companies or simple value-neutral tech platforms?

Writing in the *Columbia Journalism Review*, Mathew Ingram has no doubt that Facebook has stopped being an innocuous online social network platform to now

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<sup>11</sup>Tomlinson (2012, p. 3).

<sup>12</sup>Tomlinson (2012, p. 22).

<sup>13</sup>Lewis, H. (2020). The world is trapped in America’s culture war. *The Atlantic*, October 27. Retrieved from <https://www.theatlantic.com/international/archive/2020/10/internet-world-trapped-americas-culture-war/616799/>

being one of the most powerful forces in global media with more than 2 billion users and an increasing grip on the advertising revenue that formally underpinned most of the traditional media outlets.<sup>14</sup> Facebook's relationship with traditional media has been a classic Faustian bargain, Ingram suggests. News outlets want to reach all these billions of users, so they put as much of their content as they can onto the Facebook platform and associated network. Some of them are then favoured by the company's all-powerful, and completely mysterious, algorithms giving them access to a wider audience to pitch for subscriptions or the derisory advertising revenue they receive from the platform itself. But Facebook also continues to move the goalposts when it comes to how their News Feed algorithms work, of course to their own advantage. Meanwhile, as advertising continues to decline as a source of revenue for traditional media because of the rise and business model and strategies of the likes of Facebook, media organisations are having to rely increasingly on subscriptions, but the readers they want to reach are all on Facebook consuming this content they have already created for free.

Indeed, how Facebook organises and distributes this, and other news content, is also highly contentious and problematic. In addition to more reputable traditional media outlets, other more dubious and sometimes malicious websites and portals are aggregated together to inform its daily newsfeed. The platform is designed in such a way as to encourage 'confirmation bias', which is the human desire to believe things that confirm our prevailing beliefs, even if they are untrue. When experiencing confirmation bias, individuals tend to unconsciously select information that supports their views while also ignoring non-supportive information. There is further tendency to interpret ambiguous evidence as supporting the individual's existing understandings. Facebook's newsfeed is, thus, designed to simply optimise engagement, and it does not matter whether the content is fact or fiction:

While Facebook has become enormously influential as a distributor of news, that sway hasn't come without pain. In the past decade, the company has been criticized for helping to spread scams, hoaxes, and fake news, all while becoming one of the biggest media companies on the planet.<sup>15</sup>

That Facebook and Google are such significant players in the contemporary news media landscape is also an extremely worrisome issue with respect to moves towards a singular monoculture largely based on Western ideals. These megacorporations are based on the world views, thinking and values of just a handful of

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<sup>14</sup>Ingram, M. (2018). The Facebook Armageddon. *Columbia Journalism Review*, Winter. Retrieved from [https://www.cjr.org/special\\_report/facebook-media-buzzfeed.php](https://www.cjr.org/special_report/facebook-media-buzzfeed.php)

<sup>15</sup>Ingram, M. (2018). The Facebook Armageddon. *Columbia Journalism Review*, Winter. Retrieved from [https://www.cjr.org/special\\_report/facebook-media-buzzfeed.php](https://www.cjr.org/special_report/facebook-media-buzzfeed.php)

individuals operating with almost impunity. While their influence and reach in developed societies is of immense concern, resistance to such global power and influence may well be less in countries struggling against the economic and cultural might of the United States and other Western countries. For people living and working in the United States, Europe and other relatively prosperous regions of the world, access to the internet is a given. Even if an individual cannot afford a private, subscription-based fixed or mobile account, Wi-Fi hotspots offering free internet access are relatively ubiquitous in public squares, restaurants, cafes and coffee shops, public libraries and even on many forms of public transport, which lets everyone with a smartphone, tablet or laptop access the network. But many areas of the developing world – such as Africa, South Asia and South America – have sparse and poor network infrastructure and connectivity and thus limited access. As the world submitted to the Covid-19 coronavirus pandemic in the first half of 2020, access inequalities were exposed as the World Economic Forum reported that almost half of the world's population – fewer than one in five people in the least developed countries – had no internet access at all.<sup>16</sup> While access will, without doubt, have the potential to greatly enhance the everyday lives of many people in the developing world, the central questions must continue to be: on what and who's terms should access be provided?

Around 2014, Mark Zuckerberg launched Internet.org, a significant endeavour to connect everyone in the world to the internet. In an address to the United Nations' General Assembly, Zuckerberg made the case that the internet should be considered – like health care or clean water – a basic human right.<sup>17</sup> As Board Chair, Chief Executive and the majority vote on Facebook's board, he can compel his own organisation to support him, and there are elements of altruism but also opportunity in what he told *Wired* magazine:

There's no way we can draw a plan about why we're going to invest billions of dollars in getting mostly poor people online. But at some level, we believe this is what we're here to do, and we think it's going to be good, and if we do it, some of that value will come back to us.<sup>18</sup>

But in this visionary zeal lies some crucial questions of understanding and equality. Many of these countries and regions require basic fundamental

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<sup>16</sup>Broom, D. (2020). Coronavirus has exposed the digital divide like never before. *World Economic Forum*, April 22. Retrieved from <https://www.weforum.org/agenda/2020/04/coronavirus-covid-19-pandemic-digital-divide-internet-data-broadband-mobbile/>

<sup>17</sup>Hampel, J. (2016). Inside Facebook's ambitious Olan to connect the whole world. *Wired*, January 19. Retrieved from <https://www.weforum.org/agenda/2020/04/coronavirus-covid-19-pandemic-digital-divide-internet-data-broadband-mobbile/>

<sup>18</sup>Hampel, J. (2016). Inside Facebook's ambitious Olan to connect the whole world. *Wired*, January 19. Retrieved from <https://www.weforum.org/agenda/2020/04/coronavirus-covid-19-pandemic-digital-divide-internet-data-broadband-mobbile/>

health care, food, clean water, housing, peace and security before they can fully appreciate, embrace and enjoy the services offered by Facebook, Google, Amazon and other tech services on the internet. In fact, basic electricity is required as a fundamental human right before access and connectivity to the World Wide Web. More fundamentally, while Mark Zuckerberg may be well intentioned, is it his role to lead and drive the development of internet connectivity while disregarding what these societies wish for their own futures? Such futures almost definitely will include widespread network connectivity and internet access, but ownership and control over such vital backbone infrastructure must reside with the states and regions which it serves. The libertarian tendencies of many in the tech sector would leave ownership in the hands of the few, with strong Western values and propensities, which might initially find fertile ground but may well be harmful in the long term to many societies and cultures currently not driven by consumerism and free market values. There is a presumption in such a position that a homogeneous digital network experience is both fitting and desirable for everyone on the planet, a network run by the digital elite in Silicon Valley with little room for more authentic voices in the regions it will serve. There is evidence, for example, that African entrepreneurs are experiencing humiliation, discrimination, stereotyping and sometimes racism in their interactions with some of the world's most prominent tech investors.<sup>19</sup> Global investment funds such as Goldman Sachs, Stanford University, Chan Zuckerberg Initiative, Andreessen Horowitz and Sequoia Capital have all invested more frequently in African start-ups with white founders involved than they have invested in firms led exclusively by black Africans. Of the top 10 African-based start-ups that received the highest amount of venture capital in Africa last year, eight were led by foreigners.<sup>20</sup> If we are to learn from the lessons of the past, then we will see this as a refined form of digital (re)colonisation of regions of the world, and the imposition of a Western viewpoint over other local and more sustainable cultures and value systems. The lasting implications of this 'digital colonialism' may be subtle but no less harmful to many highly organised communities in the developing world.

## What Digital Wants Digital Gets

In his thoughtful book *The False Promise of the Digital Revolution*, C.A. Bowers discusses the connection between digital technologies and the growing dominance of abstract thinking put forward by Western philosophers, economic and social theorists, politicians and mass media personalities.<sup>21</sup> He suggests that

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<sup>19</sup>Madowo, L. (2020). Silicon Valley has deep pockets for African startups - if you're not African. *The Guardian*, July 17. Retrieved from <https://www.theguardian.com/business/2020/jul/17/african-businesses-black-entrepreneurs-us-investors>

<sup>20</sup>Madowo, L. (2020). Silicon Valley has deep pockets for African startups - if you're not African. *The Guardian*, July 17. Retrieved from <https://www.theguardian.com/business/2020/jul/17/african-businesses-black-entrepreneurs-us-investors>

<sup>21</sup>Bowers (2014).

cultural commons are being undermined as more and more young people, in particular, come to rely upon texting, cell phones and computers; all of which reinforce abstract thinking over a reliance upon their senses and face-to-face communications that are the pathways of more grounded and complex information about relationships:

The media, including the thousands of images that equate consumerism with success, social status, and personal happiness, are a constant source of indoctrination. The reality of media construct is not based on the lives of real people but on an ideologically driven model of how purchasing certain products will transform people's lives. Face-to-face communication between people whose images have not been digitally enhanced does not always lead to smiles and the overcoming of personal problems, but is part of the cultural ecology that may include sources of injustice, efforts to reach out to others, addressing hunger and a sense of hopelessness, and a constant struggle to attain a personal goal. Like an ecology of weeds or flowers, the cultural ecologies are varied in their complexity, and ongoing in their development.<sup>22</sup>

While pointing to the dominance of a Western value system in the digital online world, Bowers also seeks to explore other ways non-Western cultures are being threatened by a rush to embrace a single culture of the internet and a data, individualistic, consumer-dependent lifestyle. Digitalisation is reliant on print and other such systems of abstract representation, which continues to reinforce the Western form of autonomous individualism. But identity forming narratives and daily social interactions, as well as senses that are more attuned to what is being communicated through relationships, cannot be easily digitised. The high-status forms of understanding, and the ideology underlying scientific knowledge, present in the development of these new digital technologies lead to viewing cultural traditions as constraints that need to be overcome rather than embraced and in some cases outright hostility towards traditional forms of knowledge and cultural practices. For members of traditional and oral-centred cultures, the use of digital technologies is a constant reminder of their cultural amplification and reduction characteristics.<sup>23</sup> The dominant value underpinning digital technological innovation is one of increasing profits to advance the Western idea of progress, with little need for elder knowledge, for wisdom keepers or any understanding of the scared. Success in the digital world is measured in monetary terms, with its wholesome embrace of market liberalism and libertarianism, and all things, personal achievements and activities are valued in that way. The Western emphasis on personal ownership also contributes to the rising tensions between those who live a consumer-dependent lifestyle and those who carry forward more

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<sup>22</sup>Bowers (2014, p. 4).

<sup>23</sup>Bowers (2014, p. 79).

community-centred values and sense of identity.<sup>24</sup> While we must remain vigilant about the effects and spread of digital ICT on other more sustainable cultures, digitisation is also having some profound impacts on the creative arts we know and enjoy in our own societies here in the West.

The work of artistic and original endeavour and expression has become commodified and degraded by abuses legitimised by digitisation, and value shifts from the content generating artist to big tech online platforms is leading to diminishing cultural creativity and imagination, even for Western societies. To be a young musician, filmmaker or journalist today is to seriously contemplate the prospect of entering a profession that the digital age has eroded, and continues to erode, beyond recognition.<sup>25</sup> The rise of digital oligopolies can be directly connected to the fall of the creative industries and the precipitous decline in revenue paid to content creators. This has nothing to do with the idea that people are reading less, listening to music less or watching movies and TV shows less frequently; all indication would suggest we are doing more of all these things. However, the value attached to such creative content, which once went to the writers, musicians, filmmakers and artists, is now sucked up by giant online digital platforms that pay pittance, if anything at all, to the people who generate and create the content. One of Google's guiding principles, for example, is to organise the world's information and make it universally accessible and useful to everyone. But this does not necessarily mean that they need or will ask permission from the content creators to use the results of that person's enterprise and creativity. In fact, they have been very deceitful about this and cunningly have somehow managed to make it the responsibility of the actual content owner to police these big tech platforms for copyright infringements. To this, we add the diminishing value of such content as mega-online corporations such as Amazon relentlessly drives down the price paid to artists and writers for their work:

More people than ever are listening to music, reading books, and watching movies, but the revenue flowing to creators of that content is decreasing while revenue flowing to the big four platforms is increasing. Each of these platforms presents a different challenge for creators. Google and YouTube are ad-supported 'free-riders' driven by permissionless philosophy. Facebook, with its libertarian financier's roots, takes much of the same stance towards content and advertising, but there are signs that its CEO has some real ethical questions about where the company is going. Amazon, whose founder, Jeff Bezos, embraces the libertarian creed but has not taken the 'don't ask permission' route, has instead opened a new front: a relentless push to lower prices and commoditize content (especially books), which presents a different danger.<sup>26</sup>

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<sup>24</sup>Bowers (2014, p. 80).

<sup>25</sup>Taplin (2017).

<sup>26</sup>Taplin (2017, p. 103).

Taplin writes from experience. He was a former tour manager for Bob Dylan and the Band, as well as a film producer for Martin Scorsese and a member of the Academy of Motion Picture Arts and Sciences. He has witnessed the destruction of large swaths of the music and creative industries, largely based on US anti-trust laws that view the regulators role as one only concerned with whether costs to consumers are falling, a type of customer welfare focus. In this environment, monopolies not only form, they thrive. But vitality, originality and innovation need diversity, support, investment and an appreciation of what it takes to produce artistic and creative work. Without the space and time to create, and the financial wherewithal to support themselves and their families, prospective artists and content creators will continue to take other pathways in life, and we will be left facing into a more musical and artistic homogenised future. One of the tenets of digital economics is: given that price equals marginal cost, with information goods, the social and marginal cost of distribution is close to zero. Marginal cost, in this instance, means the cost of producing one unit of a good – perhaps a song – but once that song is on a Spotify server, for example, the cost of selling one more stream is zero.<sup>27</sup> Taplin argues that nowhere does the fixed cost to produce specific music of high quality, produce a really good video, an enjoyable book or game, get factored into this actual equation. Then how are musicians, journalists, authors and filmmakers going to survive in this zero-marginal-cost economy? Some, of course, will survive and thrive as they adapt to this consumer-driven economic model – normally the most popular and dominant with universal appeal – but the young fledgling writer, artist, musician or band producing innovative and imaginative content have little to look forward to. Andrew Keen echoed such concerns when he wrote; ‘old media is facing extinction, but what will take its place?’<sup>28</sup>

Keen was deeply embedded in the early internet ‘gold rush’ setting up one of the original digital music websites, but after listening to fellow campers at a 2004 two-day event in Northern California, not far from Silicon Valley, he left that event a sceptic. He was most troubled that his dream of making the world a more musical place and the promise of using digital technology to bring more culture to the masses was being drowned out by conversations and the collective cry for a democratised media:

Media, information, knowledge, content, audience, author – all were going to be *democratized* by Web 2.0. The Internet would *democratize* Big Media, Big Business, Big Government. It would even *democratize* Big Experts, transforming them into what one friend of O’Reilly called, in a hushed, reverent tone, ‘noble amateurs’.<sup>29</sup>

He argued that the free user-generated content produced by the Web 2.0 generation was decimating the ranks of our ‘cultural gatekeepers’ as professional critics,

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<sup>27</sup>Taplin (2017, p. 249).

<sup>28</sup>Keen (2007).

<sup>29</sup>Keen (2007, p. 14).

musicians, artists, filmmakers, journalists and other outlets of expert information were been replaced by amateur bloggers, hack reviewers, homespun filmmakers and bedroom recording artists.<sup>30</sup> These radical new business models, based purely on user-generated material, were sucking the economic value and lifeblood out of traditional media and cultural content. The real consequences of this empty promise of the democratised media, he maintains, is less culture, less reliable news and a chaos and avalanche of useless and trivial information and content.

Artistic content from previous generations and that created outside this digitised world is also being increasingly misappropriated online to the extent that the idea of original authorship and copyright has now been utterly compromised and such rights are now rapidly diminishing. In a 2019 report on the key challenges, collective insight and possible futures for the music industry conducted on behalf of The Creative Independent, the vast majority of musicians sampled professed that they cannot earn a living wage through music-related work.<sup>31</sup> When asked which sectors of the music industry most in need of change, by far the largest percentage of industry professionals – 61 per cent – singled out streaming platforms. It was maintained that the unfairness inherent in streaming services' payment models and content curation perpetuates unfairness overall and creates a negative ripple effect across the entire industry. And the music now available on streaming platforms is effectively endless; when you get to the end of an album, the music keeps on going. The songs that follow are the result of a complex set of algorithms that takes what the streaming platform knows about you and your peers and turns this into recommended songs, but how recommendation algorithms work is an unclear process to the artist and general public.<sup>32</sup> Such algorithms benefit platforms in maximising income from streaming, but they are a blunt instrument in a creative industry with emerging talent regularly losing out. A further issue with automated recommendations like these is that it takes away some of the humanity and chance moments of discovery and can influence what we listen to in unforeseen ways. Writing in the *MIT Technology Review*, musician, record producer, artist, actor, writer, music theorist and filmmaker David Byrne argues that recent digital technologies and innovation has been creating the possibility of a world with much less human interaction than heretofore.<sup>33</sup> The effects of minimising human interaction would tend to lead to less tolerance and understanding of difference, as well as more envy and antagonism. Digital online platforms are feeding us the same similar content that our friends and

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<sup>30</sup>Keen (2007, p. 16).

<sup>31</sup>Music industry investigation report. (2019). *The Creative Independent*, October. Retrieved from <https://thecreativeindependent.com/music-industry-report/>

<sup>32</sup>Vox Creative. (2019). Man-made machine music. *The Verge*, September 23. Retrieved from <https://www.theverge.com/ad/20880077/fairness-for-musicians-artists-music-streaming-algorithms>

<sup>33</sup>Byrne, D. (2017). Eliminating the human by. *MIT Technology Review*, August 15. Retrieved from <https://www.technologyreview.com/2017/08/15/149854/eliminating-the-human/>

family like – or, more importantly, paid for content designed to influence our behaviour – and while these technologies claim to connect us more, in fact the unintended consequences is that they also drive us apart from everyone else. Byrne argues that less human interaction enables us to forget how to cooperate and reduces those random, serendipitous moments of meeting and connecting and discovery: we are social species and we benefit from passing discoveries on and from our tendency to cooperate to achieve what we cannot alone.

## **Towards Musical Homogenisation**

Of course, there are some who will point to increased revenue and argue that the music business is still very much alive, healthy and prospering in the digital age. But that is just the point; it's now merely a business dominated by a digital free market ideology and in the promotion of what sells best is largely still controlled by major record labels. Most of the streaming revenue ends up in the coffers of these music industry gatekeepers rather than the artists.<sup>34</sup> Convergence and the digitisation of music has radically changed the way we access, consume and listen to music, which in turn has led to the development of new business models based on music purely as a profit-making venture. The art of creating music based on iteration, experimentation and creativity is rapidly being replaced by standardised, formatted-for-profit music that follows a set pattern and design to 'success'. Music has become more and more dominated by styles or genres that sell, which works to suck the lifeblood out of diverse music creation. The energy, anger, dynamism of the punk era or the vogue, eccentricity of the electro music of the 1980s and 1990s is no longer possible in a standardised music business format. Simon Cowell and the democratisation of music epitomised by shows like *X-Factor* and *America's Got Talent* have seen to that. Because record sales can no longer support the artists – digitisation has seen to that – bands and musicians must tour to make a living in an ever-decreasing circle of music venues.<sup>35</sup> During the Covid-19 pandemic, even that revenue stream dried up. Of course, artist can upload their music to YouTube, Facebook and a host of streaming platforms – and they are actively encouraged to do so – but in effect, they are shifting the value and control over what they themselves have created to these mega-online streaming platforms.

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<sup>34</sup>According to a report by industry news outlet *Music Business Worldwide*, the three major music labels made \$6.93 billion combined from streaming in 2018. Broken down even further, the trio of labels generate nearly \$800,000 per hour just from music streaming services alone: see <https://www.musicbusinessworldwide.com/the-major-labels-generated-over-1-5bn-more-from-streaming-in-2018-than-they-did-in-the-previous-year/>.

<sup>35</sup>For example, the UK's first live music census in 2018 found that a third of Britain's small venues outside of London were fighting to survive in the face of high business rates and noise restrictions. Measures put in place worldwide in early 2020 to slow the spread of the Covid-19 coronavirus brought the entire live music industry to a standstill.

Concerns over music streaming economies have been simmering for some time, and as the Covid-19 coronavirus pandemic ravaged the music industry, platforms like Spotify began cutting royalty rates for songs in exchange for an algorithm boost.<sup>36</sup> This prompted the ire of musicians who have been protesting against the streaming service's payment rates to artists for some time.<sup>37</sup> Democratization of the music industry also opens the possibility of everyone, regardless of talent, becoming part of this new music business model. Anyone can now create a song track, and there are numerous digital platforms that will happily take your money to distribute that track, even if you are not that good. Such music is then made available online for anyone who wishes to pay the few cents to download or stream it. However, in most cases, music is quickly copied and illegally made available for free on big tech social media and audio- and video-sharing platforms. Digital piracy and illegal file-sharing have become the economic reality of the creativity industries in the digital age.<sup>38</sup> Many of these artistic endeavours have been demonetised, and as Andrew Keen suggests, the online Web 2.0 ideology of 'the cult of the amateur' has led to a deluge of often substandard content that threatens our values, economy and ultimately innovation and creativity itself and can drown out the voices and endeavours of the real creativity in a vast sea of mediocrity and insignificance.<sup>39</sup>

Digital ICT has been widely celebrated for its disruptive capacities in the twenty-first century, but debates over the levels of such disruption or, indeed, if such disruption is either necessary or warranted have never truly happened. Instead, the digital tech sector and the industry's mass media cheerleaders have pushed a technological determinist agenda that acclaims novelty, amateurism and disruption and embraces an existing consumerist mindset that devalues other ways of viewing and interpreting the world around us. It is essential we appreciate that many different perspectives exist and that learning to understand the world from many different points of view enhances our overall knowledge and cognitive skills. The following chapter will develop this theme and explore some of the challenges posed to our essential cognitive abilities and mental well-being.

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<sup>36</sup>Jean, E. (2020). Streaming platforms aren't helping musicians - and things are only getting worse. *The Guardian*, November 13. Retrieved from <https://www.theguardian.com/culture/2020/nov/14/streaming-platforms-arent-helping-musicians-and-things-are-only-getting-worse>

<sup>37</sup>The Union of Musicians and Allied Workers (UMAW) recently pointed out through its *Justice at Spotify* campaign - which has been signed by over 16,000 artists - that the current average streaming royalty is just \$0.0038, a rate that severely diminishes musician's ability to make a living from music: see <https://www.unionofmusicians.org/justice-at-spotify>.

<sup>38</sup>In a study by LaunchLeap, 93% of millennials do not feel guilty about illegally downloaded or streamed content. This then begs the question: if people are comfortable with accessing illegal streams and content for free and without consequence, then how will they ever go back to being paying subscribers? The short answer is most probably they never will.

<sup>39</sup>Keen (2007).

Our contemporary globalised world must be an amalgamation of different cultures and perspectives which go together to make up the diversity that enhances our very existence. Diversity teaches us to accept the differences we see in people and exposes us to elements that enrich our lives, something that is not possible in a homogenised world. The digital tech and mass media sectors frequently articulate and promote a singular world view mostly emanating from the United States and American-leaning countries and we are losing out on other important perspective that can enrich our lives. Unconsidered and thoughtless disruption for its own, the sake can end up being extremely damaging in the long run and an abdication of responsibility and leadership.

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## Chapter 4

# The Challenges to Our Innate Cognitive Abilities and Mental Well-being

The content of a medium is just the juicy piece of meat carried by the burglar to distract the watchdog of the mind.

Marshall McLuhan

We are not going to stop making progress, or reverse it, so we must recognise the dangers and control them.

Stephen Hawking

## The Human Costs of Digital Technologies?

Modern digital information and communications technology (ICT) has changed how we live in many diverse ways and we have come to be reliant on our digital electronic devices to perform the most simple and routine daily tasks. Our alarm clocks as we rise, checking our smartphones for the latest snippets of news and updates from family and friends, our fridges, coffee makers and many other kitchen devices connected to the Internet of Things (IoT), our workstations and laptops, iPads and tablet devices, smart watches, smart TV's, fitness devices and other self-monitoring tools; the pervasiveness of all these connected devices have been rapid and often mechanical. These digital technologies have become so integrated into our lives that going without such devices can cause significant anxiety for many individuals. While we know that these can add value to our lives in so many ways, now that we are surrounded and have succumbed to digital technology in every facet of our daily routines we need to ask; what are such devices doing to our cognitive capacities, if anything at all? Many of these everyday items have been adopted by individuals without enough due care and diligence as to the possible long-lasting consequences of their impacts and long-term use on our innate human cognitive capacities. While many of these devices are designed

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**The Social, Cultural and Environmental Costs of Hyper-Connectivity:  
Sleeping Through the Revolution, 55–70**



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to specifically aid our decision-making – think about how automatic it is for us to check our phones for the time of day, check our emails, use the calculator to do arithmetic, the built-in camera to capture specific moments in time, our apps to catch-up on the weather or the latest news headlines – at what point do they, in fact, take over actual decision-making thus ignoring and reducing our own capacity for logic and reasoning over time? We no longer need to remember important detail or basic facts about the world; we now simply use our digital devices to recall these elementary pieces of day-to-day information. This is something that, it has been argued, is turning us into organisms living symbiotically with technology: part human, part machine.<sup>1</sup> It may be some years into the future before we truly understand and determine the impacts of digital technology use, and it may well be that they have been only positive in their application in our daily lives. But if the opposite is true and they have negatively impacted upon our cognitive abilities or overall sense of well-being, it might be too late to turn back from the trajectory of use impacting our reasoning and diminishing our own sense of self-worth. With fewer than 30 years since the internet became widely publicly available, these long-term effects have yet to be understood or established, never mind being acted upon.

## Changing Minds?

In a 2008 seminal essay by Alan Carr in *The Atlantic* titled *Is Google Making Us Stupid? What the Internet Is Doing to Our Brains!* the author outlined a number of reasons why he believes the internet, as its currently organised, may be having significant effects on our cognitive abilities.<sup>2</sup> Carr's main argument is that the way we use the internet, in particular, might be having some detrimental effects on cognition that diminish our capacities to concentrate and truly consider issues and arguments. Despite the title it was not specifically targeted at Google, rather the way we browse and surf the internet. Carr points to the way the use of hyperlinks, as we browse the internet, may be having unexpected and startling effects on our levels of concentration, and he notices this in the context of reading:

Over the past few years I've had an uncomfortable sense that someone, or something, has been tinkering with my brain, remapping the neural circuitry, reprogramming the memory. My mind isn't going – so far as I can tell – but it's changing. I'm not thinking the way I used to think. I can feel it most strongly when I'm reading. Immersing myself in a book or a lengthy article used to be easy. My mind would get caught up in the narrative or the turns of the argument, and I'd spend hours strolling through long stretches of prose.

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<sup>1</sup>Hern, A. (2020). Part human, part machine: Is Apple turning us all into cyborgs? *The Guardian*, November 25. Retrieved from <https://www.theguardian.com/technology/2020/nov/25/part-human-part-machine-is-apple-turning-us-all-into-cyborgs>

<sup>2</sup>Carr (2008).

That's rarely the case anymore. Now my concentration often starts to drift after two or three pages. I get fidgety, lose the thread, begin looking for something else to do. I feel as if I'm always dragging my wayward brain back to the text. The deep reading that used to come naturally has become a struggle.<sup>3</sup>

He suggests that our brain circuitry may be changing as a result of the amount of time we are spending online. The internet is allowing previously challenging activities, such as research, to become easier thus reducing our time spent thinking deeply and contemplating issues. He argues that the more we use digital ICT, the more we start to emulate and present similar qualities as that of the workings of the technology itself. While acknowledging that we may well be reading more today thanks to the ubiquity of text on the internet, as well as text and instant messaging, it is a different type of reading that has altered and trivialised our ways of thinking about the content. Quoting Maryanne Wolf, a developmental psychologist at Tufts University and the author of *Proust and the Squid: The Story and Science of Reading Brain*, she worries that the internet has promoted a new way of reading based more on efficiency and immediacy rather than that of deep reading.<sup>4</sup> That is, our inherent ability to interpret text and to make the rich mental connections that form when we read deeply and without distraction.

Carr goes further by first suggesting that the internet, as a digital communications system, now plays many roles in our lives and exerts broad influence over our thoughts. Yet, for all that it has been written about the internet, there is very little to know about how it may be reprogramming us. The notion that our minds should operate at high speed – just like a data-processing machine – is the governing business model of the internet. But humans are bad at processing data, good at making abstract decisions and artificial intelligence (AI) is good at processing data, bad at thinking in abstract. We, as humans, make abstract decisions based on instinct, common sense and scarce information. We can feel, imagine, dream and invent things – such as digital technologies – and reinvent aspects of the past. Human memories consist not simply of matters of experiences but also the links between such experiences forming new connections promiscuously and thereby create opportunities for self-transformation and new collective phenomena. But this malleability means that human memories can also be capricious and unreliable, detaching at unexpected moments. The use of a computer metaphor is simply the most recent in a long line of tropes that pick up on the most advanced and complex technology of the day<sup>5</sup>; we understand how computer memory works, so we end up thinking that we understand how human memory works. It is suggested that simulating an entire, biologically realistic human brain remains an elusive goal with today's hardware and technologies; the processing power

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<sup>3</sup>Carr (2008).

<sup>4</sup>Wolf (2008).

<sup>5</sup>Barrett (2011).

alone that would be needed to pull off such a feat is enormous.<sup>6</sup> AI provides a possibility and can always complement human intelligence, but we should not equate how our mind works with that of digital processing. So why is such an approach often adopted by big tech?

The quicker we surf online, the more hyperlinks we click, the more pages we view, the more opportunities that the likes of Google, Facebook and other platforms have to collect information on our likes, habits, dislikes and fears; all to feed their insatiable advertising algorithms. The last thing big tech wants is to encourage leisurely reading or slow concentrated thoughtfulness and contemplation. It is in their economic interest to let us frivolously skim through webpages and internet content and drive us to distraction. In a recent study by a team of international researchers from various universities across the globe, they found that the unique features of the online world may also be influencing our attentional capacities, memory processing and social cognition.<sup>7</sup> They reported that the available evidence indicates that the internet can produce both acute and sustained alterations in each of these areas of cognition, which may be reflected in changes in the brain circuitry. The multifaceted stream of incoming information we are constantly subjected to online encourages us to become engaged in attentional-switching and multitasking, rather than a sustained focus on one thing. This ubiquitous and rapidly expanding access to online information and trivia overtakes previous transactive systems and potentially even internal memory processes themselves. A 2014 study appearing in the journal *PLoS One* found that people who spend a lot of time media multitasking – shifting between different websites, apps, programs or other digital stimuli – tend to have less grey matter in a part of their brain involved with thought and emotion control.<sup>8</sup> These same structural changes are associated with obsessive-compulsive disorder, depression, and anxiety disorders. The online social world also attempts to match real-world cognitive processes becoming meshed with our offline sociality, and this introduces the possibility of the special properties of social media to impact on our real life in unforeseen ways. While such research may be in its infancy, as digital ICT become increasingly enmeshed into our everyday life, they are also becoming highly proficient at capturing and disrupting our attention and unsettling our regular cognitive processes.

In *The Shallows: What the Internet Is Doing to Our Brains*, Carr expands his arguments on the themes first raised in his 2008 essay.<sup>9</sup> In examining the range of technologies introduced throughout history, he provides a well-developed and balanced introduction to the sociocultural good and bad of technological development. The value of this text to the current debates lies in the ample scientific

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<sup>6</sup>Lafrance, A. (2016). The human remembering machine: A new mathematical model of memory could accelerate the quest to build super-powered, brain-inspired hardware systems. *The Atlantic*, October 3. Retrieved from <https://www.theatlantic.com/technology/archive/2016/10/the-human-remembering-machine/502583/>

<sup>7</sup>Firth et al. (2019).

<sup>8</sup>Loh and Kanai (2014).

<sup>9</sup>Carr (2010).

evidence presented regarding the neurologic changes the human brain undergoes in response to our digital technology use. While evidence of an improvement in visual-spatial skills can be traced to the increase time spent at our screens and monitors, this improvement comes at a price as our abilities for deep analytical and critical thinking and reflection becomes diminished. Carr is essential pointing to the key differences between us, as humans, and these digital processing machines. Our requirements for processing and storing information build upon the notion of our knowledge of short- and long-term memories. Paying close attention to something or issue causes our front lobe to communicate with the midbrain provoking those neurons to release dopamine. When the hippocampus receives this dopamine, it fuses explicit memory. When we are trying to intentionally remember something specific, like a list of significant family birthday or anniversary dates, this information is stored in your explicit memory. People use this memory store every day, from remembering the time and place you are due to meet a friend for coffee, to recalling the date and time of a doctor's appointment.

Explicit memory is also known as declarative memory since you can consciously recall and explain the information. However, the volume of competing information received by the human brain as we interact online begins to exceed actual working memory capacity. The establishment of memory cannot occur because our frontal lobe cannot focus on one thing long enough to allow that processing to take place. As our internet screen time increases, it becomes more and more difficult to store information in memory. Hence, our reliance is on the computers' ubiquitous supply of artificial memory. A good practical example of this is our family and friends' phone numbers. How many of us can readily recall the actual phone number of our nearest and dearest? I suggest a decreasing number; we have left this memory work to our smartphones and other portable digital devices. Many within the tech sector would like to match our understanding of human memory with that of computer memory. But as argued previously, the two are not the same. Human memories are ever-changing, moulded by the context in which they are made and retrieved. Computer memory, on the other hand, is static and stored in bits and bytes.

It is too early and very difficult to truly understand what the lasting social and cultural outcomes of widespread digital technology adoption and use will be or its effects on the workings of the human brain and our cognitive capabilities. But Carr reports on numerous scientific studies which reveal a molecular basis for behavioural changes resulting from the increased use of digital technology. Think about it yourself for a moment. Can you concentrate for extended periods of time on reading a book or long text, or do you get distracted easily? Do you find yourself reading a passage and then seeking to 'go elsewhere' to find additional information on an event, word or phrasing; or just daydreaming? Was this always the case? It must be understood that each technology introduced throughout human history has had some effects – some small, some bigger – on individuals and societies. Be it the printing press, radio, television; changes in how we design, develop and adopt technologies have all left an indelible mark on an ever-changing societal landscape.

Will this superficial skimming and scanning technique of thinking, promoted and reinforced by the internet, serve us for better or for worse in the long run?

Interestingly, Carr draws his curiosity on the subject from Marshall McLuhan's (1964) celebrated work *Understanding Media: The Extension of Man*, who declared that the electric media of the twentieth century – television, radio, movies, and the telephone – were all breaking the domination of text over our thoughts and senses.<sup>10</sup> McLuhan famously coined the phrase 'the medium is the message' and what's often forgotten is that he was not just acknowledging, and celebrating, the transformative nature and power of new communication technology, he was also sounding a warning about the threats it poses and the risk of being oblivious to such dangers. He understood that when a new medium emerges, people are naturally carried away by the information coming over and through such a mode: the actual content. The news in the newspaper, the music from the CD player, the drama from the radio, the sitcom from the television: all tend to get lost behind the engaging content that emerges from these various mediums. The problem with this approach is that when people begin to debate the rights and wrongs of the medium's effects on individuals and society, it is only the content that we are all discussing. But such code or content and the way it is developed to grab and retain our attention is significantly meaningful in how it effects our cognition, markedly when we look at the developing brain in children and their use of digital devices.

In a following chapter, the contemporary phenomenon of the smartphone and its meteoric rise in popularity and use will be discussed in detail, but on the specific issue of digital ICT use and its effects on cognition, it's important to consider the matter here, particularly with regard to our younger populations. The developing human brain is constantly building neural connections while pruning away less-used ones, and digital media use is playing an active role in that process. Paediatrician Michael Rich – director of the Center on Media and Child Health at Boston Children's Hospital<sup>11</sup> – argues that much of what happens on the screen of digital devices provides impoverished stimulation of the developing brain compared to reality, and that children in particular need a diverse menu of online and offline experiences, including the chance to let their minds wander and spend time away from such technology.<sup>12</sup> The use of digital devices can interfere with everything from sleep to creativity and many children and teens who stay up late texting on their smartphones are lacking the deep REM sleep<sup>13</sup> essential for processing and storing information from that day into memory. While such research is in its infancy, researchers from the National Institutes of Mental

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<sup>10</sup>McLuhan (1964).

<sup>11</sup>Michael Rich is also Associate Professor of Pediatrics at HMS and Associate Professor of Social and Behavioral Sciences at the Harvard T.H. Chan School of Public Health.

<sup>12</sup>Ruder, D. B. (2019). Screen time and the brain. *Harvard Medical School*, June 19. Retrieved from <https://hms.harvard.edu/news/screen-time-brain>

<sup>13</sup>Rapid eye movement (REM) sleep is characterised by low muscle tone, REMs and dreams, and during such episodes, neural activity appears to originate in the brainstem making the brain more active, and it plays an important role in helping the brain consolidate and process new information.

Health recently offered a glimpse of some early results, based on preliminary data from the Adolescent Brain Cognitive Development (ABCD) study.<sup>14</sup> They found significant differences in the brains of some children who reported using smartphones, tablets and video games more than seven hours a day. Children who reported more than two hours a day of screen time got lower scores on thinking and language tests. A separate study suggested that more screen time is linked to poorer progress on key developmental measures such as communication skills, problem-solving and social interactions among young children over time.<sup>15</sup> For parents, this is a natural anxiety who often find themselves asking: what is happening when my child is staring at their smartphone in terms of their cognitive, social and emotional development?

### Humans: The Weakest Link?

This debates on how digital technology is altering our cognitive competences continues in *The Glass Cage: Who Needs Humans?*<sup>16</sup> This time Carr sets his sights on AI, self-driving automobiles, digitised medicine and workplace robots when he explores the often-hidden costs of allowing digital technology dominance over our work and our leisure time. Drawing on various studies that highlight how closely our sense of happiness and personal fulfilment are linked to performing skilled work in the real world, he points to something we all may already suspect; shifting our attention to computer screens to simply monitor rather than participate can frequently leave us disengaged, bored and prone to mistakes. Even as many of these new technologies bring a new sense of relief to our collective lives by replacing the manual, mundane, cumbersome labour of the past, this code is also unconsciously stealing something essential from us. Using the example of fly-by-wire aviation in which the pilot is in the cockpit 'just in case', he discusses automation and the drive by technologist to build 'immaculately self-contained systems that preform flawlessly without any human oversight or intervention'.<sup>17</sup> But technology and machines will always share the fallibility of their designers and creators:

[A]s automation technologies become more complicated and more interconnected, with a welter of links and dependencies among software instructions, databases, network protocols, sensors, and mechanical parts, the potential sources of failure multiply. Systems become susceptible to what scientists call 'cascading failures', in which a small malfunction in one component sets off a far-flung and catastrophic chain of breakdowns.<sup>18</sup>

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<sup>14</sup>See 'Adolescent Brain Cognitive Development Study (ABCD Study)' last updated May 2020 at <https://www.nimh.nih.gov/research/research-funded-by-nimh/research-initiatives/adolescent-brain-cognitive-development-study-abcd-study.shtml>.

<sup>15</sup>Madigan, Browne, Racine, Mori, and Tough (2019).

<sup>16</sup>Carr (2015).

<sup>17</sup>Carr (2015, p. 153).

<sup>18</sup>Carr (2015, p. 155).

These matters because in designing automated machines – be they aeroplanes or robotic processes on the factory assembly line – the essence of such design is to effectively eliminate the human from such system. Digital technology designers frequently view humans as unreliable and inefficient – at least compared to modern digital processing computers – and thus strive to give them as small a role in an automated system as possible. Individuals end up functioning merely as monitors of the system, passive unreceptive watchers of screens. Thus, automation technology has, in fact, created predictable yet unprecedented opportunities for human error, which has opened doors to new forms of system breakdown.<sup>19</sup> Workers in these conditions can easily get bored, daydream and their concentration can drift. If their main task is simply to monitor and observe, watching rather than acting, their instincts and reflexes will grow rusty from disuse over time. Placed in such a position, workers have trouble recognising and diagnosing problems, intuition and reaction time slows and responses can be sluggish and deliberate rather than quick and automatic.<sup>20</sup> The human placed at the very end of technology-centred automation systems – rather than at the core of human-centred system design – may well find they are losing something very important and personal over time.

The idea behind the ‘use it or lose it’ hypothesis derives from the growing evidence that a lifetime of learning, mental and physical activity and rewarding work is good for people, and these findings also appear to be true when it comes to warding off Alzheimer’s disease and various other forms of dementia. In many ways, our brains are like muscles; if we do not use, strengthen and stretch them, they will not deliver the high performance they have been designed and developed for. Essentially, our brains need regular mental stimulation to work well. The more stimulation, the better the cognitive functioning such as thinking and memory. Just as our body needs regular exercise to remain in a healthy condition so too does our brain need regular mental workouts to remain functionally resilient. Studies and comparisons involving people working in specific occupations and individuals whose mental activity levels are determined by their self-reporting has shown a positive relationship between levels of activity and levels of cognitive functioning. A 2012 study, for example, suggests that the presence of new neurons in the adult hippocampus indicates that this structure incorporates new neurons into its circuitry and uses them for some functions related to learning and related thought processes.<sup>21</sup> The generation of these new neurons depends on a number of factors ranging from age to aerobic exercise to sexual behaviour to alcohol consumption. However, most of the cells will die unless we engage in meaningful mental stimulation or learning experiences when the cells are about one week of age. If learning does occur, the new cells become incorporated into brain circuits used for learning, and in turn, some processes of learning and mental activity appear to depend on the presence of these new cells. The study points to extensive

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<sup>19</sup>Dekker and Woods (1999).

<sup>20</sup>Carr (2015, p. 157).

<sup>21</sup>Shors, Anderson, Curlik II, and Nokia (2012).

literature showing that new neurons are kept alive by effortful learning, a process that involves concentration in the present moment of experience over some extended periods of time. Higher levels of job demand and job control are, thus, conducive to employees' overall cognitive health and well-being. Exposure to both high job demand and control constitutes an active job, according to the model, fostering learning and strengthening brain capacities through neuro-cognitive stimulation.<sup>22</sup>

Mental disuse is as impressive an example of use it or lose it as physical disuse. A guitarist, for example, has a bigger cortex – the part of the brain that controls hand and finger movement – than a non-musician, just as a right-footed footballer will have stronger and larger muscles in her right leg, at least compared to someone who does not play the sport or who kicks with their left foot. It is simple adaptation to use in both cases, and the opposite can be said for the consequence of disuse: smaller, weaker, declining function. Changes brought on by mental disuse occur in neurons (our brain cells) and neural networks: neurons shrink, networks become less dense, connections (synapses) deteriorate.<sup>23</sup> The neurotransmitters that permit impulses between neurons reduce and become less sensitive to receptors. The result is that cognitive functioning slows down, and mental capacity is reduced. We tend to underestimate this mental disuse because we are not as aware of its creeping effects in our everyday lives. We cannot see and feel the atrophy of our mind in the same way we can see and feel the atrophy of our muscles in our body. The effects on the mind are subtle and difficult to measure, and they happen gradually over time and as we get older. This makes them perfect culprits for the ageing process and when symptoms such as forgetfulness, confusion and speaking difficulties become severe enough, they get labelled dementia. The changing nature of some work may be altering our ability to react and make decisions in a timely manner, as well as add to the long-term depreciation of our cognitive abilities. The humdrum of simply watching a monitor on an automated assembly line not only leads to boredom, it can also lead to personal cognitive deterioration.

## Surrendering to the Machine

Of course, not all jobs involve mundane monitoring tasks and some forms of work presents their own issues with regard to increasing challenges to individuals in new digital work environments. A recent survey from Korn Ferry – *Workplace Stress Continues to Mount* – examined the growth in workplace stress for professional workers, increasing by nearly 20 per cent in the last three decades.<sup>24</sup> Among the top reasons for the increased stress over time are the threat of losing a job

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<sup>22</sup>Karasek (1979).

<sup>23</sup>Vickery, Matson, and Vickery (2012, p. 183).

<sup>24</sup>Worried workers: Korn Ferry survey finds professionals are more stressed out at work today than 5 years ago. (2018). *Korn Ferry*, November 8. Retrieved from <https://www.kornferry.com/about-us//press/worried-workers-korn-ferry-survey-finds-professionals-are-more-stressed-out-at-work-today-than-5-years-ago>

to technology, and the pressure to learn new skills just to stay employed. How is this digital work environment affecting overall mental well-being and our need for contentment, and how is the widespread introduction of new digital technology into the workplace impacting upon our prospects for improved quality of life and work/life balance in the future? In the broader sense, the relentless drive towards automation may well remove the human from the workplace altogether, particularly from the factory floor, adding to competition and pressure on those who remain employed. Most large industrial organisations and companies began investing in such digital automation and robotics over the past number of decades, and many such systems view the human presence as the weakest link in the assemble line chain. Employers and workers now anticipate widespread job automation over the coming decades. About eight in 10 American adults – 82 per cent – fear that by 2050, robots and computers will definitely or probably will do much of the work currently done by humans, according to a December 2018 Pew Research Center survey.<sup>25</sup> A smaller share of employed adults – 37 per cent – say robots or computers will do the exact type of work they currently do themselves by 2050.

In their 2011 book *Race against the Machine*, MIT Researchers Erik Brynjolfsson and Andrew McAfee investigated the connections between digital technology, employment and organisation in the twenty-first century.<sup>26</sup> The author's central thesis is that we are in the midst of a technological revolution that is radically redefining what work is, how value is created and how the economy as it is currently organised distributes such value. They argue that for the last number of years, massive advancement in digital computer technology – from improved industrial robotics to automated translation services – is largely behind the sluggish employment growth figures of the last two decades. Even more worrying for workers, they foresee gloomy prospects for many types of work as these powerful new digital technologies are increasingly adopted not only in heavy industry, manufacturing and retail work but also in professions such as financial services, education, medicine and even law. Such technological acceleration is creating enormous value for many organisations, companies and some individuals at the very top, and there is no question they increase productivity in many ways. But the problem is that digital technologies change rapidly, but organisations and employee skills are just not keeping pace. As a result, many workers are being left behind, their income and prospects being destroyed, leaving them worse off in economic terms and reducing their purchasing power more than before this digital disruption.

While the foundations of our economic system presume a strong link between value creation and job creation, the Great Recession of 2008–2012 revealed a weakening or rupture of that link. This, it is suggested, is a deep structural change in the nature of production. As digital technology accelerates so too will the economic mismatches, undermining our social contract and ultimately hurting both rich and poor and not just the first waves of the unemployed.<sup>27</sup> But we must

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<sup>25</sup>Parker, Morin, and Horowitz. (2019).

<sup>26</sup>Brynjolfsson and McAfee (2011).

<sup>27</sup>Brynjolfsson and McAfee (2011, p. 16).

recognise that ever since the followers of New Ludd<sup>28</sup> began smashing machines in the early 1800s, workers have always worried about automation destroying their jobs and, thus, their livelihoods. Economists have always attempted to reassure people that new forms of work would be created when these old forms were abolished, and for several centuries, they were correct. However, there is no economic law that states that everyone, or even most people, automatically benefit from such technological progress, and as the digital economy grows, it can leave some people, or even a lot of people, worse off:

And computers (hardware, software, and networks) are only going to get more powerful and capable in the future, and have an ever-bigger impact on jobs, skills, and the economy. The root of our problems is not that we're in a Great Recession, or a Great Stagnation, but rather that we are in the early throes of a Great Restructuring. Our technologies are racing ahead but many of our skills and organizations are lagging behind. So it's urgent that we understand these phenomena, discuss their implications, and come up with strategies that allow human workers to race ahead with machines instead of racing against them.<sup>29</sup>

A study compiled by the McKinsey Global Institute suggests that advances in AI and robotics will have a severe effect on everyday working lives – comparable to the shift away from agrarian societies during the Industrial Revolution – predicting that by 2030 as many as 800 million jobs could be lost worldwide to digital acceleration.<sup>30</sup> In the United States alone, between 39 and 73 million jobs stand to be automated, making up around a third of the total workforce. But the report's authors maintain that such technology will not only be a destructive force. New jobs will be created, existing roles will be redefined and workers will have the opportunity to switch careers. But they further suggest that income inequality is likely to grow, possibly leading to political instability, and the individuals who need to retrain for new careers will not be the young but, in fact, middle-aged professionals. We may be moving far too quickly to automate white-collar jobs, sophisticated tasks and mental but rewarding work and becoming increasingly reliant on automated decision-making and predictive analytics.

This represents a large-scale de-skilling of the workforce, which will have particularly ramifications for society at large, some of which we are now just starting to experience. Entire professions, careers and businesses are being eliminated in

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<sup>28</sup>While the name New Ludd and, indeed, Luddite is of uncertain origin, it is widely suggested that it was a secret oath-based organisation of English textile workers in the nineteenth century. This radical faction destroyed textile machinery as a form of protest. The group was protesting against manufacturers who used machines in what they called a fraudulent and deceitful manner to get around standard labour practices.

<sup>29</sup>Brynjolfsson and McAfee (2011, p. 5)

<sup>30</sup>Manyika et al. (2019).

the rush towards automation and digitisation, and moves away from traditional forms of work are creating sizeable deindustrialised regions of unemployed, even in the developed world. The disappearance of high-quality manufacturing jobs in many advanced economies is not being replaced with similar high-level roles in the service sector. The option for reskilling is all well and good, but if the work for these skills resides elsewhere, the outlook for workers who cannot relocate due to family or personal commitments is bleak. As factories close, many middle-skilled workers are forced to accept low-paying jobs in the service sector in their region, adding to the reduction of the income distribution and a subsequent rise in regional inequality. Automation impacts on work and workers in numerous ways and should not be underestimated as a significant challenge to our sense of personal worth and well-being, but at the same time, it does not, of itself, spell the end of work just a change in the nature and value of work. Automation and digitalisation is hastening the growth of 'gig working' as more and more complex jobs and work are broken down into discrete tasks ripe for outsourcing to the waiting crowd, with all its associated precariousness and volatility for workers and their families.

## **Precarious Work**

Work traditionally occupied a substantial proportion of most people's lives and has often been taken as a symbol of personal value and self-worth. Work provides status, economic reward, a demonstration of religious faith and a means to realise self-potential.<sup>31</sup> But the meaning of work in contemporary society is now a challenging debate within sociology with some espousing that the post-industrial workforce should be expected to possess a relatively high degree of career and occupational identification and are likely to anticipate intrinsically meaningful work built around self-actualising opportunities. But this is a highly contested claim, and some prominent theorists also suggest that work identities are increasingly fragile, unstable and discontinuous. Indeed, Bauman argued that in postmodern societies, consumption has supplanted work as the key source of self-identity and social status.<sup>32</sup>

Digitalisation has enabled many new forms and organisations of work, more generally, and has introduced new terms and phases into our everyday vocabulary. For many people, the term gig economy still sounds a little ambiguous. The term refers to a way of doing business where freelancers and independent contractors are employed in place of full-time paid workers by an organisation. As such, workers rely on finding short-term segments of work or tasks to be performed – or as they are better known, gigs. These are primarily through digital online intermediaries or platforms designed specifically for this purpose. Some of the most popular gig economy digital intermediaries are Airbnb, Uber, Fiverr, Deliveroo and other food delivery services, and these digital platforms act as mediators that

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<sup>31</sup>Grint and Nixon (2015).

<sup>32</sup>Bauman (2005).

help both employers' complete tasks and freelancers find temporary work, all for a specific fee. Gig working is not new; contract work has been a feature of modern work and the knowledge economy for several decades. What is new is the addition of these digital platforms as arbitrators in the contract work process.

In *Human as a Service*, Jeremias Prassl sets out his arguments on the challenges posed by such on-demand work and, in particular, how these digital work intermediaries deliver tight curated products and services by means of close control over their workforce; from setting terms and conditions and checking relevant qualifications to ensuring proper performance and payment.<sup>33</sup> He argues that these digital platforms operate in often legal grey areas using narratives of entrepreneurship, opportunities, autonomy, self-determination and freedom for these workers. Digital work intermediaries do not wish to be seen as employers and will continually reinforce this by distancing themselves from the responsibilities and obligations that traditional businesses and organisations must adhere to in order to protect their workers or consumers.<sup>34</sup> One of these distancing strategies is the use of language to rebrand work and shape the regulatory responses. In this gig environment, there is no longer talk of 'work' rather it is the requirement for 'gigs', 'lifts', 'tasks', 'hits' and 'favours' which replace the traditional vocabulary of the labour market. The ultimate goal in this approach is to question whether the law in general – and employment law in particular – remains relevant in regulating the contractual relationships formed between digital platforms, their users and their workforce.<sup>35</sup> So, what of the workers and their welfare in this new work environment? The business models for most of these digital platforms are clearly based on tight control over their workforce, subject to constantly changing and increasingly arduous terms and conditions, the very opposite to what is suggested in their entrepreneurial claims:

[F]or a large number of workers, the reality as a Tasker, Driver-Partner, or Turker is more reminiscent of Victorian labourers' daily grind than the glamour of Silicon Valley: long hours for low wages, constant insecurity, and little legal protection – with no chance of a future upside.<sup>36</sup>

A 2018 survey on millennial workers and twenty-first-century work outlines the impact that the rise of precarious gig work is having on an entire generation. *The Generation Effect: Millennials, Employment Precarity and the 21st Century Workplace* survey looked at precarious work's impact on millennials' community participation, health, quality of life, work and the workplace. But the study's findings on the cost to mental health and well-being and the pervasiveness of

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<sup>33</sup>Prassl (2018).

<sup>34</sup>Prassl (2018, p. 51).

<sup>35</sup>Prassl (2018, p. 50).

<sup>36</sup>Prassl (2018, p. 52).

this issue among millennials were the most disturbing.<sup>37</sup> The study found a close correlation between mental health and the quality of employment now on offer, which suggests that these changes to the form and organisation of work are having a negative impact on this generation. Underemployment – which is defined by the International Labour Organisation (ILO) as those who work fewer hours than a national-specific threshold related to working time while they are willing and available to work additional hours – is closely linked with the gig economy since full-time work is never guaranteed, and findings from two large UK samples highlight the possibility that underemployment among part-time workers may also have detrimental psychological consequences.<sup>38</sup> The experience of gig workers across the world must be understood in the context of neoliberalism, which has amplified both the globalisation and precariousness of work, and while gig workers share some similar vulnerabilities with other workers, the digital platform-specific vulnerabilities of workers require particular attention. New forms and organisations of work – designed, developed and promoted by digital work intermediates – should not be allowed to do us harm in the long run, nor be allowed roll back years of hard fought labour regulation and measures designed to help and support workers of all ages, gender and ethnicity, attain a proper and rewarding quality of life.

## **A Just Transition**

The development, emergence and wide prevalence of digitalisation into almost every facet of our daily lives and routines has brought about some great benefits, which are widely acknowledged and highly praised across society. But digital technology's pervasiveness into every aspect of our everyday life is relatively recent and its long-term impacts and consequences on our cognition and personal well-being have yet to be fully understood and realised. In particular, we discussed in this chapter the unstoppable march of digitisation and the digital economy into all forms and organisation of work, but this has happened without debate or discussion as to its lasting impacts and consequences for individuals, communities, societies and entire regions. In how our current economic system is organised – widely adopted in countries of the West – there will always be opportunities for individuals and organisations to capitalise on the introduction of digital technology in a drive for productivity while displacing workers, but inevitably society in general will end up 'picking up the tab' for such disruption and dealing with the unescapable outcomes. Unemployment and underemployment have very damaging effects on the individual, their families and their communities, yet we're heading at breakneck speed into a digital future with limited or no role for humans in the workplace. This significant shift in value will elevate just a few to mega-status wealth but leave the vast majority behind to fight over the scraps and leftovers. Such a future scenario has the potential for significant consequences

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<sup>37</sup>Martin and Lewchuk (2018).

<sup>38</sup>Mousteri, Daly, and Delaney (2020).

for family and community cohesion and social unrest yet there's little political appetite or will evident at present to discuss such developments or to anticipate what will be required in a post-work era.

Like many of the developments around digitisation, we are thoughtlessly following a technological determinist approach and hoping for only positive outcomes from digital technology futures. Research has long suggested that social media can be harmful to users' well-being, for example, but a comprehensive new study examining the impact of Facebook usage on well-being over time found that using that social media platform was consistently detrimental to mental health.<sup>39</sup> At the same time, it is also important to remember that much more evidence for creeping changes to human cognition and personal well-being is needed before we decide upon and make decisive decisions and judgements on digitisation's potential role and direction and true consequences. Digitalisation that weakens our cognitive capacities and innate human aptitude for reasoning will diminish us all over time. We must be more aware of possible negative outcomes in order to spot them when they begin to emerge, and before it's too late to turnaround the digitisation juggernaut from eliminating humans altogether from various work environments and devaluing our sense of self-worth. Debates and discussions on a just transition with regard to the EU Green Deal are loud and clear,<sup>40</sup> but much more attention and effort is needed into understanding parallel just transition financed strategies with regard to disruptive digital technology's impacts on work, individuals and communities alike.

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<sup>39</sup>Shakya, H. B., & Christakis, N. A. (2017). A new, more rigorous study confirms: the more you use Facebook, the worse you feel. *Harvard Business Review*, April 10. Retrieved from <https://hbr.org/2017/04/a-new-more-rigorous-study-confirms-the-more-you-use-facebook-the-worse-you-feel>

<sup>40</sup>The Just Transition Mechanism (JTM) is part of the European Green Deal Investment Plan and a key tool to ensure that the transition towards a climate-neutral economy happens in a fair way, leaving no one behind: see [https://ec.europa.eu/regional\\_policy/en/newsroom/news/2020/01/14-01-2020-financing-the-green-transition-the-european-green-deal-investment-plan-and-just-transition-mechanism](https://ec.europa.eu/regional_policy/en/newsroom/news/2020/01/14-01-2020-financing-the-green-transition-the-european-green-deal-investment-plan-and-just-transition-mechanism).

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## Chapter 5

# The Smartphone: A Weapon of Mass Distraction

Life is what happens when your smartphone is charging.

Unknown

There's constant pressure to be plugged in 24/7 and it's causing serious health problems. I'm glad to see that companies in the smartphone industry are taking strides to combat problems. But giving people the ability to limit their own usage with programs like Screen Time isn't enough. It's the equivalent of telling an alcoholic to lock their liquor cabinet but letting them keep the key.

Brian Scudamore, *Forbes Magazine*

## Our New Digital Appendage

The meteoric growth in use of the multifunctional smartphone in the last few years has been a significant global success story for the digital tech industry. These devices have significantly changed the communications and information landscape and promoted new forms of social status and identity by remoulding the interests, values and desires of many mobile device users. Smartphones are now not only mobile phones for making and taking voice calls, but they are handheld personal computers and represent the most recent step in the evolution of small, portable information and communication devices. They are fortified with always-on network connectivity and, consequently, have all the internet's appealing but also problematic content. They enable the installation of an extensive range of software applications and are creating new forms of information, communications, education and entertainment, while promoting new habits of use for many individuals. Other features of smartphones include touchscreens, media players,

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**The Social, Cultural and Environmental Costs of Hyper-Connectivity:  
Sleeping Through the Revolution, 71–84**



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digital cameras and GPS-based navigation, to name a few. Generally, therefore, the smartphone distinguishes itself from the standard traditional mobile or cell phone by running an open operating system that hosts applications, which greatly expand the phone's functionality giving it these computer-like capabilities. The smartphone has introduced some incredible additional functionality to our lives allowing us to organise our day and stay constantly connected to family and friends, regardless of the time or location. But there is now also constant pressure to stay connected seven days a week, 24 hours a day, and this is leading to societal risk and personal misgivings and damaging health issues for some individuals. There is a time and place to use our mobile devices, but also a time and place to put them away. Humans, by our nature, are prone to distraction, and smartphones are designed to feed our seemingly endless and insatiable appetite for entrainment, trivia, news headlines as well as cater to our desires to express ourselves on social media platforms. In this chapter, the focus of our attention will be on the smartphone; its history, its development, its acceptance and adoption and its now revered position as a contemporary symbol of social status. But also its hidden dangers and the darker sides to hyperconnectivity and distraction that these devices have come to epitomise in the contemporary digital age.

## **A Brief History of the Mobile Phones**

The development and history of the modern smartphone, as we know it, began in the early 1990s and has evolved significantly since its early inception and form as a mobile cellular device. What were once bulky 'brick-like' objects, the mobile cellular phone has evolved into a small, compact, portable omnipresent devices of mass communication. The history of mobile phones is the history of mobile communication devices that first connected wirelessly to the public switch telephone network. While knowledge of the transmission of speech by radio signal goes back many years,<sup>1</sup> the more recent development of the first automatic analog cellular systems (1G) deployed were The Nippon Telegraph and Telephone Corporation (NTT) systems first used in Tokyo in 1979 – later spreading to the whole of Japan – and Nordic Mobile Telephony (NMT) in the Nordic countries of Europe in the early 1980s. In the 1990s, the second-generation mobile cellular phones were developed using the global system for mobile communications (GSM) standard in Europe and the code-division multiple access (CDMA) standard in the United States. This second-generation technology differed by using digital instead of analog transmission and fast out-of-band phone-to-network signalling. The growth in mobile phone usage as a result of 2G technology was

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<sup>1</sup>These early mobile phones are often referred to as 0G mobile phones or zero-generation mobile phones. The first ever mobile telephone call was made on 3 April 1973 on a Motorola DynaTAC8000X. The call was made by Martin Cooper of Motorola; the recipient was Dr Joel S. Engel of Bell Laboratories. The DynaTAC8000X became the first commercially available mobile phone. It did not go on sale, however, until 1983 and carried a considerable hefty price tag of about \$4,000.

extraordinary, and this heralded the advent of prepaid mobile phone services. The introduction of 2G systems also prompted moves away from the larger brick-like phones towards smaller and lightweight handheld devices. This transition was possible not only through technological improvements – such as more advanced batteries and more energy-efficient electronics – but also because of the higher density of cell sites<sup>2</sup> that began to dot the urban and rural landscapes to accommodate increasing usage. The latter meant that the average distance transmission from the mobile phone to the base station shortened, leading to increased phone battery life while on the move.

Touchscreens are now a standard part of everyday smartphone use and the first iteration of a touchscreen handset was introduced as far back as 1994. The IBM Simon is sometimes referred to as the first ever smartphone; it could receive and send email and faxes and had several other additions such as a calendar, address book, clock and notebook, features we now view as standard on any smartphones. This mobile device was only available in America and needed to be operated with a stylus rather than a person's fingers and also incorporated a QWERTY keyboard as standard. Despite its unique and functional features, IBM Simon spent a mere six months on the market selling just around 50,000 units; its demise prompted by its very short battery life – it lasted around one hour – and the emergence of exciting competitors such as flip phones.<sup>3</sup> One of the fundamental drawbacks with the IBM Simon phone was it operated as an analog communication device that was subject to the same interference problems and spotty coverage outside the main urban areas that other analog cellular phones experienced at that time. The next-generation smartphone would use 2G technology, with speedier digital network connections, smaller dimensions, more advanced features, and it was in Europe that they would first emerge.<sup>4</sup>

While the pre-smartphone era was largely spearheaded by developments in the United States, by the late 1980s, European countries had agreed to adopt the GSM standard for their 2G networks, which quickly became the de facto global standard. European standardisation greatly helped Sweden's Ericsson and Finland's Nokia companies establish an early lead over Motorola in the 2G cell phone and smartphone market. The GSM standard had been adopted worldwide, and this enabled these companies achieve high-volume international sales to the point that by the mid-1990s, nearly one out of every three Finns and Swedes owned a cell phone, which was more than twice that for Americans and the rest of Europe.<sup>5</sup> Both of these companies led the development of forerunners to the smartphone, with varying degrees of success, with devices such as The Communicator and the R380.

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<sup>2</sup>In Global System for Mobile Communications (GSM) networks, the correct term is Base Transceiver Station (BTS), and colloquial synonyms are 'mobile phone mast' or 'base station'. They are cellular-enabled mobile device sites where antennas and electronic communications equipment are located to create a cell in a cellular network.

<sup>3</sup>Aamoth, D. (2014). First smartphone turns 20: Fun facts about Simon. *Time*, August 18. Retrieved from <https://time.com/3137005/first-smartphone-ibm-simon/>

<sup>4</sup>Woyke (2014).

<sup>5</sup>Woyke (2014, p. 11).

With the establishment of Palm Computing in 1992 – led by Jeff Hawkins – the United States had re-entered the smartphone developmental field as a serious player. After a number of initial setbacks, the company took a giant stride forward with the launch of the Pilot 1000 and 5000. These were the first Personal Device Assistant (PDA) Palms designed to support large data transfers; both had 4.7-inch screens that let users access addresses, set-up and view appointments, to-do lists and memos, and the screen also had a touch-sensitive panel that was activated by means of a pen-like stylus and a handwritten recognition system called Graffiti.<sup>6</sup> These devices were also smaller, lighter, easier to use and cheaper than previous devices but, critically, did not include actual phone functionality. Hawkins quickly realised that such stand-alone PDA devices were on a direct collision course with the cell phone for the long-term future and viability of mobile communications and computing. Palm Computing was subsequently acquired by US Robotics and then 3Com leading to the departure of Hawkins from the company. Soon after leaving, he set-up Handspring with several other former Palm directors and employees.

Near the end of the millennium, Handspring launched its first iteration of a smartphone. Having first brought Visors to the marketplace as a PDA, a short time after the company introduced a new VisorPhone cartridge to allow the device to make and receive calls. Users could now browse the web and send and receive emails as the VisorPhone also doubled as a wireless modem, but reviews of the new mobile communication device were initially lukewarm. In 2002, a smartphone appeared with a completely different lineage: the Blackberry. Sometimes called 2.5G, the Blackberry used General Packet Radio Service (GPRS) technology that carriers laid on top of their GSM networks to enable faster data rates and which divided files into smaller packets that enabled more effective transmissions.<sup>7</sup> Such a set-up and design also enabled users to stay online and connect without the hassle of dialling up an internet connection; all features that inspired a level of user devotion that no other cell phone or smartphone had been previously been able to achieve. The Blackberry quickly captured the market. At its peak in 2013, there were some 76 million subscribers worldwide,<sup>8</sup> and critical to the company's early success were its efforts to position the Blackberry as a device and platform for business and enterprise.

During these years of Blackberry's success, in 2007 at a heavily hyped press event at the Macworld Convention in San Francisco Apple co-founder Steve Jobs unveiled the iPhone, a revolutionary new product that not only broke the mould but was also to set an entirely new paradigm for computer-based mobile communications. The iPhone's user interface is built around a multi-touchscreen with a virtual keyboard. It connects to cellular networks or Wi-Fi, can receive and make

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<sup>6</sup>Woyke (2014, p. 17).

<sup>7</sup>Woyke (2014, pp. 20-21).

<sup>8</sup>Epstein, Z. (2013). Blackberry lost 4 million subscribers in Q1 despite new launches. *BGR*, June 28. Retrieved from <https://bgr.com/2013/06/28/blackberry-subscribers-q1-2014/amp/>

calls, users can browse the web, take pictures, play music and send and receive emails and text messages and since its launch has been credited with popularising the smartphone while generating massive profits for the Apple corporation. The company's approach was to deliberately simplify its product line by offering just one model a year while also making it an expensive high-end but exceptionally desirable product. Around about the same time, Google was acquiring Android Inc., which had begun life as a company developing operating systems for digital cameras. Once they recognised that such a market was limited, developers at Android quickly turned their attention to handset operating systems that would rival Symbian and the Microsoft Windows Mobile.<sup>9</sup> Google were keen to enter the mobile communications market and expand their organisational reach. An early Android prototype closely resembled the Blackberry with a physical QWERTY keyboard, but the arrival of the iPhone in 2007 sent developers back to the drawing board. Blackberry and Nokia had by now begun to focus on touch-based phone development to rival the iPhone. Android's attention also switched in that direction and the first commercially available smartphone running the Android operating system was launched in 2008: the HTC Dream. Growth and sales in smartphones took off from that point and as the Blackberry and other developers fell by the wayside, the marketplace quickly became dominated by Apple and Google over time. Android has now been the best-selling operating system for smartphones worldwide since 2011 with nearly 2 billion monthly active users and the Google Play Store hosting over 2.9 million apps. The number of smartphone users worldwide today has now surpassed 3 billion, and the market is forecast to further grow by several hundred million in the next few years.<sup>10</sup> China, India and the United States are the countries with the highest number of smartphone users, with each country surpassing the 100 million user mark. Smartphones have, without doubt, become a global phenomenon over the last decade, but what are the reasons for their spectacular rise, and are there consequences attached to their widespread adoption and use?

### Attraction and Distraction

With so many smartphone users across the world now what is the main attraction of such devices? In many ways, their main appeal is their ability to keep users connected 24/7 with whomever they choose to be associated with. Smartphones also afford the capability of always-on internet access – with the vast stores of information this entails – as well as practical applications that allow an individual's emails and social media accounts be readily accessible through easy-to-use

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<sup>9</sup>Welch, C. (2013). Before it took over smartphones, Android was originally destined for cameras. *The Verge*, April 16. Retrieved from <https://www.theverge.com/2013/4/16/4230468/android-originally-designed-for-cameras-before-smartphones>

<sup>10</sup>O'Dea, S. (2020). Smartphone users worldwide 2016-2021. *Statista*, February 28. Retrieved from <https://www.statista.com/statistics/330695/number-of-smartphone-users-worldwide/>

touchscreens. The ability to remain constantly connected to family and friends, and the workplace, now resides in a small, portable, lightweight communication device that fits in our pockets. But because the smartphone phenomenon is only a few years old, we really do not truly know what the long-term effects of this new always-connected, always-contactable regime may be having on individuals, our well-being and our relationships. For many people, the smartphone is the last thing they see at night before they fall sleep, and the first thing they see in the morning when they wake. Research from the United States reveals that Americans touch their mobile devices more than 2,600 times a day on average.<sup>11</sup> For the heaviest users – the top 10 per cent – average interactions almost doubled to 5,427 touches a day. The average user engages in 76 separate phone sessions a day; heavy users average 132 sessions a day. Are all these highly concentrated, highly tactile interactions with our smartphones good or bad for us? The answer is we really do not know yet.

What is obvious, however, is that our smartphones are distracting us from other important incidences and events in our lives. Being mesmerised and anything other than being ‘in the moment’ with your smartphone has become the norm for many and has fashioned the contemporary term ‘nomophobia’.<sup>12</sup> While many levels of smartphone-enabled interruptions may be deemed trivial in nature, in other instances, this level of distraction can be lethal. Fatalities caused by road crashes are considered a major concern for both lives lost and the social costs of such loss, and crashes triggered by distracted driving are now a major cause of mortality on our roads and of growing concern. As far back as the beginning of the decade the World Health Organization (WHO) established that mobile phone use was one of the main contributors to this driver distraction.<sup>13</sup> The *2018 Distracted Driving Report* found that as smartphone ownership increased across an ever-growing mobile workforce in the United States, there has also been a disturbing parallel in rising road accident rates.<sup>14</sup> Specifically, the report found that as smartphone ownership skyrocketed from 55 per cent in 2013 to 77 per cent in 2017, the number of accidents escalated from 5.7 million to 6.4 million, an increase of 12 per cent. While many accidents will not capture the true extend of smartphone distraction – remember, in most countries, it is illegal to use your

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<sup>11</sup>Winnick, M. (2016). Putting a finger on our phone obsession - Mobile touches: A study on how humans use technology. *Dscout*, June 16. Retrieved from <https://blog.dscout.com/mobile-touches>

<sup>12</sup>NO MOBILE PHOne phobia (Nomophobia) is a twenty-first-century term used to describe a psychological condition when people have a fear of being detached from mobile phone connectivity. Nomophobia is not listed in the latest edition of the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-5) as mental health experts have not yet decided on formal diagnostic criteria for this condition. However, it’s generally agreed that nomophobia presents a growing concern to people’s mental health with some experts suggesting it represents a type of phone dependence or addiction.

<sup>13</sup>World Health Organization (2011).

<sup>14</sup>2018 Distracted driving report. (2018). *Motus*. Retrieved from <https://resources.motus.com/reports/2018-distracted-driving-report>

mobile phone or device when driving, and motorists are reluctant to state the cause of any accident was down to their absent mindedness because they were on their phone – it can be said that the financial costs of smartphone-related distraction, although somewhat difficult to quantify, are growing. One way of trying to establish such costs is to look at insurance companies and their premiums. The report showed a steady increase in auto collision claim frequency, and between 2014 and 2016, there were substantial spikes in both smartphone ownership and car accidents that involved property damage, injuries or fatalities. A 2010 study by the Pew Research Center said nearly half of US adults admit reading or sending a text message while driving.<sup>15</sup> Millennials are the worst offenders, according to this research. Fifty-nine per cent of people between the ages of 18 and 33 years reported texting while driving, compared with 50 per cent of Gen Xers – aged between 34 and 45 years – and only 29 per cent of baby boomers.

Although now a decade old, there is no indication that such behaviour has changed for the better, and every indication that it has gotten worse as the functionality and use of the smartphone has increased. A ticket for using a mobile phone while driving added some \$226 to the average insurance policy for US drivers – an increase of 16 per cent – again an indication of the insurance industry's recognition of the growing problem of driver smartphone distraction and accident rates.<sup>16</sup> Such concerns are not only confined to the United States. The relationship between smartphone use and road fatalities was found to be strong in a 2018 population-based case-crossover Italian study.<sup>17</sup> Data on road crashes with fatalities were collected from seven Italian metropolitan areas and matched in time and space with high-resolution mobile phone traffic volume data on voice calls, text messages, internet connections and the upload or download of data. Positive associations between road crash rates and mobile phone activity were found. Working days, night-time and morning hours were associated with greater smartphone use and more road accidents. But distraction when driving is nothing new. It had been known for some time that drivers have been eating, grooming themselves, changing radio station and chatting with passengers while driving. However, the current omnipresent use of smartphones while driving has caused a significant paradigm shift; the migration from traditional cell phone to smartphone creates an additional and long-term visual screen distraction and has significantly multiplied the occurrence of distracted driving. So why are our smartphones so distracting and so difficult to put down, and why do we feel the need to rush to see what the latest ping from our phone is associated with?

## **Addiction as a Design Feature**

The Center for Human Technology was launched in 2018 by a former Design Ethicist at Google, Tristan Harris, who had become troubled by what he observed

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<sup>15</sup>Madden and Rainie (2010).

<sup>16</sup>Motus (2018).

<sup>17</sup>Gariazzo, Stafoggia, Bruzzone, Pelliccioni, and Forastiere (2018).

as the large-scale negative impacts of the attention-grabbing business models adopted by smartphone developers and social media companies.<sup>18</sup> Five years earlier, Harris had sent around a presentation built with Google Slides to 10 or so friends inside the company titled *A Call to Minimize Distraction and Respect Users' Attention*, which called on Google to help people spend less time looking at their screens. As the co-founder of Time Well Spent, a non-profit advocacy group focussed on the ethics of consumer technology, Harris set about trying to bring moral integrity to software design, essentially to persuade the tech world to help people disengage more easily from their devices. In an interview for *The Atlantic*, Harris suggested that the smartphone was so addictive, and designed that way, that he called it 'a slot machine in my pocket'.<sup>19</sup> He argued that the most successful websites and smartphone apps hook us by tapping into deep-seated human needs for approval and to be liked. Using approaches originating in the psychology of behavioural change at the Persuasive Technology Lab at Stanford University – run by the experimental psychologist B. J. Fogg – many developers have adopted Fogg's principles of 'behaviour design', a euphemism for what sometimes amounts to building software that nudges us towards the habits a company seeks to instil in its users. This is why our smartphone apps reward us with instantaneous approval after we post a photo; this reinforces the action and potentially shifts it from an occasional to a daily or hourly, or more frequent, activity. Harris suggests that technology is not, as so many engineers and developers claim, a neutral tool. Rather, it's designed and developed to be capable of coaxing us to act in certain ways. He came to conceive smartphone software developers as using 'hijacking techniques' – the digital version of pumping sugar, salt and fat into junk food in order to induce binge eating. Just as junk foods hook us by appealing to our bodies' cravings for particular foods or flavours, our smartphone apps hook us by delivering what psychologists call 'variable rewards'.

Have you, for example, ever felt what's known as 'phantom vibrations' from your smartphone: that sensation where your body is sure it's detected a new call, message or update tinkle, but you check and there's nothing new there? That strange and disconcerting sensation is caused by the state of hyper-vigilance smartphone users find themselves in from time to time. We are becoming hooked to both the dopamine hits of satisfaction that our smartphones give us hundreds of times a day, while being simultaneously assailed by dangerous levels of cortisol these then send coursing through our bodies. Dopamine is a chemical produced by our brains that plays a central role in motivating behaviours. It gets released when we take a bite of delicious food, after we exercise and, importantly, when

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<sup>18</sup>The Center for Humane Technology is an independent non-profit organisation supported by a growing movement of cross-disciplinary leaders in technology, humanity, mindfulness, philosophy and education: see <https://humanetech.com/>.

<sup>19</sup>Bosker, B. (2016). The binge breaker: Tristan Harris believes Silicon Valley is addicting us to our phones. He's determined to make it stop. *The Atlantic*, November. Retrieved from <https://www.theatlantic.com/magazine/archive/2016/11/the-binge-breaker/501122/>

we have positive or joyful social interactions. Cortisol works with adrenaline to create memories of short-term emotional events. However, long-term exposure to cortisol damages cells in the hippocampus,<sup>20</sup> and this damage results in impaired learning. It is argued that this assault on our systems by smartphones is affecting everything from the way we sleep to our attention span, our memory, our self-esteem, decision-making skills and our overall physical health.<sup>21</sup> This is, of course, closely related to debates in the previous chapter in which the way digitalisation is challenging our basic cognitive skills and affecting our overall mental well-being were discussed. Our many apps, and smartphones themselves, are designed to be habit forming; they are designed to trigger happy chemicals in our brains, much the same way poker machines do and thus make us want to keep checking them endlessly. The calculated and strategic use of colour in the design of apps is also a significant psychological factor in the addictive nature of smartphones. Colour can be used to make people feel and think emotionally differently at different times.<sup>22</sup> Our eyes tend to gravitate towards bright, warm colours, such as reds. As smartphones have evolved, many app developers have redesigned their logos to incorporate these colours into their design processes, with bright yellows, oranges, reds and purples some notable examples. Colour can also be used to create visual stress; when you open your smartphone and see the bright red bubble in the corners of an app or the screen, it makes it much harder to resist checking for the latest messages and updates.

In *The Smartphone Paradox*, Alan Reid suggests that our love affair with smartphones have catapulted us towards a technological crescendo where humanity is collectively transformed in both positive and negative ways.<sup>23</sup> Through the lens of smartphone dependency, Reid's work makes the strong argument for digital mindfulness in a device age that threatens our privacy, sociability, attention and cognitive abilities. He found that many smartphone users are critically self-aware of their technological habits, and yet they grapple internally with what can be described as the 'smartphone paradox'; that their mobile device is simultaneously liberating yet controlling, unifying yet polarising.<sup>24</sup> This always-on, always-connected digital lifestyle that the smartphone accelerates leaves little room for other important things that we, as humans, need in order to develop and flourish. Some precious downtime, some time to think and contemplate, the real need for quiet time; this extremely important personal quiet time allows us to reflect on our day and make sense of our interactions and activities. Making the time to find

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<sup>20</sup>McAuley et al. (2009).

<sup>21</sup>Corby, S. (2019). The everyday device in your home killing hundreds around the globe. *The CEO Magazine*, September 25. Retrieved from <https://www.theceomagazine.com/business/innovation-technology/smartphones-killing-globe/>

<sup>22</sup>Przybyła, D. (2017). The psychology of colors in marketing and branding. *Color Psychology*, April 28. Retrieved from <https://www.colorpsychology.org/color-psychology-marketing/>

<sup>23</sup>Reid (2018).

<sup>24</sup>Reid (2018, p. 1).

comfort in solitude and silence is often seen as an unaffordable luxury in a digital hyperconnected world, but such moments can be time for rest, rebalance and renewal, a time to (re)discover what is important for you in life, a time for mindfulness and a time to (re)discover our place in the universe. Writing for BankMyCell, Anya Pechko, founder of Project BE,<sup>25</sup> wrote about the need to live more authentic and connected lives by spending less time with our digital technology:

In my practice, I often talk about our cognitive and critical thinking being negatively impacted by technology. I am also a very very big proponent of boredom, I view boredom as our 6th sense. An internal entertainment system if you will, which we use to entertain ourselves and others. Its basic humanity. We now have outsourced this to our phones and so we depend on them to be entertained and stimulated. And of course, don't even get me started on the oxytocin vs dopamine. I also think that technology impacts generations in very different ways, right now I am concentrating on children. Since the cortex doesn't fully mature till 25 or so, their tiny brains are flooded with dopamine which early studies show is correlated to premature aging.<sup>26</sup>

But we may genuinely ask the question; so smartphones are distracting and controlling at times, but is their use for some truly addictive behaviour?

Smartphone addiction, or digital dependency, is a term that is loosely used in popular discourse over the past few years, and the definition of smartphone dependency or addiction is a problematic term even to define now. The scientists trying to study this area are facing a number of medical, scientific and philosophical difficulties and questions. But smartphone addiction appears to be an issue of growing concerns to many, not least the tech sector itself. When Apple launched *Screen Time*, Google quickly responded by seeking to reposition itself as a force of 'digital wellness' by unveiling several artificial intelligence powered tools in the hope they would lessen the addictive nature of smartphone use. How committed they are to these projects has yet to be determined. But by reacting in this way – effectively attempting to persuade customers to reduce their use of the devices they produce and sell – is confirmation of the growing concern that addiction is becoming a significant problem that is impacting the industry's image. What is becoming more evident is that smartphone use has the potential to develop into an addictive behaviour, similar to gambling, which can significantly interfere and inhibit our daily routines and harm our sense of self-worth. In order to

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<sup>25</sup>Project BE raises awareness about the growing dangers of media influence and addiction and inspires users to shift their habits away from their devices to live happier, healthier lives: see <https://www.projectbe.com/>.

<sup>26</sup>Turner, A. Smartphone addiction facts & phone usage statistics: The definitive guide (2019-2020 update). BankMyCell. Retrieved from <https://www.bankmycell.com/blog/smartphone-addiction/#chapter1>

make conscious choices, it is imperative that we have a deeper understanding of the impacts such digital devices and technology already have, and can have, on our practices and the effects on our well-being. Though not an official diagnosis, researchers have demonstrated how classic addiction symptomology may be applicable in the context of smartphone overuse including loss of control, preoccupation with the device, withdrawal symptoms and negative effects on our social and work lives.<sup>27</sup>

There is a viewpoint that suggests it is not possible for an individual to be addicted to a smartphone because addiction requires there to be physical withdrawal symptoms, and some argue that you cannot get such physical symptoms from an activity. But studies have shown that the separation of a regular smartphone user from their device actually does result in negative physiological and mental effects such as increased anxiety, heart rate and blood pressure.<sup>28</sup> Moreover, in a systematic review of the literature, depression severity and anxiety difficulties were consistently related to problematic smartphone overuse.<sup>29</sup> While it must be recognised there is a spectrum of views as to the validity of smartphone addiction as a specific subsection of behavioural addiction, others point to whether such addiction is related specifically to the smartphone itself or if the device is simply the medium through which people access other addictions like gambling, shopping or the constant need to update their social media profiles and seeking online approval. Whether it's the medium or the actual applications used, over-attachment to our smartphones is causing some people personal and social problems, in some cases heightening feelings of loneliness and isolation while worsening anxiety and depression symptoms.<sup>30</sup> The behavioural addiction of smartphone overuse begins forming neurological connections in the brain in ways similar to how opioid addiction is experienced by people taking Oxycontin for pain relief: that is gradually. But in their research, Peper and Harvey note that digital addiction is not our fault but a result of the tech industry's desire to increase corporate profits. Push notifications, vibrations and other alerts on our smartphones and other mobile devices make us feel compelled to look at them by triggering the same neural pathways in our brains that once alerted us to imminent danger, such as an attack by a large predator. We are being hijacked by those same mechanisms that once protected us and allowed us to survive in the wild; this time often for the most trivial pieces of information or gossip.

Disturbingly, research has also linked an increase in the suicide rates in young people to the growth in the use of social media and smartphones.<sup>31</sup> In two nationally representative surveys of US adolescents in grades 8–12 – with over 500,000 participants – and national statistics on suicide deaths for those between 13 and 18 years of age; adolescents' depressive symptoms, suicide-related outcomes

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<sup>27</sup>Kwon et al. (2013).

<sup>28</sup>Clayton, Leshner, and Almond (2015).

<sup>29</sup>Elhai, Dvorak, Levine, and Hall (2017).

<sup>30</sup>Peper and Harvey (2018).

<sup>31</sup>Twenge, Joiner, Rogers, and Martin (2018).

and suicide rates increased between 2010 and 2015, especially among females. Adolescents who spent more time on new media, such as social media platforms and electronic devices such as smartphones, were more likely to report mental health issues, and adolescents who spent more time on non-screen activities such as in-person social interactions, sports, homework, print media and attending religious services were less likely. While the point is that we should all make more conscious, balanced decisions and choices as to how we allow digital technology affect us, the tech industry cannot simply wash their hands of their responsibility particularly when it can be shown that they specifically design addictive code and features into these devices.

### **The Human Cost of Our Smartphones**

And what of the additional social and environmental costs of the smartphone, in particular the scarce resources that are needed for their development? While the environmental cost of the acquisition and mining of precious minerals and materials for the production of smartphones will be discussed in a later chapter, it is important to also investigate the social costs imposed upon some developing countries of producing smartphones for universal consumption. What level of ethical, social and environmental responsibility should smartphone manufacturers and developer have for how their products are designed, sourced, assembled and manufactured? Major electronics brands and smartphone manufactures – including Apple, Samsung and Sony – are failing to do even basic checks to ensure that cobalt mined by child labourers have not been used in their products, an Amnesty International and Afreewatch report uncovered.<sup>32</sup> The report documents the hazardous conditions in which artisanal miners, including thousands of young children, mine cobalt in the Democratic Republic of the Congo (DRC). The report traces how this cobalt is used to power smartphones, laptop computers and other lightweight portable electronic devices. Using basic hand tools, miners dig out rocks from tunnels deep underground, and accidents are commonplace. Despite the potentially fatal health effects of prolonged exposure to cobalt, adult and child miners work without even the most basic of protective equipment such as gloves, overalls or facemasks. At least 80 artisanal miners died underground in southern DRC between September 2014 and December 2015 alone, but the true figure is unknown as many accidents go unrecorded and bodies are left buried in the rubble. In 2014, approximately 40,000 children worked in mines across southern DRC, many of them mining cobalt, according to UNICEF, working up to 12 hours a day deep in these mines. According to Emmanuel Umpula, Afreewatch (Africa Resources Watch) Executive Director:

It is a major paradox of the digital era that some of the world's richest, most innovative companies are able to market incredibly sophisticated devices without being required to show where they

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<sup>32</sup>Amnesty International and Afreewatch (2016).

source raw materials for their components. The abuses in mines remain out of sight and out of mind because in today's global marketplace consumers have no idea about the conditions at the mine, factory, and assembly line. We found that traders are buying cobalt without asking questions about how and where it was mined.<sup>33</sup>

Researchers at the University of Lubumbashi in the DRC, as well as the universities of Leuven and Ghent in Belgium, studied the effects of the pollution caused by cobalt mines and linked it to birth defects like limb abnormalities and cleft palates.<sup>34</sup> In findings published in the *Lancet*, the study found that local people working in mines in the African 'copperbelt', a mining region stretching across Zambia and the DRC, are at significantly higher risk of having children born with serious birth defects. Cobalt mined in the DRC accounts for 60 per cent of global production of the mineral, which is essential to power rechargeable lithium batteries used in smartphones, adding to growing pressure on the multinationals who continue to source cobalt from the DRC to address the human rights, social and environmental abuses that have been uncovered in mines right across the region. While it is recognised that Chinese companies run many of the industrial mines in the territory, in 2020, a lawsuit was launched in the United States which accused the world's largest technology companies – Apple, Google, Dell, Microsoft and Tesla been named as defendants – of aiding and abetting in the deaths of children working in mines in the DRC.<sup>35</sup> While some of these named companies have reaffirmed their commitments to social justice and equality with regard to their supply chains and production of their smartphones, Amnesty International suggest none of them are making appropriate efforts to ensure that their riches are not being built on the backs of the oppressed women, men and children of the Congo who toil in putrid conditions, endure pitiful wages, grave injury and risk death to mine their cobalt.<sup>36</sup> Basic questions of responsibility and social justice directed at big tech continue to be trivialised or ignored, and the true social costs of our obsession with the smartphone will remain unknown until we begin to ask more probing questions of ourselves and the industry. One of these important questions relates to our own privacy and how digital technology, in general, can be used a means of mass surveillance and manipulation. Our personal data and information

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<sup>33</sup>Exposed: Child labour behind smartphone and electric car batteries. (2016). Amnesty International, January 19. Retrieved from <https://www.amnesty.org/en/latest/news/2016/01/Child-labour-behind-smart-phone-and-electric-car-batteries/>

<sup>34</sup>Van Brusselen et al. (2020).

<sup>35</sup>See 'Case 1:19-cv-03737, document 1, filed by Terrence Collingsworth, international rights advocates, Washington, DC', 15 December 2019. Retrieved from <http://iradvocates.org/sites/iradvocates.org/files/stamped%20-Complaint.pdf>.

<sup>36</sup>Industry giants fail to tackle child labour allegations in cobalt battery supply chains. (2017). *Amnesty International*, November 15. Retrieved from <https://www.amnesty.org/en/latest/news/2017/11/industry-giants-fail-to-tackle-child-labour-allegations-in-cobalt-battery-supply-chains/>

is now highly prized and monetised by the tech sector and we are ignoring the perils inherent in giving away such valuable information freely and without due oversight, and it is this very subject we will discuss in the following chapter.

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## Chapter 6

# Online Privacy and Surveillance

If you have something that you don't want anyone to know, maybe you shouldn't be doing it in the first place.

Eric Schmidt

The real danger is the gradual erosion of individual liberties through automation, integration, and interconnection of many small, separate record-keeping systems, each of which alone may seem innocuous, even benevolent, and wholly justifiable.

US Privacy Study Commission (1977)

## The House Is Watching, and Listening

James Andrew Bates was charged with murder in connection with the death of Victor Collins, who was found floating in Bates' hot tub in November 2015. In what may be the first case of its kind, police investigating the murder in Bentonville, Arkansas, issued a warrant to Amazon to turn over audio and other recordings from an Echo device in the suspect's home. Prosecutors believed Bates' Echo – a smart speaker device that connects to the Amazon voice-activated personal assistant Alexa – may have been a key 'witness' to the crime and obtained search warrants for all the device's recordings.<sup>1</sup> Since Alexa, and other digital voice-activated assistants, listen out at all times for pre-recorded 'wake up words', police anticipated that audio recordings of the moments and events leading up to the suspected murder were captured by the device. Police also used other Internet

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<sup>1</sup>Dotan, T., & Albergotti, R. (2016). Amazon Echo and the hot tub murder. *The Information*, December 27. Retrieved from <https://www.theinformation.com/articles/amazon-echo-and-the-hot-tub-murder>

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**The Social, Cultural and Environmental Costs of Hyper-Connectivity:  
Sleeping Through the Revolution, 85–102**



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of Things devices to gather evidence in the case. A connected water meter, for instance, showed that a significant amount of water was used between 1 a.m. and 3 a.m. the morning of the alleged crime which, police claimed, Bates used to hose down his patio and hot tub in order to hide vital evidence. Amazon twice declined to provide the authorities with the relevant recordings and information they requested, although they did provide Bates' account information and purchase history. The company argued that both its users' requests to Alexa and its own responses were protected by US First Amendment Rights, and that law enforcement agencies must meet a much high burden of proof to require release of such personal data. The impasse was broken when Bates himself agreed to allow the police review the information contained on his Echo, which prompted Amazon to hand over the data thus dropping its legal challenges. While the battle over the personal data from the Amazon Echo device had been resolved in this particular case, the question of whether our personal information, recorded and stored by such devices, is actually secure and protected has not been truly answered. Other recent high-profile contests over the collection and storage of personal data, and who has the rights to access to such information, include the Federal Bureau of Investigations' (FBI) request to Apple for the data from two iPhones that belonged to the gunman in the shooting at a naval base in Pensacola, Florida,<sup>2</sup> and the US Department of Justice's request for email data stored by Microsoft as part of a drug-trafficking investigation.<sup>3</sup> The possibility of eaves-dropping on individuals and groups, and the storage of such private conversations by internet-connected devices in the home, raises additional serious concerns and issues over privacy and surveillances, even unintentionally, in this new digital age. Legal challenges will, no doubt, develop again as part of future criminal investigations and government agency requests, opening yet other fronts in the tug-of-war between big tech companies and law enforcement and government agencies over our personal data privacy. More troubling may be the stark realisation that these household devices are listening and collecting our private data at all times of the day and night.

## **Privacy in the Digital Age**

Debates about online privacy and surveillances have echoes of those on freedom of speech and censorship, which have been ongoing for centuries. These deliberations have become some of the fundamental challenges of the information age and although not new, this is now the latest iteration of an age-old battle over the control and dissemination of information. In a modern context, how much about an individual's life and actions are the people around them entitled to know, and

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<sup>2</sup>Nicas, J., & Benner, K. (2020). F.B.I. asks Apple to help unlock two iPhones. *The New York Times*, January 7. Retrieved from <https://www.nytimes.com/2020/01/07/technology/apple-fbi-iphone-encryption.html>

<sup>3</sup>Matsakis, L. (2018). Microsoft's Supreme Court case has big implications for data. *Wired*, February 27. Retrieved from <https://www.wired.com/story/us-vs-microsoft-supreme-court-case-data/>

what restrictions and limitations should be placed upon mammoth online digital platforms and corporations over the industrialised collection and control of such personal information? An individual's freedom to protest when they feel something needs changing, to freely associate with others, to move around their own country without hindrance, to read and to write without wondering who is tracking their every movements and motives; these are all universally recognised fundamental rights in democratic societies. Debates and discussions that have been ongoing since the birth of nations have led many countries to pass strict laws protecting personal data against particular types of mismanagement and misuse. But personal data protection in the digital age is one of those issues where an understanding of the ramifications, consequences and implications largely depends on a comprehensive awareness of the fundamental issues involved: be they personal, social, political or cultural.<sup>4</sup> More importantly, in a globalised, borderless digital world, many of the national and international laws protecting privacy have failed to keep pace with the realities of online communications and digital technology development.

The initial underpinning philosophy of the World Wide Web was that of a free and open network: free in the context of unrestricted, while open signified a lack of barriers or controls to access or use. Having both concepts meant anyone and everyone could log on, wherever and whenever they choose to do so, search any website they wished and download any file they need, all without any third parties' interference shaping their online interactions and experiences. Censorship was arguably the biggest threat to this early iteration of a free and open internet. But the following iteration of the Web saw a profound change in the philosophy and in the approaches of Web companies, Web developers and, more importantly, a change in the expectations and values of a Web-savvy society as a whole. Web 2.0 marked a turning point for the network in that individuals were no longer just using the internet as a tool or broadcast medium, users were now becoming a part of it and merging with the network itself. Not only were we using the internet more and more, but we were also using it differently. Suddenly, Web-savvy users could input an extensive amount of information into forms and Web fields and send this back to the servers, so that they were effectively communicating with hosting servers in real time. It was described as a move towards a more social, collaborative, interactive and responsive Web in which we were not just passively consuming content but instead also adding to the collective knowledge of the network. It shifted from a read-only internet to a read/write network, with an emphasis on social networking, content generated by ordinary users, and cloud computing.

It is interesting that in this transition to Web 2.0, we had begun to unconsciously and generously given away much of our privacy without any real consideration of the impacts or consequences of such actions. It's often the price we are willing to pay for using free services provided by social networking platforms and online megacorporations. But is there ever a free lunch, and just how high a price are we paying? For many social media users, surveillance – and especially surveillance-as-control – does not appear important to them, and it seems that for

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<sup>4</sup>Adam and McCrindle (2008).

many control is in their hands as they choose whom to accept or deny as friends and build their networks of like-minded acquaintances. But for all the benefits that accrue to those supported to stay connected with their social media contacts, each click permits more and more personal data to be accumulated, and as this pool of personal data builds, there is less and less accountability about how it is used.<sup>5</sup> The consequences of this are considerable. Data have now surpassed oil as the most important and tradable commodity on earth, and big tech is leading the charge to cash in on all our personal information. To begin, we need to look at the more recent context of privacy in the information age, and the compromises that have been made over the years, before we move to present the problems for privacy presented by digital information and communication (ICT) technology and social media platforms in the twenty-first century.

## Privacy Matters

Definitions of privacy have always been broadly based on information in all its various forms. It is said to be a value that needs to be understood as an aspect of autonomy for individuals containing both freedom from undue demands to conform and freedom to control one's own personal information.<sup>6</sup> Successive interpretations are iterative in their development and have moved from suggesting that just paper and correspondence should be protected from invasion intent, to now include communications in all its forms as well as ones private life.<sup>7</sup> The general concept of privacy uses the theory of natural rights and has now attempted to respond to new forms of digital ICT. While an internationally binding agreement on the protection of privacy does not exist, the right to privacy is explicitly stated under Article 12 of the 1948 *Universal Declaration of Human Rights*:

No one shall be subjected to arbitrary or unlawful interference with his privacy, home or correspondence, nor to unlawful attacks on his honor and reputation. Everyone has the right to the protection of the law against such interference or attacks.<sup>8</sup>

There have been various other Human Rights declarations since the initial document,<sup>9</sup> and all have, in some way, included aspects of the right to privacy

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<sup>5</sup>Trottier and Lyon (2012, p. 92).

<sup>6</sup>Cheung (2009, p. 209).

<sup>7</sup>Adam and McCrindle (2008, p. 215).

<sup>8</sup>Universal Declaration of Human Rights. (1948). *The United Nations*, December 10. Retrieved from <https://www.un.org/en/universal-declaration-human-rights/index.html>

<sup>9</sup>Article 17 of the *International Covenant on Civil and Political Rights* (United Nations, 1966), Article 8 of the *European Convention of Human Rights* (Council of Europe, 1950) and Article 7 of the *Charter of Fundamental Rights of the European Union* (2000) state that the right to privacy is a fundamental human right and everyone has the right for their private and family life, home and correspondence to be respected, and they have the right to protect themselves against such unlawful interference.

as a first-generation fundamental human right. Privacy protection would often subsequently appear in national legislation in countries adopting these declarations. By the 1960s, many homes in the developed world were acquiring telephones and televisions of their own, and at the same time, the Cold War was intensifying and beginning to dominate the narrative of many nations. In this era of rising suspicion, invasive surveillance was normalised as something patriotic to counteract the aggression of the other side, but much of this was primitive in nature and relied heavily on a paper-based collection and storage of information. With the collapse of the Soviet Union in the late 1980s, the need for such large-scale surveillance weaned somewhat. This is not to say that the harvesting of personal information stopped. The use of personal data has always been a fundamental part of marketing and advertising, and individual states and countries have also used their census of household information, and other data sources, in attempts to predict long-term trends and assist with policy creation and design. It's just that the new emerging networked and information society, in the form of digital computing, was now allowing the collection and storage of such data to become much easier and on a mass scale. More significantly, the mining of these data for new meaning and understanding was now possible leading to fresh opportunities for marketing and advertising agencies, but also new threats and dangers to our personal data and information with the potential for manipulation of such data growing on a vast scale.

By the 1990s, two separate approaches to data protection and privacy regulation began to emerge in the Western world: in the United States and Europe, respectively. These two strands fundamentally differ in that the American approach is focussed on self-regulation and free market forces, while the European approach is one of government regulation and stricter laws. While these two threads of data protection and privacy regulation continued to develop over the decades that followed, they present some enduring difficulties for international trade which interfaces between the two regions. By 1995, common European minimum standards on data protection were agreed,<sup>10</sup> which was an important first step in the development of a European-wide single market. Once implemented, these standards allowed for the free movement of personal information between European countries – after appropriate protection had been enshrined in each country – and also allowed for the limited transfer of certain data outside of the European Union (EU). The General Data Protection Regulation (GDPR),<sup>11</sup> adopted in April 2016, superseded the Data Protection Directive and became enforceable on 25 May 2018. The principle aim of GDPR is to give control back to individuals over their own personal data and to simplify the regulatory

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<sup>10</sup>Data Protection Directive 95/46/EC. *The European Parliament and Council*. Retrieved from <https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:31995L0046>

<sup>11</sup>General Data Protection Regulation (GDPR). *The European Parliament and Council of the European Union*. Retrieved from <https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:32016R0679&from=EN>

environment for international business by unifying the rules within the EU and the European Economic Area (EEA). Companies and organisations who wish to operate within the EU now must clearly ask individuals for their permission to use their personal data. They can no longer just use what they have collected and tell individuals after the fact. If they do, then penalties will apply based on the company's size and the extent of misuse. These new regulations gave rise to much debate and controversy with many businesses reporting that compliance with GDPR would require additional heavy investment in their data management systems.<sup>12</sup> Other businesses supported the measures suggesting that it would lead to an improvement in organisational data management, and consumer rights groups and advocates were among the most vocal proponents of the new legislation. In effect, this new regulatory environment has shifted power over personal data away from corporations and back to the individual.

Meanwhile, the US approach to privacy and personal data protection had taken a different route than that of Europe. The United States lacks a single comprehensive federal law that regulates the collection and use of personal data; instead the government has approached privacy and data security by regulating only certain sectors and types of sensitive information – health and financial data – creating overlapping and contradictory protections.<sup>13</sup> In keeping with the conventional market-driven approach that exists in the country, the Federal Trade Commission (FTC) merely issues general guidelines about appropriate privacy policies and enforces adherence to organisational published policies.<sup>14</sup> The rational underpinning this approach is that if privacy and data protection is important to the individual, then they will opt to interact or seek the services of companies and organisations that offer the best protection and control. This will, in turn, force organisations into better control and data management, and the regulatory role of the FTC comes into play only to prevent companies from publishing one policy but covertly using a separate one in an attempt to gain competitive or market advantage. This light touch regulatory approach is strongly market focussed and is heavily dependent on company respect for such personal data, and overall corporate responsibility and integrity.

The fundamental difference between the US and EU approaches when it comes to data protection is their point of focus. The United States is concerned with the integrity of data as a commercial asset. GDPR in Europe has firmly put individual rights before the interest of businesses. Both strands appear to be ideologically opposed, and countermoves against each are being implemented and used. For example, The US Department of Commerce created the *International*

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<sup>12</sup>Babel, C. (2017). The high costs of GDPR compliance. *DarkReading*, July 11. Retrieved from <https://www.darkreading.com/endpoint/the-high-costs-of-gdpr-compliance/a/d-id/1329263?>

<sup>13</sup>Connor, N. O. (2018). Reforming the U.S. approach to data protection and privacy. *Council for Foreign Relations*, January 30. Retrieved from <https://www.cfr.org/report/reforming-us-approach-data-protection>

<sup>14</sup>Adam and McCrindle (2008, p. 227).

*Safe Harbor Privacy Principles* certification programme in response to the earlier 1995 European Directive on Data Protection. The principle behind Safe Harbor was to prevent private organisations within the EU or United States who store customer data from accidentally disclosing or losing such personal information.<sup>15</sup> Companies in the United States collecting and storing customer data are to self-certify that they adhered to seven principles to comply with the EU Data Protection Directive, and the European Commission made a decision in 2000 that these principles did comply with the EU Directive. However, after a customer complained that his Facebook data were insufficiently protected, the European Court of Justice declared in October 2015 that its earlier decision was invalid,<sup>16</sup> leading to further talks being held by the Commission with the US authorities towards a renewed framework for transatlantic data flows. While the contest between the two approaches to privacy and data protection plays out, the big tech companies who gather and amass large volumes of personal data in both jurisdictions retain their distinct advantage in that these data can be moved quickly and effortlessly between Europe and the United States when the need arises.

## Ground Zero for the Digital Surveillance

One of the most significant shocks to policy and public opinion with respect to privacy and surveillance occurred at the very beginning of the new millennium. The terrorist attacks on the World Trade Centres in New York and on the Pentagon in Washington on 11 September 2001 marked a significant shift in the political direction of many liberal democracies across the world, leading to an undeniable shift in attitude towards freedom of speech, surveillance and the security of personal data. Some major policy changes followed as the threat from acts perpetrated from within their own country became a reality for most Americans. The newly created US Department of Homeland Security, together with intelligence agencies such as the Central Intelligence Agency (CIA), National Security Agency (NSA) and FBI, began placing a higher value on surveillance of electronic and digital communications. This followed some significant criticism of failings within the FBI and CIA to apply and use available information prior to the attacks, including about some of the terrorists the CIA knew were in the United States.<sup>17</sup> Against the backdrop of the attacks in New York and Washington, there was little opposition from most political leaders and parties to radical steps being taken that would tip the balance towards mass surveillance of all citizens' right across society and away from individual freedoms and privacy. This allowed for the passing of the Patriot Act into US law and the Terrorism

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<sup>15</sup>A brief introduction to the Safe Harbor agreement. *Agreements.org*. Retrieved from <https://www.agreements.org/safe-harbor-agreement.html/>

<sup>16</sup>The Court of Justice declares that the Commission's US Safe Harbour decision is invalid. (2016). *Court of Justice of the European Union*, October 6. Retrieved from <https://curia.europa.eu/jcms/upload/docs/application/pdf/2015-10/cp150117en.pdf>

<sup>17</sup>Immerman (2006).

Crime and Security Act 2001 into UK law with little political debate, discussion or opposition. The Patriot Act expanded the abilities of law enforcement to use mass surveillance – including the tapping of domestic and international phones – it eased interagency communication to allow federal agencies to effectively use all available resources in counterterrorism efforts and increased penalties for terrorism crimes and an expanded list of activities which would qualify someone to be charged with terrorism.<sup>18</sup> The Terrorism Crime and Security Act 2001, in part, established wide powers for the Secretary of State to regulate telephone companies and internet providers to retain data for the purpose of national security.<sup>19</sup> Civil rights groups were critical of both acts suggesting they had little to do with combating terrorism and instead contained measures that could be used to advance authoritarian power and for use in other law enforcement activities rather than defeating terrorism. David Cole, Professor of Law at Georgetown University, explained in a July 2003 interview with Bryant Gumbel:

[The Patriot Act] gives the government the ability to spy on its citizens and on foreign nationals without probable cause of a crime, to get wiretaps and warrants. It gives them the ability to get records from libraries and book stores on people who are not targets of any criminal investigation, who are not targets of any foreign intelligence investigation and who are not suspected of engaging in any illegal activity ... But it's one thing to make some sacrifices in terms of privacy but another thing to throw the fourth amendment out the window.<sup>20</sup>

Some two decades later, it would be naive to think that democratic governments have stopped covertly collecting our personal data on a mass scale as the international terrorist threat recedes. In a study for The Pew Research Center in 2019, a majority of Americans believed their online and offline activities were being tracked and monitored by their government, and online and offline companies and organisations, with some regularity.<sup>21</sup> Nearly two thirds reported being concerned about the way their data were being used by their government. It is such a common condition of modern life that roughly six in 10 US adults say they

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<sup>18</sup>Pub.L.107-56. *uslaw.link*. Retrieved from <https://uslaw.link/citation/us-law/public/107/56>

<sup>19</sup>Most of the measures in the act were not specifically related to terrorism, and a parliamentary committee was critical of the swift timetable for such a long bill to pass. The Act was widely criticised, and on 16 December 2004, the Law Lords ruled that Section 23 was incompatible with the European Convention on Human Rights, but under the terms of the Human Rights Act 1998, it remained in force. It has since been replaced by the Prevention of Terrorism Act 2005.

<sup>20</sup>Patriot Act Debate Transcript. (2003). *Flashpoint USA*, July 15. Retrieved from [https://www.pbs.org/flashpointsusa/20030715/infocus/topic\\_03/trans\\_pat\\_act.html](https://www.pbs.org/flashpointsusa/20030715/infocus/topic_03/trans_pat_act.html)

<sup>21</sup>Auxier et al. (2019).

do not think it is possible to go through daily life without having their personal data being collected and analysed by big tech or the government. But even as the public expresses anxiety about various aspects of their digital privacy, many acknowledge that they are not always diligent about paying attention to the privacy policies and terms of service they regularly encounter surfing the internet. Fully 97 per cent of Americans say they are regularly asked to approve privacy policies, yet only about one-in-five adults say they always or often read a company's privacy policy before agreeing to it. If we care so much about protecting our personal information and feel uncomfortable about giving it away so freely why then do we keep doing it, and why do not we do anything about it later? Researchers call this conundrum the 'privacy paradox'.<sup>22</sup> We freely divulge personal information in exchange for services and convenience and in the case of government agencies to remain active citizens. Our governments are ultimately accountable to their citizens, and the prospect of inappropriate surveillance or the misuse of personal data will, we hope, be uncovered by the media or whistle-blowers and punished in the courts or at election time. But what about other regimes who operate to different standards and who use these digital surveillance technologies for more sinister purposes?

## Digital Surveillance States

China's internet censorship is perhaps the most sophisticated and advanced than that in any other country in the world. The state is continually ramping up its ability to spy on its nearly 1.4 billion people to new and disturbing levels, giving the world a blueprint for how to build a digital totalitarian state. Chinese authorities have knitted together old and state-of-the-art technologies, such as paper-based files, phone scanners, facial recognition software and cameras, face and fingerprint databases and many others instruments of surveillance, into a comprehensive toolkit for authoritarian control, according to police and private databases examined by *The New York Times*.<sup>23</sup> Once assembled and fully operational, this digital technology toolset for repression will help police and authorities determine the identity of people as they merely walk down the street, finding out who they are meeting with and identify those who belong, and do not belong, to the ruling Communist Party. Such a surveillance apparatus gives authorities the potent means to track criminals as well as online dissidents and malcontents, sympathisers of the protest movement in Hong Kong, critics of

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<sup>22</sup>For a good explanation of the privacy paradox: see Bongiovanni, I., Renaud, K., & Aleisa, N. (2020). The privacy paradox: We claim we care about our data, so why don't our actions match? *The Conversation*, July 29. Retrieved from <https://theconversation.com/the-privacy-paradox-we-claim-we-care-about-our-data-so-why-dont-our-actions-match-143354>

<sup>23</sup>Mozur, P., & Krolik, A. (2019). A surveillance net blankets China cities, giving police vast powers. *The New York Times*, December 17. Retrieved from <https://www.nytimes.com/2019/12/17/technology/china-surveillance.html>

police actions and that of the authorities and other undesirables as determined by the state. This immense digital surveillance system also regularly targets vulnerable groups like migrant workers and ethnic minorities such as the largely Muslim Uighurs on China's western frontier. Surveillance technologies are being used extensively to support the continuing clampdown in Xinjiang, in which the state have corralled as many as a million ethnic Uighurs, Kazakhs and others into 're-education' internment camps or prisons over the past three years. Beijing has sought for decades to suppress Uighur resistance to Chinese rule in Xinjiang, and according to leaked internal documents, ensuring stability in Xinjiang will require a sweeping campaign of surveillance and intelligence gathering to root out resistance from within Uighur society.<sup>24</sup> President Xi Jinping has maintained that new digital technology will play a key role in quashing resistance, foreshadowing the party's deployment of facial recognition, genetic testing and big data in Xinjiang. But he also emphasised old-fashioned methods such as neighbourhood informants and, ironically, urged officials to study how America responded to the September 11 attacks.

Internet content in China is tightly controlled, closely monitored and micro-managed by the Communist Party, and in recent years, the leadership has devoted more and more resources to controlling all forms of online content. Known as 'The Great Firewall of China', the one-party state not only sets up official agencies to monitor online information and content but also uses legal means to require internet content providers to build their own self-censorship mechanisms.<sup>25</sup> Research also indicates that the Chinese government fabricates social media profiles and posts for positive propaganda and opinion manipulation.<sup>26</sup> In the virtual world, as in the real world, the ruling party has moved to silence dissenting voices, to mobilise party members in support of its preferred values and to prevent foreign ideas from seeping into Chinese political, cultural and social life. The vast collection and use of big data gleaned from the digital world has also allowed the state to create a 'social credits system' scoring citizens on their personal conduct and measuring their sincerity, honesty and integrity.<sup>27</sup> Such scoring is a major determinant for whether individuals or families can get credit; rent a flat; buy a plane ticket; and get access to a hospital, university or government services. In a leaked speech in August 2013, Chinese president Xi Jinping

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<sup>24</sup>Ramzy, A., & Buckley, C. (2019). Absolutely no mercy: Leaked files expose how China organized mass detentions of Muslims. *The New York Times*, November 16. Retrieved from <https://www.nytimes.com/interactive/2019/11/16/world/asia/china-xinjiang-documents.html>

<sup>25</sup>Ng, J. Q. (2012). How China gets the internet to censor itself. *WagingNonviolence*, March 12. Retrieved from <https://wagingnonviolence.org/2012/03/how-china-gets-the-internet-to-censor-itself/>

<sup>26</sup>Meyer, D. (2016). Here's how the Chinese government really manipulates social media. *Fortune*, May 20. Retrieved from <https://fortune.com/2016/05/20/chinese-social-manipulation/>

<sup>27</sup>Mac Síthigh and Siems (2019).

articulated the belief that a shift is now taking place, and ‘the internet has become the main battlefield for the public opinion struggle’.<sup>28</sup>

China is far from alone in its efforts to amass and control the copious flow of online data and information and in deciding the narrative of acceptable social and political discourse. In the face of the Covid-19 coronavirus global pandemic, some countries, such as Taiwan and Singapore, took decisive action to contain the spread of the virus using big data, CCTV, smartphone apps and widespread surveillance mechanisms. While it is hoped that such measures will be rolled back as the pandemic dissipates, in other countries, these surveillance measures may well become the norm and new reality for citizens. The Moscow correspondent for *The Guardian*, Andrew Roth, reported that the Russian authorities were considering aggressive new surveillance methods as the country seeks to enforce mandatory shelter-in-place orders in cities including Moscow and St Petersburg and other regions across its 11 time zones.<sup>29</sup> While the details of this new monitoring system were not confirmed, official statements and leaked plans indicated that measures would include mobile apps that track users’ location, CCTV cameras with facial recognition software, QR codes, tracking mobile phone data and credit card records. This is not a new development but part of ongoing efforts to transform that country into a mass surveillance state. For years, Russian secret services have been busy tightening their hold over internet content and users and have begun helping their counterparts in the rest of the former Soviet Union to do the same, according to investigative journalists working for World Policy.<sup>30</sup> Russia is attempting to splinter the Web, breaking off from the global internet a Russian intranet that will be much easier for it to control and manipulate. The reason for such control is obvious. The old forms of surveillance used by the KGB before the fall of the Soviet Union were expensive and cumbersome and involved the physical tapping of telephones and the covert following and documentation of the movements and interactions of people of interest. The shift in communications to the digital realm effectively solves many of the problems that plagued surveillance in the analogue age. It is cheaper, storage space is almost infinite, equipment reasonably cheap and such digital technology allows for doing more with less resources.

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<sup>28</sup>Economy, E. C. (2018). The great firewall of China: Xi Jinping’s internet shutdown. *The Guardian*, June 29. Retrieved from <https://www.theguardian.com/news/2018/jun/29/the-great-firewall-of-china-xi-jinpings-internet-shutdown>

<sup>29</sup>Roth, A. (2020). Cybergulag: Russia looks to surveillance technology to enforce lockdown. *The Guardian*, April 2. Retrieved from <https://www.theguardian.com/world/2020/apr/02/cybergulag-russia-looks-to-surveillance-technology-to-enforce-lockdown>

<sup>30</sup>Andrei Soldatov and Irina Borogan are Russian investigative journalists who cover the operations of Russian security services. They are co-founders of the website Agentura, which chronicles the services’ activities. They also co-authored *The New Nobility: The Restoration of Russia’s Security State and the Enduring Legacy of the KGB* (Public Affairs, 2011).

Russia and other authoritarian regimes are not novices when it comes to such clandestine and shadowy use of digital ICT, and some lone voices have been warning us about the ever-increasing sophistication of their cyber capabilities long before we actually witnessed their interference into the democracy processes in both the United States, with the election of Donald Trump, and the Brexit vote in the UK. In *The Net Delusion*, published in 2011, Evgeny Morozov maintains that the internet is helping authoritarian regimes in China, Russia and Iran to strengthen their grips on those countries.<sup>31</sup> These oppressive governments are using cyberspace to stifle dissent, plant clandestine propaganda, employing sophisticated digital censorship and using online surveillance on a mass scale. The success they have achieved with their approaches to digital censorship, surveillance and oppression at home has emboldened these regimes to expand their cyber capabilities to interfere and disrupt the democratic processes in many Western societies, and this has been allowed to happen because of our naivety towards the purpose and intention of all digital ICT. There was previously widespread belief that such authoritarian governments and their security apparatus were too backward and technophobic to use digital surveillance and other similar cyber tricks to control their people and spread dissent and confusion in the democratic world. We have awoken to this possibility with somewhat of a shudder. We had been promised an internet that would liberate the world; instead we are awakening to a much opaquer digital online world frequently controlled by dark forces we cannot see or control. Research and understanding is now urgently needed into the functioning of surveillance software to address the problem of who will know, and in that way, we can bear witness to programmes that ‘social-sort’ or that threaten difference, while keeping tabs on what and how much personal information is collected and by whom.<sup>32</sup>

### **The Cambridge Analytica Scandal**

But it is not only the use of digital surveillance and data manipulation by national governments that we should be worried about. More troubling is the mismanagement and misuse of our private and personal data and information that we carelessly and liberally give away when we interact on social media platforms and surf the internet. Numerous academic studies have confirmed that every time we share our personal information on a social networking platform, we make it more likely that someone, or organisation, might use it to predict what our likes or dislikes are, and knowing what our preferences are is always a good first step towards controlling our behaviour.<sup>33</sup> The personal information we share on social networking platforms, with friends and family, has been monetised and weaponised and repackaged in attempts to gradually and steadfastly change our behaviours over time. The most recent example of this to be exposed has been the

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<sup>31</sup>Morozov (2011).

<sup>32</sup>Hill (2012, p. 121).

<sup>33</sup>For a good understanding of how our social networks, in general, affect our lives (Christakis & Fowler, 2009).

Cambridge Analytica scandal, a year-long investigation into Facebook, personal data and the influencing of voting behaviour in the digital age. The discovery that Facebook had given unfettered access to the personally identifiable information of more than 50 million unsuspecting Facebook users<sup>34</sup> to the data firm Cambridge Analytica added to the growing concern over digital ICT's societal roles and impacts and the risk to citizen's privacy and well-being. The scandal broke as a result of a year's work by investigative journalism Carole Cadwalladr for *The Observer* newspaper, who then took the decision to share the revelations with *The New York Times* and with Channel 4 News to pool their investigative resources and broaden the reach of their investigation.<sup>35</sup> Alexander Nix, the chief executive of Cambridge Analytica, and his managing director Mark Turnbull, were exposed explaining to undercover Channel 4 reporters how they had manipulated the voters of democracies across the globe – most notably in Britain and the United States – with unsourced and misleading propaganda, and also boasting of sting operations and honey traps in some countries. They were able to do much of this by means of the mismanagement and misuse of private and personal data gleaned almost effortlessly from Facebook.

This story began in 2013 when researchers at the University of Cambridge's Psychometrics Centre began analysing a series of personality tests, available to Facebook users, to evaluate if their psychological profile correlated in any way with a person's actual Facebook activities such as their 'likes' or 'shares'. This particular body of research drew in some 350,000 US participants and established a clear relationship between the individual's Facebook activity and this five-factor psychological personality profile,<sup>36</sup> but there was no evidence that this particular body of research had exposed participants to any specific privacy abuse. In fact, it is widely claimed that the university refused to share either individual's personal data or the resulting criteria with what would later become Cambridge Analytica.<sup>37</sup> While working on the original Cambridge University research, academic Aleksandr Kogan had separately developed an app called *thisisyourdigitallife*, which was designed to collect similar personal data from Facebook users. Through his own company Global Science Research (GSR), and in collaboration with Cambridge Analytica, hundreds of thousands of users were paid to take the personality test and agreed to have their data collected and analysed for academic purposes. However, the app also collected the personal data of the test-takers' Facebook friends list, leading to the illicit accumulation of a data pool tens of millions strong. All the while Facebook were ignorant to such an unprecedented personal data breach and negligent in their duty of care to the entire Facebook community.

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<sup>34</sup>Facebook themselves later revised this figure upwards to a staggering 87 million users.

<sup>35</sup>*The Observer's* investigation and full story of the scandal is available in 'The Cambridge Analytica files' at <https://www.theguardian.com/news/series/cambridge-analytica-files>.

<sup>36</sup>The five-factor profile included openness, conscientiousness, extraversion, agreeableness and neuroticism.

<sup>37</sup>Isaak and Hanna (2018, p. 57).

Cambridge Analytica were quick to realise they could integrate this dishonestly acquired Facebook information with a range of other data from other social media platforms, Web browsers, online purchases, voting patterns and results and other such available data. By correlating this with the five-factor psychological personality profile, they developed the ability to then micro-target individual customers and voters with messages most likely to influence their behaviour.<sup>38</sup> Using these psychographic profiles – as the company calls them – Cambridge Analytica not only identified which voters were most likely to shift to their causes or candidates; they could use this information to predict and then change future behaviours.<sup>39</sup> It was an attempt at social engineering not witnessed heretofore, made possible but an extraordinary breach of personal data and the application of digital technology and algorithms. The company boasted that they had been instrumental in both the election of Donald Trump in the United States and the successful leave campaign in the Brexit referendum and became subject to investigations on both sides of the Atlantic. The company was a key organisation of interest in two inquiries in the UK – the Electoral Commission into the firm’s possible role in the EU referendum and the Information Commissioner’s Office into data analytics for political purposes – and one in the United States: part of special counsel Robert Mueller’s probe into Trump-Russia collusion.

The scandal exposed the misuse of personal data on an enormous scale. It was an attempt to influence people, auctioned off to the highest bidder and regardless of the morality and ethics of the purchaser or their cause or the consequences for wider society. While Cambridge Analytica became the scapegoat and must take its fair share of the blame for what only can be described as its shadowy wrongdoings, a higher proportion of the blame must be apportioned to Facebook. Their negligence in failing to protect user’s personal information leading to a large-scale breach of trust, and their overall mismanagement of personal data on a colossal scale, stands testimony to an organisation that is unrestrained and unpunished in their misconduct and unrepentant when caught out. Facebook’s initial reaction to the scandal was an attempt to silence the journalists and media outlets involved in the investigation warning *The Observer* that it ‘was making false and defamatory allegations, and reserved Facebook’s legal position’.<sup>40</sup> But it’s not only Facebook that is cashing in and failing to protect personal data. The Cambridge Analytica claim to have over 5,000 data points from which to draw

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<sup>38</sup>In a presentation at the 2016 Concordia Annual Summit in New York, Alexander Nix outlined how big data and psychographics work in reality: see <https://www.youtube.com/watch?v=n8Dd5aVXLCc>.

<sup>39</sup>Anderson, B., & Horvath, B. (2017). The rise of the weaponized AI propaganda machine. *Scout*, February 15. Retrieved from <https://www.scout.ai/story/the-rise-of-the-weaponized-ai-propaganda-machine>

<sup>40</sup>Cadwalladr, C., & Graham-Harrison, E. (2018). Revealed: 50 million Facebook profiles harvested for Cambridge Analytica in major data breach. *The Guardian*, March 17. Retrieved from <https://www.theguardian.com/news/2018/mar/17/cambridge-analytica-facebook-influence-us-election>

upon to build their psychological profiles of individual voters remains a deeply disturbing aspect of this scandal. The techniques used by Cambridge Analytica may also have emboldened others to seek similar control and leverage with regard to the use of personal data and surveillance.

A recent report from the Carnegie Endowment for International Peace suggests that almost half the world's nation states now deploy artificial intelligence (AI) surveillance systems to monitor, track and spy on their citizens to accomplish a range of policy objectives – some lawful, others that violate human rights and many of which fall into a murky middle ground.<sup>41</sup> In presenting an AI Global Surveillance (AIGS) Index, which represents one of the first research efforts of its kind, the report maintains that at least 75 out of 176 countries investigated are now actively using digital surveillance, and that these technologies are spreading at a faster rate to a wider range of countries than experts have previously assumed. China was reported to be the major driver of AI surveillance worldwide, and digital technology linked to Chinese companies such as Huawei, Hikvision, Dahua and ZTE are supplying AI surveillance technology to 63 countries, 36 of which have signed up to the China's Belt and Road Initiative (BRI). The Chinese product pitches are often accompanied by soft loans to encourage governments to purchase their equipment. These tactics are particularly relevant in countries like Kenya, Laos, Mongolia, Uganda and Uzbekistan, which otherwise might not have the resources or access to such technology. But this raises troubling questions about the extent to which the Chinese government is subsidising the purchase of advanced repressive technology, and their role and sphere of influence within these countries.

While authoritarian states are continuing to invest heavily in such digital surveillance equipment, worryingly the trend for its use in more democratic countries is also on the increase. There is also little evidence of any adequate steps to monitor and control the use and spread of such sophisticated technologies linked to a range of violations of our personal data and privacy. While this does not inevitably mean that liberal democracies are abusing these systems, such governments are 'aggressively using AI tools to police borders, apprehend potential criminals, monitor citizens for bad behaviour, and pull out suspected terrorists from crowds'.<sup>42</sup> And what of the link between governments and big tech, and how is such cooperation impacting our rights to privacy? Such global surveillance modification systems are threatening human nature itself, and this is the central thesis of Shoshana Zuboff's provocative 2019 book *The Age of Surveillance Capitalism*.<sup>43</sup> In this text, she argues that just as industrial capitalism had disfigured the natural world in the twentieth century, now a surveillance capitalism advances from Silicon Valley into almost every sector of the global economy creating vast wealth and power for those attempting to predict our behaviour:

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<sup>41</sup>Feldstein (2019).

<sup>42</sup>Feldstein (2019, p. 10).

<sup>43</sup>Zuboff (2019).

Surveillance capitalism unilaterally claims human experience as free raw material for translation into behavioural data. Although some of these data are applied to product or service improvement, the rest are declared as a proprietary *behavioural surplus*, fed into advanced manufacturing processes known as ‘machine intelligence’, and fabricated into *prediction products* that anticipate what you will do now, soon, and later. Finally, these predication products are traded in a new kind of marketplace for behavioural predictions that I call *behavioural futures markets*. Surveillance capitalists have grown immensely wealthy from these trading operations, for many companies are eager to lay bets on our future behaviour.<sup>44</sup>

All the major digital tech conglomerates are involved at various levels. Google have been the pioneers of surveillance capitalism and were trailblazers in terms of experimentation and implementation, with its deep pockets for research and development. But the business model quickly spread to Facebook and later to Microsoft, and there is now strong evidence that Amazon are using many of these approaches and practices on their platforms. Zuboff argues that what starts with predication ends with control. These platforms have moved beyond merely strip mining our deepest and most personal thoughts and information and are now seeking to shape, direct and control our present and future behaviour. Ignorance of its operation is one of the central strategies of this regime, and surveillance capitalism, she suggests, is as profoundly undemocratic as it is exploitative, yet remains poorly understood. Surveillance capitalism continues to evolve and has moved from a focus on the individual users to a focus on populations and society itself, and all the while democracy slept as these digital mega-platforms amass unprecedented concentrations of knowledge and power based on personal information gleaned from their widely used platforms and services.<sup>45</sup>

## Who Protects Our Privacy?

The lessons from surveillance capitalism and the Cambridge Analytica scandal are clear. We must be much more vigilant and more aware of the substance and amount of personal data we freely give away to online social media corporations and treat such platforms as broadcast medium where we should not post anything we would not shout out in a crowded room. But there is always information we post that we expect to be kept secure and not used by any third party. We also, therefore, need to be more vigilant with our own security settings and seek to protect our personal data in whatever way we possibly can. These online digital

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<sup>44</sup> Zuboff (2019, p. 8).

<sup>45</sup> John Naughton interviews Shoshana Zuboff. (2019). The goal is to automate us: Welcome to the age of surveillance capitalism. *The Guardian*, January 20. Retrieved from <https://www.theguardian.com/technology/2019/jan/20/shoshana-zuboff-age-of-surveillance-capitalism-google-facebook>

technology goliaths cannot be trusted to do the right thing with our personal data. But there will still be people who do not see the danger of thoughtlessly giving away their most intimate thoughts and feelings in order to avail of the free services big tech offers, and some might even say; so what! But none of us like to be duped into doing or thinking something based on our personal interactions that have been aggregated, manipulated, monetised and weaponised and used by shadowy forces to influence us in a particular way which often is working against our better interests and judgements. We all need to remain vigilant about how our personal data are used and be mindful to how privacy can be so easily encroached upon. Mark Zuckerberg reportedly spent \$30 million on four surrounding houses to control how the properties around his home were marketed and who they were sold to.<sup>46</sup> The Facebook founder, who made his vast wealth on the use of our personal data, places a high value on his own privacy and space. Digital online corporations that owe their financial success and base their vast profits primarily on monetising our personal data need much stronger oversight, regulation and control. Indeed, global challenges to our privacy brought about by digital networked ICT require strong internationally binding agreement to correct and rebalance the power and ownership over our personal data and information.

Digital-based surveillance and censorship continues to grow in scale, scope and sophistication around the world, and this growth is not surprising given the importance of many of these technologies in contemporary societies. But there is increasing cause for concern about the implications of these trends for media freedom, for unhampered discussion of matters of public interest and even for political activism in many states and regions. The coronavirus pandemic has also led to an unprecedented global surge in digital surveillance, researchers and privacy advocates around the world have warned, with billions of people now facing increased monitoring, something that may prove difficult to roll back over the coming years.<sup>47</sup> But maybe sometimes we cannot point the finger at these platform corporations when our privacy is compromised and instead must look more closely at the digital technology itself and our own behaviour. What we post may well have consequences well beyond what we expect. In Japan, in 2019, an obsessed fan hunted down his idol by zooming in on high-resolution photos of her eyes to discover clues to her whereabouts. Hibiki Sato, 26, was besotted with 21-year-old Japanese pop star Ena Matsuoka and assaulted her in September outside her front door inside an apartment block. Sato admitted to the attack after he was arrested and revealed he studied selfies that Matsuoka posted on social media to find clues as to where she lived. Specifically, he zoomed in on high-resolution images of her face and looked at the reflections in her eyes. He matched

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<sup>46</sup>Riggs, E. (2013). Mark Zuckerberg spends \$30 million on four homes to ensure privacy. *NBC News*, October 11. Retrieved from <https://www.nbcnews.com/business-main/mark-zuckerberg-spends-30-million-four-homes-ensure-privacy-8C11379396>

<sup>47</sup>The Russian Roskomsvoboda internet rights group released a global tracker called Pandemic Big Brother to chart violations of digital rights around the world as a result of concerns about the coronavirus pandemic: see <https://pandemicbigbrother.online/en/>.

what he saw to locations on Google Maps and eventually pieced together her home address. According to local media reports,<sup>48</sup> he was even able to approximate the storey Matsuoka lived on based on the windows and the angle of the sunlight in her eyes.

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<sup>48</sup>Stalker found Japanese singer through reflection in her eyes. (2019). *BBC News Asia*, October 10. Retrieved from <https://www.bbc.com/news/world-asia-50000234>

## Chapter 7

# Digital Divides

It is dangerously destabilising to have half the world on the cutting edge of technology while the other half struggles on the bare edge of survival.

Bill Clinton

I would like to allocate more time to dating, though. I need to find a girlfriend. That's why I need to carve out just a little more time. I think maybe even another five to 10 – how much time does a woman want a week? Maybe 10 hours? That's kind of the minimum? I don't know.

Elon Musk

## Mind the Gap

That new digital information and communication technology (ICT) has kept us better all connected to family and friends has been widely acknowledged and celebrated. Today, by simply using our small, portable, lightweight mobile devices, we remain connected across time and space better than any time in human history. Such technology has given us the ability to not only be virtually united to those we love and care about, but it also allows us quick and easy access to the World Wide Web and the vast stores of information contained therein. Online social media platforms have reconnected us to long forgotten friends and schoolmates in an easy and efficient way, and our mobile devices quickly detect real-time messages and interactions that we may otherwise miss. In this hyperconnected digital world, we do not have to miss anything irrespective of whether we are at home, work or on the move. But while acknowledging the many ways we are now more connected, we must also recognise that for some demographic groups and regions of the globe, the ubiquitous nature of digital technologies, and their widespread acceptance as critical to a new way of life, is disconnecting them more from the

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**The Social, Cultural and Environmental Costs of Hyper-Connectivity:  
Sleeping Through the Revolution, 103–120**



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world around them and diminishing their ability to remain active participants in society. In many parts of the global south, for example, digital interconnectivity remains a remote aspiration in the absence of clean water, food to survive, electricity and security for countless individuals and their families. Even in more developed nations of the world, a digital divide remains a daily reality for those people living in some rural, isolated and remote areas of their respective counties. In addition, there are a significant cohort of our fellow citizens who remain marginalised in society, and our headlong rush into the digital era is driving a further wedge between the haves and the have-nots in society: those with the means and the digital competencies to take full advantage of this new world and those whom we choose to leave behind. The widespread introduction of digital ICT has been shown to play a crucial role in reinforcing existing social inequalities.

Other digital inequalities and divides are also evident. The profile of many of the leading luminaries in the tech sector, with the notable exception of a few outliers, is predominantly white, young to middle-aged, male, and American, or American leaning. The gender and ethnic misbalance between those at the top of the digital tech industry and the users of their products is worthy of attention. The main reason we should be concerned about this lack of diversity in the tech sector is that digital technology is not value-neutral. The ideals, morals, desires and demands of only one segment of society are becoming deeply embedded and codified into each new piece of technology, application or segment of software produced by these technology corporations. Little or no value is placed on the social, cultural and religious sensitivities that exist in society and communities across the world in digital technology design and development processes. There is a further gap evident that continues to grow and have significant long-term implications for society at large. As these digital behemoths continue to expand exponentially so too does the colossal personal wealth and influence of just a handful of individuals, further exacerbating a very worrying trend in economic inequality within and between nations. As the personal wealth of the Amazon CEO Jeff Bezos, for example, swells beyond comprehension, his company continues a relentless drive to undervalue the efforts of its workforce and their determination to win better pay and working conditions.

## **The Digital Haves and Have-Nots**

The internet is a pervasive but now fundamental part of many people's daily life that continues to deliver significant economic and social benefits to countless across the globe. Yet, according to the World Economic Forum, some 3.7 billion people, more than 52 per cent of the world's population, are still not online.<sup>1</sup> The 'Digital Divide' is a term most often used to refer to the gap between demographics and regions that have access to modern digital ICT and the backbone infrastructure and those that do not or have restricted or limited access.

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<sup>1</sup>Internet for all. *World Economic Forum*. Retrieved from <https://www.weforum.org/projects/internet-for-all>

Having previously referred to the division between those who had and those who had not access to the telephone network in the late twentieth century, in the early 1990s, the term began to be used more commonly to describe the gap between those with access to the internet and those without, lately in particular high-speed broadband access. There are two key manifestations of this divide: within a country or region and between states. In the literature, three further levels of the digital divide are identified.<sup>2</sup> The first level is a simple division between those who have material access and those who do not. This level of the digital divide is narrowing as an increasing number in many states and regions gain access to digital ICT in their home, at work, in school or in a civic setting such as a library or community centre. The second-level digital divide emphasises that access to digital technology does not automatically lead to the use of such technology, and this is often explained as the consequence of underlying social inequalities. While many have the material access, they lack the quality of support and help needed to effectively use the technology, and this often replicates existing patterns of social disadvantage. The third level views the digital divide more comprehensively and highlights the concern that digital ICT produces winners and losers and suggests that overcoming digital divides is a rather complex challenge that goes well beyond simply improving access or internet skills.<sup>3</sup> Whatever the level, such problems do exist within many developed nations where a digital underclass without access or the skills to leverage the many benefits of these technologies has emerged over time.

While America's once vast digital divide is narrowing, the gap between groups who have access and those who lack access to computers, digital literacy and the internet persists, according to data from the US Census Bureau.<sup>4</sup> According to the Federal Communications Commission's (FCC) 2019 Broadband Deployment Report, 21.3 million Americans still lack access to any broadband whatsoever be that cable, digital subscriber line (DSL), fibre or wireless.<sup>5</sup> Both computer and internet use continue to vary based on a variety of factors most notably age, income, race and geographic location. The most recent Census Bureau report on computer and internet use in the United States – compiled in 2015 – revealed households headed by individuals 65 years and older continue to lag behind households headed by younger people in both computer ownership and internet use.<sup>6</sup> In fact, among these older aged households, 39 per cent lacked either a computer or a subscription that would allow access to the internet. This, of course, is set to narrow as current users grow older. Not that surprisingly, the Census Bureau found that numbers with access to the internet, whether through a desktop or

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<sup>2</sup>Goedhart, Broerse, Kattouw, and Dedding (2019).

<sup>3</sup>Van Deursen and Van Dijk (2014).

<sup>4</sup>Martin (2019). One of the great ironies of the latest consensus in the United States is that the main way of responding with information is online.

<sup>5</sup>2019 Broadband deployment report. (2019). *Federal Communications Commission*, May 29. Retrieved from <https://www.fcc.gov/reports-research/reports/broadband-progress-reports/2019-broadband-deployment-report>

<sup>6</sup>Ryan and Lewis (2017).

laptop or handheld device, rose with higher levels of household income. The same pattern was observed for broadband internet subscription. Of households with a combined income of \$150,000 or more, 90 per cent had broadband, a desktop or laptop and a handheld computer or smartphone, while at the opposite end of the spectrum, among low-income households – under \$25,000 – 50 per cent did not have all these key digital technology enabling tools and devices.

Looking at race, Asians were the most likely to have a desktop or laptop, handheld device and broadband subscription, 65 per cent of whites reported all three items, compared with 55 per cent of Hispanics but only 49 per cent of blacks. Many of the households who lacked a desktop, laptop or broadband were still connected to the internet but through their handheld devices and smartphones. The report found that the long-standing gap in computer and internet use between urban and rural Americans not only persists but is also growing wider with the increased adoption of new technologies and platforms such as the smartphone and social media. States across the United States vary in terms of broadband internet subscription, with higher levels for those on the Pacific coast and most states in the Northeast.<sup>7</sup> In an article for *The New York Times*, Shira Ovide suggested that the digital divide in the United States became much more apparent during the Covid-19 pandemic and subsequent economic and social lockdown in many states across the country. In the article, Susan Crawford, a Harvard Law Professor, advocated for government intervention to help finance and oversee the backbone structure for broadband along similar lines previously seen for the telephone and electricity networks.<sup>8</sup> She contended the problem is that big service provider companies like AT&T and Comcast both own and control the internet backbone infrastructure, and they do not have any incentive to build more affordable access in remote and more costly regions. Microsoft has recently estimated that up to 157 million Americans – almost half the population – were not using fast internet connections,<sup>9</sup> and that even the US government, using different counting methods, maintained that more than 21 million Americans mostly in rural areas do not have access to fast broadband internet. Crawford suggests that the bill for a government-backed internet expansion would be larger than the \$80 billion the Obama administration once estimated, but that the costs are worth it. The issues that people care about, such as fair access to good education, renewable energy, effective health care and new technologies like driverless cars, all depend on having high-grade internet networks everywhere and for everyone, she claimed.

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<sup>7</sup>Ryan and Lewis (2017, pp. 9-10).

<sup>8</sup>Ovide, S. (2020). We can do better: One plan to erase America's digital divide. *The New York Times*, April 14. Retrieved from <https://www.nytimes.com/2020/04/14/technology/coronavirus-digital-divide.html>

<sup>9</sup>McKinley, S. (2020). Microsoft Airband: An annual update on connecting rural America. *The Microsoft Blog*, March 5. Retrieved from <https://blogs.microsoft.com/on-the-issues/2020/03/05/update-connecting-rural-america/>

The Netherlands is among the top European Union (EU) 28 countries with the highest level of internet access in the home.<sup>10</sup> In 2017, 98 per cent of Dutch households had internet access against a European average of 87 per cent. Other high-ranking countries are Luxembourg and Denmark (97 per cent), Sweden (95 per cent) and Finland (95 per cent). However, the share of households with internet access is much lower in many Southern and Eastern European countries, and this is a source of concern for many of the European integrationists. EU-wide analysis identified a general profile of vulnerable people in the face of the digital divide.<sup>11</sup> They are most likely to be elderly, with a low level of education, manual workers or unemployed, with a relatively low level of income. The digital skills deficit in many of these countries represents an increasing threat to the economy of the EU – both in the public and private sectors – and to success in terms of a developed tech-savvy European-wide labour market. That said, for people living and working in North America, Europe and other relatively prosperous regions of the world, the necessary access to the internet and digital tools is almost a given for the majority. On a global scale, high-speed internet access can greatly improve the overall functionality and organisation of entire countries and regions. However, only just over half of households worldwide – 55 per cent – have an internet connection according to UNESCO.<sup>12</sup> Africa, for example, is being stifled by the lack of a widely available high-speed internet access, and this divide in availability of digital networked connected technologies severely inhibits the economic prospects of many of the world's least developed countries and regions.<sup>13</sup> Even in South Africa, a relatively wealthy nation, much of the population remains disconnected from the global digital network. For many rural districts right across the continent not on their national grid and in difficult economic situations, adequate access to even energy to power homes is not guarantee for these communities. In other developing regions of the world, like some areas in Asia and Latin America, there is also relatively sparse digital technology infrastructure in place to allow citizens of these regions to access the internet.

Mojo Networks is one of several companies and organisations that are seeking to bring connectivity to these underserved regions of the world.<sup>14</sup> Other tech companies have also launched initiatives that are designed to provide access with Facebook partnering with India telecom giant Bharti Airtel as part of the social network company's Express Wi-Fi project to sell internet access in regions where

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<sup>10</sup>Digital economy and society statistics - households and individuals. (2019). *Eurostat*, June. Retrieved from [https://ec.europa.eu/eurostat/statistics-explained/index.php/Digital\\_economy\\_and\\_society\\_statistics\\_-\\_households\\_and\\_individuals](https://ec.europa.eu/eurostat/statistics-explained/index.php/Digital_economy_and_society_statistics_-_households_and_individuals)

<sup>11</sup>Vasilescu, Serban, Dimian, Aceleanu, and Picatoste (2020).

<sup>12</sup>New report on global broadband access underscores urgent need to reach the half of the world still unconnected. (2019). *UNESCO*, September 23. Retrieved from <https://en.unesco.org/news/new-report-global-broadband-access-underscores-urgent-need-reach-half-world-still-unconnected>

<sup>13</sup>Lavery et al. (2018).

<sup>14</sup>Kirkpatrick (2018).

web coverage is currently limited. However, while this may appear on the surface to be altruism at work and a philanthropic gesture, Facebook's business model, and that of other such platforms, relies heavily on an ever-increasing supply of personal data. As we witness a growing scepticism towards these corporations in the West over their mismanagement and misuse of our personal data, this might be a perfect opportunity for these tech giants to spread their avaricious tentacles to more innocent regions of the globe. What may on the surface seem like genuine eagerness to connect the world may well be an oblique attempt to dominate the entire global internet landscape. Such regions do not need another form of Western domination, a new form of digital colonisation, and instead need to be able to shape their own network experiences based on their specific needs, cultures, societies and understandings. Facebook are not the first or only American corporation to attempt to capitalise on such an opportunity for expansion. In remote areas of the world where you cannot get clean drinking water or basic medicine, you can always get a cool bottle of Coke Cola.

As the Covid-19 coronavirus pandemic took hold, more than one billion children across the globe were locked out of classrooms because of virus-suppression measures. A significant number were left without any level of instruction because of the digital technology deficit even as teachers worked tirelessly to provide and continue online lessons and teaching. Working from home became a new reality for many as countries brought in measures to slow the spread of the virus, and this again exposed the technologically deprived in specific regions and areas of disadvantage and across the globe. This is why the digital divide is so important in the context of contemporary society. In many ways, people can no longer play a full and active role in society without being able to use digital technology. In most developed countries, governments and their agencies expect citizens to have internet access and an operational e-mail address. Authorities have committed to increasing the information and services they provide but only making many of these available online. The present functioning of many aspects of civic society, whether it is applying or reapplying for a passport, renewing a driving licence, filling in tax returns and censuses forms, seeking unemployment benefits or assistance, filling in the voter register, these and other civic society activities are largely dependent on high-speed internet access and a basic level of digital computer literacy. Filing online is so much more efficient for government departments than processing paper forms, and there are indications that such online filing could become compulsory in the not too distant future. More and more jobs require a basic level of digital skills and you really cannot get the full benefits of education without being digital computer literate. The use of social networking platform to remain connected to family, friends and contacts, the increasing move towards a cashless society, the ability to book flights and holidays, shop online, pay a bill and check your bank account: all these point to the digital divide increasingly being a significant problem for society and needs to receive much more sociological attention as to their long-term implications. Arguing for a sociologically and Weberian approach to the study of the digital divide, Ragnedda makes the pertinent argument that the digital divide deals with inequalities that exist in the digital sphere, and thus, it should be viewed as a

social rather than technological issue, and as such should be understood through sociological eyes.<sup>15</sup>

## The Digital Gender and Race Divides

While the geographical digital divide will remain of significant concern to governments and agencies tasked with dealing with matters of social inequality, there are other concerns apparent in the way digital technology excludes people and groups from active engagement and participation in its design and development processes. An issue of growing concern is the gender dimension and the fact that for many women the tech sector can often be a hostile and unwelcoming place to work and build a career. Diversity is critical to the design and development of digital technology as it enables organisations to create better and safer products that take everyone into consideration, not just one section of society. But from an early age, it is perceived that boys are better at science and maths, and this discourages girls from studying many digital ICT-related subjects. The 2018 *Women in the Digital Age* report found that there were nearly four times more men than women in Europe with digital ICT-related studies, and that there was an actual decrease in women taking up such higher education studies when compared to 2011.<sup>16</sup> According to Eurostat, girls and women are significantly under-represented in ICT learning, and at the time of the report, there were more than 1.3 million people enrolled in ICT courses in the EU, but only 16.7 per cent of those were female.<sup>17</sup>

While the tech sector now employs more people than ever, not all digital-related occupations are technical ones, and the roles women play are often much different from that of men. Many jobs in the digital tech industry are non-technical such as administration, clerks, legal work and cleaning jobs which, although important to the running of any organisation, are less related to innovation, design and technical development. Women tend to do the bulk of this non-technical work. Despite the increasing demand for digital professionals with technical backgrounds, and the positive employment trend of the sector generally, only 16.1 per cent of digital ICT specialists across Europe are women.<sup>18</sup> Globally, figures indicate that female participation at the technical levels of the digital sector is still not improving to any great extent. In the United States, women currently remain grossly under-represented in software engineering – 14 per cent of the total workforce – and computer science-related jobs – 25 per cent of the total workforce.<sup>19</sup> In fact, women software engineer hires have only increased 2 per cent over the past 20

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<sup>15</sup>Ragnedda (2017, p. 3).

<sup>16</sup>Quirós et al. (2018).

<sup>17</sup>Girls and women under-represented in ICT. (2018). *Eurostat*, April 25. Retrieved from <https://ec.europa.eu/eurostat/web/products-eurostat-news/-/EDN-20180425-1>

<sup>18</sup>Quirós et al. (2018, p. 30).

<sup>19</sup>Funk, C., & Parker, K. (2018). Diversity in the STEM workforce varies widely across jobs. *The Pew Research Center*, January 9. Retrieved from <https://www.pewsocial-trends.org/2018/01/09/diversity-in-the-stem-workforce-varies-widely-across-jobs/>

years. It, unfortunately, gets even more dispiriting for women of colour who only make up 18 per cent of entry-level positions, as opposed to 30 per cent of white women and 35 per cent of white men.<sup>20</sup> Once working in the tech sector, those few women employed find it difficult to rise through their organisations to higher job positions and to management level. Although Asian women, black women and Latinas report the desire to be promoted more than white men or women, they are still often promoted less within the digital tech sector.

How did such under-representation of women come about, and why is it continuing to the present day? When seeking a better understanding, debates normally focus on the issues of choice and ability, with a narrative of women simply not being interested in computers or computer science and thus do not possess the necessary skill set to work in the sector.<sup>21</sup> Such broad claims simply serve to reinforce the gendered division of labour and the general stereotyping of men as being more likely to possess hard, technical skills and women as displaying soft skills and attributes such as empathy, communication and caring, and this has consequential implications for the type of work we view as suited to each gender.<sup>22</sup> Television, magazines, movies and other forms of mass and popular media play a significant role in influencing people's perceptions of the tech sector, and media images often carry implicit messages about gender roles. Computer programmers, digital tech designers and developers are often depicted as young men, while women are regularly portrayed as digital tech users. Such representations work to reinforce social expectations of gender and gender stereotypes, and what types of work men and women are most suited to do. Such perceptions of the gendered division of labour become reinforced and stabilises over time, affecting how the jobs within the sector are performed, understood and represented to others both inside and outside the industry. Once gendered, occupational roles have unescapable effects on the degree to which individuals are viewed as competent, status-worthy and a legitimate sources of authority.<sup>23</sup> As fewer and fewer women study digital technology-related subjects in school and university, employers within these sectors have a gender biased talent pool from which to recruit from. Many of these recruitment boards are, themselves, made up of a single gender, given the lack of female participation at middle and senior management levels. Such situations quickly lead to the expansion of gendered recruitment and an atmosphere within the tech industry than can become hostile to gender diversity and difference. Gender bias has become embedded both in the recruitment process and the systems used to aid recruitment in the tech sector. In building their artificial intelligence (AI) recruitment system, Amazon discovered their machine-learning computer programme had a major problem: the recruitment engine did not like women. According to a report from Reuters, the e-commerce corporate

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<sup>20</sup>Women in the workplace 2019. *McKinsey & Company*. Retrieved from [https://wiw-report.s3.amazonaws.com/Women\\_in\\_the\\_Workplace\\_2019.pdf](https://wiw-report.s3.amazonaws.com/Women_in_the_Workplace_2019.pdf)

<sup>21</sup>Grey and Healy (2004).

<sup>22</sup>MacLean, Marks, and Chillias (2017).

<sup>23</sup>Ridgeway (2011).

giant was forced to scrap an internal project that was trying to use AI to vet job applications after the software consistently downgraded female candidates.<sup>24</sup>

In her autobiographical account of her earlier life and work in the tech sector, Wendy Liu pointed to the fact that women were regularly denigrated online, which led her to conclude that being seen as female would be a hindrance in her career:

Even as a pre-teen with a negligible understanding of societal gender dynamics, it didn't take me long to realise that parts of the Internet I liked were not always welcoming to women. Beyond the cliché that there were no girls on the Internet, there was no shortage of jokes about women's place in society, or casual references to women's lack of aptitude for programming. I figured that I would simply get used to it; I derived enough joy from Internet culture to remain steadfast in my belief that I belonged anyway. Plus, the nickname I'd adopted for most online interactions was sufficiently androgynous that some people even addressed me as 'Sir'.<sup>25</sup>

A study released in 2020 found that nearly 60 per cent of young women between the ages of 15 and 25 have been victims of online harassment and abuse, with a staggering 39 per cent of those saying they've been threatened with sexual violence while online.<sup>26</sup> The report added that most first experience social media harassment between the ages of 14 and 16 resulting in some girls and young women having lower self-esteem, losing confidence or experiencing mental or emotional stress due to such online harassment. The interviewees, from 22 different countries, said no action was taken when they reported such abuse. In the absence of fair and meaningful gender balance in the industry, the online world, through its designers, developer, gamers, and other such users, can become a site of toxic masculinity that not only becomes a place that is out of bounds for women but can sometimes descend into antagonism, outright rage and misogyny. Gamergate was a perfect example of this decent into hatred.

In 2014, an angry ex-boyfriend of video game designer Zoë Quinn published an extensive screed and set in motion a series of events that changed the way some people see their role and behave online.<sup>27</sup> The post systematically documented

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<sup>24</sup>Dastin, J. (2018). Amazon scraps secret AI recruiting tool that showed bias against women. *Reuters*, 11 October. Retrieved from <https://www.reuters.com/article/us-amazon-com-jobs-automation-insight-idUSKCN1MK08G>

<sup>25</sup>Liu (2020, p. 13).

<sup>26</sup>Abuse and harassment driving girls off Facebook, Instagram and Twitter. (2020). *Plan International*, October 5. Retrieved from <https://plan-international.org/news/2020-10-05-abuse-and-harassment-driving-girls-facebook-instagram-and-twitter>

<sup>27</sup>Warzel, C. (2019). How an online mob created a playbook for a culture war. *The New York Times*, August 15. Retrieved from <https://www.nytimes.com/interactive/2019/08/15/opinion/what-is-gamergate.html>

the last few weeks of his breakup with Zoë and was annotated and punctuated with screenshots of many of their very private digital correspondences, detailing fights and rehashing their sexual history. The all-caps rant quickly went viral and was picked up by some users of the *Reddit* and *4chan* platforms. Ms Quinn and her immediate family members were subsequently threatened and her private information exposed, including old nude photos from a past relationship. Online chat rooms began to discuss the best ways to ‘ruin her life’ and fantasised about elaborate ways of killing her. In the months leading up to this, news reports revealed an increase of hoaxes and harassment campaigns, including some that impersonated, silenced and intimidated women of colour. Under the hashtag ‘#gamergate’, a general harassment campaign targeted several women in the video game industry, with supporters organising through online platforms such as *4chan*, *Internet Relay Chat*, *Twitter* and *Reddit*. Gamergate supporters argued there was unethical collusion between the press and feminists, progressives and social critics. What began as a breakup post had morphed into a leaderless harassment campaign to preserve white male internet culture, disguised as a critique of journalist ethics and political correctness.

Darker forces were quick to seize upon this opportunity and exploit online male-dominated anger and aggression. In his opinion piece for *The New York Times*, Charlie Warzel put the controversy into a wider context of political and social upheaval and the emergence of controversial right-wing personalities:

Crucially, Gamergate emerged during the internet’s shift from a largely anonymous or pseudonymous culture to one centered around personality-driven influencers. And, unlike previous abuse campaigns led by armies of unknown internet users, Gamergate attracted the attention of then-men’s rights bloggers like Mike Cernovich and Roosh V, right-wing political correctness monitors like Christina Hoff Sommers and middling journalists like Milo Yiannopoulos, then a writer for Breitbart.<sup>28</sup>

Describing it as a ‘culture war’, Steve Bannon – at the time Breitbart’s chairman but later to become central to the Trump campaign for president – saw the controversy as an opportunity to ignite a dormant, internet-native audience towards a focussed and familiar cause: that feminism and social justice struggles had spiralled out of control. The toxic masculinity coursing through the veins of the internet made it a fertile ground for recruitment and ripe for such a right-wing takeover. The playbook for Gamergate is now employed regularly by right-wing actors attempting to manipulate public sentiment through their use of groups of online trolls coalescing on bulletin-board sites and platforms. In a study of personality and individual differences, it was reported that young men are more

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<sup>28</sup>Warzel, C. (2019). How an online mob created a playbook for a culture war. *The New York Times*, August 15. Retrieved from <https://www.nytimes.com/interactive/2019/08/15/opinion/what-is-gamergate.html>

likely to become internet trolls, and that such individuals have poor social skills and employ an empathic strategy of predicting, recognising and taking pleasure from causing pain and in the emotional suffering of their victims while abstaining themselves from the actual experience of these negative emotions.<sup>29</sup> Many feel a sense of disenfranchisement leading to a malicious desire to try to make those enjoying some degree of success and happiness feel as miserably, trapped and oppressed as they do. The fact that such groups of trolls are almost exclusively male makes targeting women that much easier.

But the focus of attention for such internet trolls and right-wing bloggers are not always female, exposing another damaging divide that exists within the digital tech sector. Blacks and Hispanics are also regularly targeted by online hate content largely because they are seen as different and are not sufficiently represented at all levels of the tech sector. Minorities are under-represented in science, technology, engineering and math jobs, relative to their presence in the overall US workforce, particularly among workers with a bachelor's degree or higher.<sup>30</sup> Reflecting on their own and their family's lived experiences, blacks in the tech sector are four times more likely as whites in these roles to say their workplace does not pay enough attention to increasing racial and ethnic diversity. Past studies have raised a number of possible reasons for this under-representation including the need for racially and ethnically diverse mentors to attract more blacks and Hispanics to these jobs, limited access to advanced science courses or socio-economic factors that disproportionately affect these minority communities.<sup>31</sup> The problem does not simply relate to attaching new talent from under-represented groups in society, but the tech sector has a significant problem with retaining women and people from some ethnic backgrounds in their industry.

That is the conclusion of *Tech Leavers*, a study from the Kapor Center for Social Impact and Harris Poll that explored the reasons people leave tech companies.<sup>32</sup> Nearly 40 per cent of employees surveyed indicated that unfairness or mistreatment played a major role in their decision to leave their company, and under-represented men were most likely to leave due to unfairness. Women experienced and observed far more unfairness than men, and nearly one third of under-represented women of colour were passed over for promotion, more than any other group surveyed. One in 10 women experienced unwanted sexual attention, while lesbian, gay, bisexual and transgender (LGBT) employees were more likely to be bullied and or experience public humiliation. Nearly a quarter of under-represented men and women experienced stereotyping in their workplace and at almost twice the

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<sup>29</sup>Sest and March (2017).

<sup>30</sup>Funk, C., & Parker, K. (2018). In their own words: Why some STEM workers say their race or ethnicity has made it harder to succeed in their job. *The Pew Research Center*, January 8. Retrieved from <https://www.pewsocialtrends.org/2018/01/09/blacks-in-stem-jobs-are-especially-concerned-about-diversity-and-discrimination-in-the-workplace/>

<sup>31</sup>MacPhee et al. (2013).

<sup>32</sup>Scott, Klein, and Onovakpuri (2017).

rate of white and Asian men and women. Timnit Gebru, a leading AI researcher at Google and one of the few black women in her field, claimed she was fired over her work to fight bias in that organisation.<sup>33</sup> She had been conducting research that was critical of large-scale AI models and was also critical of existing diversity and inclusion efforts at Google. At the same time, the company paid tens of millions of dollars to two executives who had been accused of sexual misconduct towards their co-workers, staying silent about the alleged abuse and letting them walk away with no consequences.<sup>34</sup> While the tech industry frequently blames the ‘pipeline’ for not delivering enough qualified and talented candidates from under-represented backgrounds and communities, Kapor Center Co-chair Freada Kapor Klein argues the more nuanced and accurate way to frame the issue is to look at the complex set of biases and barriers that begin in preschool and persist in the workplace that have kept women and people of colour from gaining access to such highest-paying jobs in one of its most sought after and growing economic sectors.<sup>35</sup> Reversing under-representation in black and Hispanic populations, as well as female participation in the tech workforce, is all part of long-term efforts to tackle inequality right across society. The tech industry should be made up of a representative sample of the population which it claims to serve, which is roughly half female and incredibly diverse. But fundamental to approaches towards fair and equitable representation are also efforts to address income inequality in society.

## **Big Tech’s Role in Economic Inequality**

The overall accumulation of vast wealth and the evidential income inequality between those at the top of the tech industry and the majority of ordinary citizens is also a significant social issue that warrants much closer sociological and political attention. This additional social divide, brought about by the relentless growth of the digital economy, points to a continuing and worrying fracturing within society and inequality at the levels we are witnessing today is damaging to everybody, including those at the top. A core feature of capitalist economies is that the free market will inevitably produce winners, and that spurs people to work harder and longer. If we create a society in which those who do not make an effort get as much as those who do go that extra mile, we would be weakening people’s incentive to work hard. This is a seductive argument and one that feeds into the concept of the ‘American Dream’. But even those whose values align with this argument

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<sup>33</sup>Metz, C., & Wakabayashi, D. (2020). Google researcher says she was fired over paper highlighting bias in A.I. *The New York Times*, December 3. Retrieved from <https://www.nytimes.com/2020/12/03/technology/google-researcher-timnit-gebru.html>

<sup>34</sup>Benner, K., & Wakabayashi, D. (2018). How Google protected Andy Rubin, the “Father of Android”. *The New York Times*, October 25. Retrieved from <https://www.nytimes.com/2018/10/25/technology/google-sexual-harassment-andy-rubin.html>

<sup>35</sup>Guynn, J. (2020). Here’s why women, blacks and Hispanics are leaving tech. *USA Today*, July 9. Retrieved from <https://eu.usatoday.com/story/tech/news/2017/04/27/toxic-workplaces-technology-women-minorities-retention/100977038/>

must recognise that beyond a certain level of wealth any additional income for people is often non-productive and will remain in that individual's ever-growing bank account. If the money was more widely distributed among those who need it or would use it, this stimulates economic activity that then has positive effects for society as a whole. But how wide is the gap and what, in fact, is the ever-increasing value of the digital economy and the individuals that benefit financially from its growth? It took Apple 42 years to reach \$1 trillion in value; it took the company just two more years to get to the \$2 trillion mark, the first US company to hit such a valuation.<sup>36</sup> Even more spectacular was that most of Apple's second \$1 trillion came in just 21 weeks – while the global economy shrank faster than ever during the coronavirus pandemic and during the subsequent economic and social shut-downs. They made this leap in value at a time when many of their outlets were closed due to attempts to slow the spread of the coronavirus worldwide. Apple had begun selling their iPhones, iPads and Macs online even as their brick-and-mortar stores remained closed and their employees were out of work.

Microsoft and Amazon shadow Apple as the most valuable publicly traded US companies, each at about \$1.6 trillion, and they are followed by Google-owner Alphabet at just over \$1 trillion. Facebook is fast closing in on the \$1 trillion mark, and the US tech sector alone is now said to be worth more than the entire European stock market combined.<sup>37</sup> These, and other heavyweight digital technology corporations, surged to record high values during the coronavirus pandemic as consumers came to rely more heavily on e-commerce, video conferencing, media streaming and other services they provide. Investors saw these companies emerging from the pandemic stronger than smaller competitors, with some even viewing their volatile shares as safe havens. And as these digital technology megacorporations soared in value, the personal wealth of their founders, management and shareholders has also climbed to almost unimaginable heights. As of October 2019, *The Forbes 400* valued Jeff Bezos, CEO and president of Amazon, as the richest person in the United States at \$114 billion.<sup>38</sup> He was closely followed by co-founder of Microsoft Bill Gates, who was valued at \$106 billion. In fourth place, Facebook co-founder, Chairman and CEO Mark Zuckerberg's net worth was estimated to be at \$69.6 billion; Larry Ellison, co-founder and the Executive Chairman and Chief Technology Officer (CTO) of Oracle Corporation, \$65 billion; and Larry Page and Sergey Brin, co-founders of Google, at \$55.5 and

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<sup>36</sup>Nicas, J. (2020). Apple reaches \$2 trillion, punctuating big tech's grip. *The New York Times*, August 19. Retrieved from <https://www.nytimes.com/2020/08/19/technology/apple-2-trillion.html>

<sup>37</sup>Winck, B. (2020). The US tech sector is now worth more than the entire European stock market, Bank of America says. *Business Insider*, August 28. Retrieved from <https://markets.businessinsider.com/news/stocks/us-tech-stocks-worth-more-european-stock-market-apple-microsoft-2020-8-1029545001#>

<sup>38</sup>Kroll, L., & Dolan, K. A. (2019). The Forbes 400: The definitive ranking of the wealthiest Americans. *Forbes*, October 2. Retrieved from <https://www.forbes.com/forbes-400/#555323d37e2f>

\$53.5 billion, respectively. Seven out of the top 10 on the Forbes list of the wealthiest people in the United States obtained this wealth from the tech sector, and this affluence will have grown during the coronavirus pandemic as tech stock shares increased exponentially during the lockdown and subsequent measured reopening of societies and economies.<sup>39</sup>

Yet, as Jeff Bezos' personal wealth soared to new heights, Amazon's aggressive attitude towards its workforce showed no sign of abating. Amazon is the second-largest private employer in the United States and is headed by the richest man on the planet. As the coronavirus pandemic disrupted life as we know it for people across the world, many confined to their homes relied on Amazon as a lifeline. Its workers have even been called heroes, and Amazon has even been viewed by some as an essential service through this pandemic. But the way these workers are treated by their employer has attracted criticism and controversy from multiple sources. Hundreds of thousands of these workers are employed by or contracted to Amazon, whose delivery network has emerged as a vital service for millions requested to stay at home. *Wired* magazine interviewed nine individuals working for Amazon during the Covid-19 crisis, who worked in the company's fulfilment centres, delivered packages and groceries and stocked food in Amazon cafeterias.<sup>40</sup> These workers, although framed as frontline heroes, unanimously stated they did not sign up for such a level of risk they felt exposed to at work. Coronavirus outbreaks in at least 50 Amazon facilities in the United States led to employee protests in Detroit, New York City, and Chicago, where workers said Amazon was slow to notify them about infections in the workplace and failed to conduct adequate facilities cleaning. At Whole Foods, an Amazon-owned company, staff staged a nationwide demonstration citing similar safety concerns and calling for free coronavirus testing for all employees. More than 5,000 Amazon workers signed a petition asking for additional benefits given the health crisis, including hazard pay and for the company to shut down any facility where a worker tests positive so it can be properly cleaned. California's Attorney General Xavier Becerra, the Division of Occupational Safety and Health, and the San Francisco Department of Public Health all opened investigations into Amazon's practices around the pandemic.<sup>41</sup> The company stands accused of putting workers at need-

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<sup>39</sup>Jeff Bezos, the Amazon CEO, set a record when his net worth jumped by \$13 billion in just one day, Monday 20 July 2020. The Bloomberg Billionaires Index put Bezos' estimated net worth at \$189.3 billion at the end of Monday after Amazon stock surged during the day, thanks to a positive Wall Street forecast. See Pitcher, J. (2020). Jeff Bezos adds record \$13 billion in single day to fortune. *Bloomberg*, July 20. Retrieved from <https://www.bloomberg.com/news/articles/2020-07-20/jeff-bezos-adds-record-13-billion-in-single-day-to-his-fortune>

<sup>40</sup>Matsakis, L. (2020). 9 Amazon workers describe the daily risks they face in the pandemic. *Wired*, April 10. Retrieved from <https://www.wired.com/story/amazon-workers-pandemic-risks-own-words/>

<sup>41</sup>Kari Paul and Agency. (2020). California investigates Amazon's treatment of workers during pandemic. *The Guardian*, July 27. Retrieved from <https://www.theguardian.com/technology/2020/jul/27/california-investigations-amazon-workers-coronavirus>

less risk by having them share equipment, such as freezer suits, and for not allowing extra time in order to respect social distancing. In an October 2020 statement, Amazon admitted that nearly 20,000 of its employees had already tested positive for the virus in the United States alone.<sup>42</sup>

The working conditions in its centres and the treatment of its workforce during the pandemic stand as testament to criticism of Amazon going back many years. The company has fiercely opposed unionisation and the right of workers to collective bargaining leading to the Retail, Wholesale and Department Store Union producing a report detailing Amazon's 'deadly and dehumanizing employment practices, anti-union activities, destruction of brick and mortar retailers at taxpayer expense, and past practice of allowing its platform to sell racist products'.<sup>43</sup> It is not only the treatment of its workforce that needs closer attention but, indeed, the company's social responsibility and their obligation to pay their fair share of taxation. In a recent report by tax transparency campaign group Fair Tax Mark, Amazon, Facebook, Google, Netflix, Apple and Microsoft were all named as avoiding tax on a colossal scale by shifting revenue and profits through tax havens or low-tax countries and for also delaying the payment of taxes they do incur.<sup>44</sup> The report singles out Amazon as the worst offender. Alex Cobham, chief executive of the Tax Justice Network, outlined the consequences of such tax avoidance and declared:

When multinational corporations abuse their tax responsibilities to society, they weaken the supports that our economies need to work well and create wealth. By ensuring multinational corporations pay their fair share locally for the wealth created locally by people's work – based on an agreed formula and supplemented by a minimum effective tax rate – governments can strengthen their economies to run smoothly and make a good life possible for everyone.<sup>45</sup>

So, while the wealth of these digital behemoths continues to grow at a startling rate so too does their power and egotism. There is a prevailing 'capitalism on steroids' approach within the tech industry and among many at the top that

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<sup>42</sup>Update on COVID-19 testing. (2020). *Amazon*, October 1. Retrieved from <https://blog.aboutamazon.com/operations/update-on-covid-19-testing>

<sup>43</sup>What's wrong with Amazon. *Retail, Wholesale and Department Store Union (RWD-SU)*. Retrieved from [https://www.rwdsu.info/new\\_report\\_what\\_s\\_wrong\\_with\\_amazon](https://www.rwdsu.info/new_report_what_s_wrong_with_amazon). There are also a wide range of arguments against, and criticism of, the Amazon business model on the *Social Justice Books* website at <https://socialjusticebooks.org/about/why-boycott-amazon/>.

<sup>44</sup>Fair Tax Mark (2019).

<sup>45</sup>Neate, R. (2019). New study deems Amazon worst for "aggressive" tax avoidance. *The Guardian*, December 2. Retrieved from <https://www.theguardian.com/business/2019/dec/02/new-study-deems-amazon-worst-for-aggressive-tax-avoidance>

view their own exceptionalism as worthy of the extraordinary levels of personal remuneration they now enjoy. And all the while some of the people working to grow these megacorporations at lower levels of their organisations struggle for wage increases, basic working conditions and respect.

The wealth accumulated by the tech sector has greatly exacerbated economy inequality in many countries, leading to negative and damaging effects for countless societies. In their extensive research into income inequality over many years, Richard Wilkinson and Kate Pickett produced strong empirical evidence that almost every modern social and environmental problem – ill-health, lack of community life, violence, drug misuse, obesity, mental illness, long working hours, big prison populations – are more likely to occur in a less equal society.<sup>46</sup> Corporate power is the elephant in the room, they suggest, and high levels of inequality in our societies reflect the concentration of power within particular institutions. Thomas Piketty, in his widely acclaimed work *Capital in the Twenty-First Century*, argues that we have not reformed the deep structures of capital and inequality as much as we thought, and that the main driver of inequality now threatens to generate extreme inequalities that stir discontent and undermines democratic values.<sup>47</sup> Piketty proposes a global system of progressive wealth taxes to help reduce inequality and avoid the vast majority of wealth coming under the control of just a tiny minority of individuals. Inequality continues to increase alarmingly since the 1980s, and this is preventing people with less income and wealth from reaching their true potential in terms of education and invention, making it harder for economies to benefit from new sources of innovation. It is restricting these individuals from earning more, educating themselves and, in turn, becoming innovators and entrepreneurs, all the while the money hoarded by the top 1 per cent in the world is not reinvested to any real extent in generating real economic output. Most of the money is pumped into speculative markets around the world, to make even more money; investments in speculative instruments that do not directly increase employment or factory output. The income tax applied to the earnings of the top 1 per cent is far less than that imposed upon middle- or lower-class working people, and when the middle and lower classes start feeling the pinch they spend less, they cut back on buying things, which leads to factories selling less, which leads to scaling down of production, which leads to lay-offs, which leads to more stress on the economy.<sup>48</sup>

## **The Need for Inclusivity**

That digital ICT better connects us is impossible to argue against. The benefits of such hyperconnectivity can be positive as we strive to build and

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<sup>46</sup>Wilkinson and Pickett. (2010). Wilkinson and Pickett follow on research - ‘The Inner Level’ (2018) - showed that more equal societies reduce stress, restore sanity and improve everyone’s well-being.

<sup>47</sup>Piketty (2014).

<sup>48</sup>See ‘Inequality for all’ a 2013 documentary film directed by Jacob Kornbluth and narrated by American Economist, author and Professor Robert Reich.

maintain relationships that are extremely important to our overall well-being and happiness. But digital technologies are sometimes dividing us as a society, whether this is because of our location, gender, ethnicity or income. As the widespread adoption and acceptance of such technologies develops apace, there is grave danger that those unable to get or stay connected to the online world will continue to be left behind. As more and more aspects of civic society are pivoted online, the disadvantaged digital elements of our communities will witness their ability to remain active and productive citizens further diminish over time. There is also a pressing need for much more diversity within the tech industry itself. The obvious hostility towards women and individuals from particular ethnic backgrounds from some quarters of the online community needs to end, and the best way for this to happen is for more people from such backgrounds to be welcomed into the industry and given roles and positions that reflect the actual gender and ethnic balance in society itself. It is not just an issue of equality. If the industry continues to embed and codify the values of just one section of society, that of the young to middle-aged White Americanised male, then it can never claim to truly reflect the society in which it has emerged from. And while it cannot be solely blamed for the continually rising levels of income and economic inequalities, big tech is certainly contributing to it by its wide-scale tax avoidance and the enormous remuneration paid to those at the very top. The choice for the tech sector is a dichotomous one; do they see their future as one of inclusivity or one of exclusivity?

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## Chapter 8

# An Increasing Ecological Threat

For all the mobile phones in the world today, the metal in them would have required 450 million tonnes of rock to be dug up, smashed and processed. This is equivalent to 12x the weight of all the cars on UK roads.

The Great Recovery – eWaste

We need to be more responsible about what we use the internet for ... Data centres aren't the culprits – it's driven by social media and mobile phones. Its films, pornography, gambling, dating, shopping – anything that involves images. It's a great example of the Jevons paradox – the easier you make it to consume the product the greater the consumption will be.

Ian Bitterlin

## The Ecological Fallacy of Digitalisation

Although we live in an era of unprecedented technological, scientific and financial development and resources, risks to the global community are also increasing apace and show little signs of diminishing to any great extent. Rules-based multilateralism is under threat in the face of a rise of national self-interest, nativism, protectionism and populism, making efforts at global collective action much more difficult to achieve. There is no issue more pressing at this moment in time for such global cooperation than that of the climate emergency that faces humanity. Climate change is the ongoing increase in average temperature in the earth's atmosphere and the consequences of that rise. The impacts of global warming include changes in rainfall patterns, more extreme storms and weather events, heatwave and drought intensification and rising sea levels right across the world. While there have been previous periods of climatic change in the distant past,

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**The Social, Cultural and Environmental Costs of Hyper-Connectivity:  
Sleeping Through the Revolution, 121–136**



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most of the observed increases in global average temperatures since the mid-twentieth century is very likely due to the observed increase in anthropogenic greenhouse gas emissions.<sup>1</sup> According to the Intergovernmental Panel on Climate Change (IPCC), there is scientific consensus on this issue: that most of the global warming since 1950 has primarily been caused by humans.<sup>2</sup> Yet efforts to tackle climate change are fraught with political and regional difficulties, and many of today's world leaders and key decision-makers appear either paralysed in procrastination or unwilling to acknowledge this scientific consensus. Technology has been lauded in the past for its ability to dematerialise many features of the contemporary world – remember the paperless office – and can be a double-edged sword capable both of doing and undoing damage caused to the environment. There have been innovations in power generation, transport, food, manufacturing and construction made possible by new emerging technologies, but the reality is that digitisation is also now contributing to the climate emergency and putting additional pressure on the planet from several different directions. The consumption of electronic equipment necessary for digital information and communication technology (ICT) is growing at an immense rate while, at the same time, recycling of much of the precious and scarce minerals and materials that go into making up many of these devices is minimal. Recycling or reusing old mobile digital devices can have a positive impact on the environment by saving energy, protecting natural resources and put a stop to many of these scarce minerals and materials going to landfill. Mobiles, smartphones and tablet devices are all packed with reusable materials including precious metals, plastics and copper, and recycling these devices means these materials can be conserved while limiting the air and water pollution that is the result of the mining and production of such devices on such a vast scale. But recycling rates for such digital electronic devices is generally poor.

As digital technology becomes more routine in the workplace, in education and in the home, the need for more and more energy to run our every increasing number of gadgets and technologies must also keep pace. This electrical energy is frequently generated using fossil or nuclear fuels on a considerable scale. Previous generations did not require such levels of energy and power to be available 24/7, unlike the levels we now need to run all these gadgets, in all weathers and seasons. But it's not only about our energy consumption in the home, at work or in education; the overall carbon emissions from the digital ecosystem is significant, not least from the growing number of energy-intensive global data centres springing up all over the planet. With so many people now online with a thirst for expecting whatever, whenever and anywhere, this places even greater pressures on the physical infrastructure underlying the digital world, with consequences for the planet. Heretofore, there has been little public acknowledgement of these ecological pressures from digitisation, and most digital practices and actions are perceived to be positive for the environment. In addition, outsourcing hardware

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<sup>1</sup>Masson-Delmotte et al. (2018).

<sup>2</sup>Global warming of 1.5oC | special report. (2018). *The Intergovernmental Panel on Climate Change (IPCC)*, October. Retrieved from <https://www.ipcc.ch/sr15/>

to the cloud further breaks our link with the truth of its actual impacts. In fact, the ecological pressures from digital ICT tends to be small in individual cases but universal in use and consumption, and widely dispersed across many people and organisations, and there is little systems thinking with regard to overall digital environmental impacts. What's more, despite their public persona as progressives, the biggest and most influential tech companies are now making deals and partnering with oil companies, the aim of which is to streamline, improve and render oil and gas extraction operations more profitable. Rather than using their cutting-edge innovation, skills and experience to mitigate the direst threat to human civilisation at this moment in time they are helping to accelerate the process of climate change. They are also allowing their platforms to be regularly used as podiums for misinformation and falsehoods against the scientific consensus of man-made climate change, abdicating their social responsibilities in this regard and washing their hands of the consequences.

## **The Ecological Reality: (Over)Consumption and Mounting Waste**

The consumption of electrical and electronic equipment (EEE), of which new digital ICT are a key part, is strongly linked to widespread global economic development over the recent decades. They have become almost indispensable in contemporary society, but their production and consumption can be extremely resource demanding. In addition, after their use, such equipment is commonly disposed in landfill rather than recycled, generating an unwanted stream which is referred to as e-waste. The electronics industry is typically divided between consumer electronics, electric utilities and general electronics, but it is consumer electronics that has driven most of the growth in the sector in the recent past. According to the *Global Electronic Components Market 2020 Research Report*, the worldwide market for electronic components is predicted to grow at a compound annual growth rate of about 4.8 per cent from 2020 to 2025.<sup>3</sup> The main drivers of this future consumer electronic growth includes rising demand for smartphones, artificial intelligence (AI) and voice recognition technology, and the replacement cycles and falling prices of many electronic devices serve to supercharge continued production and consumption. The Consumer Technology Association predicts that the US consumer technology retail revenue will be \$422 billion in 2020, a 4 per cent increase compared to 2019 figures.<sup>4</sup> This includes sales from both standard consumer electronics revenue items such as smartphones, laptops and televisions, as well as revenue from new emerging technologies and

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<sup>3</sup>Global electronic components market 2020 by manufacturers, regions, type and application, forecast to 2025. (2020). *360 Market Updates*, January 6. Retrieved from <https://www.360marketupdates.com/global-electronic-components-market-14830923>

<sup>4</sup>Cassagnol, D. (2020). Consumer tech U.S. sales to reach record \$422 billion in 2020; streaming services spending soars, says CTA. *Consumer Technology Association*, January 5. Retrieved from [https://www.cta.tech/Resources/Newsroom/Media-Releases/2020/January/Consumer-Tech-U-S-Sales-to-Rreach-Record-\\$422-B-%281%29](https://www.cta.tech/Resources/Newsroom/Media-Releases/2020/January/Consumer-Tech-U-S-Sales-to-Rreach-Record-$422-B-%281%29)

streaming services. The global consumer electronics market is now valued at \$1 trillion US dollars and is estimated to grow by over 7 per cent yearly between 2020 and 2026, again driven by the sale of smartphones, wearable technologies and digital home appliances.<sup>5</sup> What does not appear to be in doubt is that there will be exceptional growth in consumer electronics over the coming years, spurred by the production and sales in mobile computing, mobile communication devices and a wide range of assorted digital home technologies. But such large upscale in production of personal digital electronic items is followed by the unavoidable increase in waste, and the resultant ecological harm to the planet. The industry is linked to a rapidly increasing use of natural resources and energy and such highly developed and distributed systems cause substantial environmental and social problems along the entire value chain, from resource extraction to production, use and disposal.<sup>6</sup>

Rapid technological development and change, low initial cost and planned obsolescence<sup>7</sup> have all resulted in a fast-growing excess which greatly contributes to the ever-increasing amount of global electronic waste. E-waste is an ominously growing problem worldwide because the amount of such surplus is growing at an extremely rapid pace each year, and the necessary levels of recycling of such electronic equipment is not keeping pace. At least \$10 billion worth of gold, platinum and other precious metals are dumped every year in the growing mountain of electronic waste that is polluting the planet, according to a 2020 UN report.<sup>8</sup> Overall, the value of selected raw materials from such e-waste was equal to approximately \$57 billion in value. Declaring that the quantity of e-waste was increasing at an alarming rate, the report pointed to approximately 53.6 million metric tons (Mt) of e-waste generated annually, that is about 7.3 kg for every man, woman and child on the planet, and estimated that the amount would exceed 74 Mt by 2030. In the case of mobile devices such as tablets and smartphones, they contain several high-tech scarce minerals and although the quantity of these in each device is relatively small, billions of discarded digital devices must be recognised as an essential source of these precious materials. Like other electronic devices, mobile information and communication devices consist of a variety of substances such as plastics and ceramics, as well as several precious and rare metals. Specifically, the main such minerals that feature in mobile phones are palladium and cobalt, while the common materials found in smartphones are antimony, beryllium, cobalt, neodymium, platinum, praseodymium and palladium.<sup>9</sup> Many of these

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<sup>5</sup>Wadhvani, P., & Saha, P. (2020). Consumer electronics market size by product. *Global Market Insights*, August. Retrieved from <https://www.gminsights.com/industry-analysis/consumer-electronics-market>

<sup>6</sup>Welfens, Nordmann, and Seibt (2016).

<sup>7</sup>Planned obsolescence is the purposeful and artificial limiting of a product lifespan or a design of the product so that it becomes no longer functional or out of fashion or obsolete after a fixed period of time.

<sup>8</sup>Forti, Baldé, Kuehr, and Bel (2020).

<sup>9</sup>Gu, Summers, and Hall (2019).

are high-value, high-tech minerals and have limited natural deposits and cause significant environmental and social impacts when extracted from nature. With a current estimate of 5 billion smartphone in use across the world, mining these metals and minerals is a crucial activity that underpins the contemporary global economy, in particular the tech sector. Such extraction is fraught with issues of safety, social justice and ecological harm, with implications for human health such as drinking water contamination, a reduction in air quality and loss of vegetation and deforestation in these mining regions.

One of the more disturbing examples of the environmental cost of our remorseless desire for the smartphone and other digital mobile devices is the ‘world’s tech waste lake’ in Baotou, China.<sup>10</sup> Created in 1958, this artificial lake in a remote corner of Inner Mongolia collects the toxic sludge from rare earth processing operations that go towards creating our smartphones, consumer gadgets and green tech. The area is one of the world’s biggest suppliers of rare earth minerals, and it’s estimated that the Bayan Obo mines, just north of Baotou, contain 70 per cent of the world’s reserves of such materials. While these high-value, rare minerals have been a significant driver for the Chinese economy over the recent past, extracting them from nature has come at a very high environment cost for those living close by. The wastewater lake lacks a proper lining, and for the past 20 years, its toxic contents have been seeping into groundwater. It is trickling towards the nearby Yellow River, a major drinking water source for much of northern China, at a rate of 20–30 metres a year. Other countries too with rare earth minerals have been unmistakably exploited by those seeking to profit from the booming worldwide digital device industry. Years of violence and political conflict in the Democratic Republic of Congo (DRC) have made its vast mineral wealth an attractive and quick revenue generator, and various rebel groups have wrestled for control of its supply. The coltan mining industry in that country, and the prized metal tantalum extracted from it, is regarded as a ‘conflict mineral’,<sup>11</sup> closely linked to environmental damage and a range of human rights abuses similar to diamond mining in that country. Copper and cobalt mined in the DRC is used in a significant number of consumer digital electronics. But, it is claimed, that the human rights violations and environmental harm caused by Katanga’s industrial mining industry are not only serious but also structural.<sup>12</sup> There are reports of extreme environmental harm being done such as the discharge of contaminated wastewater from mining operations into the Dikanga River resulting in the water being unfit for human consumption; the exposure of communities

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<sup>10</sup>Maughan, T. (2015). The dystopian lake filled by the world’s tech lust. *The BBC*, April 2. Retrieved from <https://www.bbc.com/future/article/20150402-the-worst-place-on-earth>

<sup>11</sup>The term ‘conflict minerals’ is defined as columbite-tantalite, also known as coltan (from which tantalum is derived); cassiterite (tin), gold, wolframite (tungsten) or their derivatives or any other mineral or its derivatives determined by the US Secretary of State to be financing conflict in the Democratic Republic of the Congo or an adjoining country: <https://www.sourceintelligence.com/what-are-conflict-minerals/>.

<sup>12</sup>Scheele, De Haan, and Kiezebrink (2016).

to fumes, dust,<sup>13</sup> noise and air pollution throughout the day and night; land and livelihood rights violations; and the forced relocation of entire indigenous communities. These rare, high-value minerals and chemical elements have now been included on an 'endangered list' because they are being thrown away in mobile digital devices such as smartphones at such a high rate.<sup>14</sup> Scientists warn that some of these materials are becoming increasingly scarce due to limited supplies, their location in conflict zones and the lack of digital device recycling.

More than 90 per cent of additional materials used in mobile digital devices such as tablets and smartphones can be recycled and reused to make other products including jewellery, plastic fencing and new batteries. But, at present, recycling rates remain extremely low with a series of factors been identified for this including regional, educational, income, personal or social norms, insufficient financial incentives, fear of privacy leakage, a lack of collection systems or knowledge of collection systems and limited information and technology availability.<sup>15</sup> A global build-up of discarded but not defunct digital devices was highlighted in an index of 27 countries, which analysed current levels of reuse and recycling.<sup>16</sup> The report painted a bleak picture with regard to reuse or recycling and found that the total number of shelved phones, for example, for the 27 countries equates to a sales value of €1.9 billion in precious metals such as gold, silver, palladium, platinum and copper. Also worryingly, e-waste is mostly managed by the informal sector in some countries and is often handled under inferior conditions, causing damaging health effects to workers as well as the children who often live, work and play near e-waste management facilities.<sup>17</sup> The vast bulk of such e-waste generated is mostly likely not formally collected and not managed in an environmental sound manner and in some cases shipped to developing countries for disassemble and where they are often mined for the small portions of copper wiring they contain. Copper cables are seared in fires to burn off their rubber coating, sending plumes of noxious black smoke into the already polluted air around such facilities.<sup>18</sup> The UN report suggests that in these middle- and low-income countries, the e-waste management infrastructure is not yet fully developed or, in some cases, is entirely

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<sup>13</sup>Chronic exposure to such dust can lead to potentially fatal hard-metal lung disease. It can also lead to a variety of other pulmonary problems, including asthma, decreased lung function and pneumonia. Previous research has shown that people living close to DRC's mines had 43 times the level of cobalt, five times the level of lead and four times the level of cadmium and uranium in their urine than is considered normal.

<sup>14</sup>Element scarcity - EuChemS periodic table. *The European Chemical Society*. Retrieved from <https://www.euchems.eu/euchems-periodic-table/>

<sup>15</sup>Gu et al. (2019, p. 2).

<sup>16</sup>2020 Mobile phone e-waste index. (2020). *rebuy*, November 12. Retrieved from <https://www.rebuy.de/s/mobile-ewaste-index-en>

<sup>17</sup>Forti et al. (2020).

<sup>18</sup>German photographer Kai Löffelbein spent seven years documenting how those metals are extracted, often under dangerous conditions, by some of the world's poorest people. His book, *CTRL-X: A Topography of E-Waste*, contains photographs taken in Ghana, China and India, where much of the world's e-waste ends up.

absent, and that the existing way in which we produce, consume and dispose of e-waste is unsustainable in the long run.<sup>19</sup>

## **The Insatiable Energy Demands of the Digital Age**

While recycling rates for digital electronic devices used to boost the mobile communications infrastructure and services are low, leading to the loss of high-value minerals and chemicals and conflict over the remaining rare earth materials in nature, the energy needed to power digitalisation is sufficiently great to give rise to some serious concerns. The digital ICT industry has received limited attention, heretofore, for its contribution to greenhouse gas emissions and, if anything, is often praised for enabling efficiencies that help reduce other industry sector's carbon footprint. A 2018 Canadian study conducted a detailed and rigorous analysis of the digital ICT industry's global carbon footprint, including both the production and the operational energy of the devices used to power the networks, as well as the operational energy for the supporting infrastructure.<sup>20</sup> They found that, if unchecked, the industry's greenhouse gas emissions relative contribution could grow to exceed 14 per cent of 2016 worldwide levels by 2040, accounting for more than half of the current relative contribution of the global transportation sector. In highlighting the contribution of smartphones, they showed that by 2020, the carbon footprint of these devices alone should have surpassed the individual contribution of desktops, laptops and displays combined.

As the digital boom continues apace, there is now a growing deployment of technologies grouped under the term 'Internet of Things' (IoT),<sup>21</sup> a global network of interconnected objects and devices that are uniquely addressable through standard communication protocols. In the coming years, there may be as many as 30 billion objects connected to the internet, all of which require to be powered by some source of energy. These interconnected devices may, of course, yield some direct energy savings, but regulators and policy-makers must ensure that the benefits from the IoT do not come at the expense of rising and harmful energy consumption. An Australian study, focussed at the household level, examined the consumption and use of digital ICT and how technology practices change with life course transitions such as children moving through the education system.<sup>22</sup> They found that the use of multiple devices simultaneously, particularly when this included live streaming of high-resolution video and audio, was increasing

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<sup>19</sup>Forti et al. (2020, p. 9).

<sup>20</sup>Belkhir and Elmeligi (2018).

<sup>21</sup>The Internet of Things (IoT) is a network of physical objects - such as home appliances, vehicles or other such devices - that use sensors and APIs to connect and exchange data over the internet. As broadband internet services become more widely available, the cost of connecting continues to decrease, more devices are developed with Wi-Fi capabilities and built-in sensors, technology costs fall and smartphone penetration continues skyrocket: all these create the perfect environment in which the IoT thrives.

<sup>22</sup>Lane, Follett, and Lindsay (2018).

in households with teenagers and young adults and that, if unchecked, would become a significant driver of energy demand into the future.

The expectations and hopes placed on the shoulders of digitalisation for reducing energy consumption have not yet been justified. Instead of saving energy, digitalisation has brought a number of additional and significant energy consumption needs and pressures.<sup>23</sup> Indeed, in many instances, increases in energy efficiency leads to the ‘Jevons Paradox’ – also known as the ‘rebound effect’ – which is the belief that increased energy efficiency often simply leads to increased energy consumption.<sup>24</sup> So, while the digital ICT industry is being lauded for its potential to be energy efficient and to dematerialise aspects of contemporary life that are currently energy intensive, the reality is that the industry’s own carbon footprint is increasing, and this issue is not receiving the due attention it deserves. This growing problem is epitomised by the digital tech sector’s growing dependence on the use of mega-data centres, which use immense quantities of energy to power its expanding digital and cloud services.

Data centres are huge computer warehouses that store massive amounts of data that meet the daily needs and service requirements of individuals and businesses alike and can be said to be the backbone of the modern digital economy. Their role in the digital ecosystem is to process, store and communicate the data behind the myriad of information services we rely upon everyday whether it be streaming video, email, social media, online collaboration or other forms of computing. They are vast factories of data, often bigger than aircraft carriers, with tens of thousands of circuit boards racked row upon row in cabinets to utilise space, stretching down long windowless halls; so long in fact that in many cases, staff ride through these halls on scooters or other mechanised mobility vehicles. They run all day and all night, all year round and so are extremely energy intensive. Such energy demand does not only derive from the storage of data alone, but it also entails extensive cooling systems and equipment, lighting, power distribution and other such requirements, making such data centres up to 100 times greater in energy consumption than a standard office accommodation. The boom in digital content, big data, e-commerce and overall internet traffic is making data centres one of the fastest-growing consumers of electricity in some developed countries, putting pressure on the energy infrastructure and raising questions about the sector’s expanding carbon footprint.

Demand for digital services continues its exceptional growth, as does its energy consumption, and this has given rise to concerns about the ability of the sector

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<sup>23</sup>Lange, Pohl, and Santarius (2020).

<sup>24</sup>William Stanley Jevons, in his 1865 book *The Coal Question*, observed that the invention in Britain of a more efficient steam engine meant that the use of coal became economically viable for many new uses. This ultimately led to increased coal demand and increased coal consumption, even as the amount of coal required for any particular use fell. Although the energy consumption at the micro-level (for the individual) goes down, overall energy consumption at the macro-level (for societies) increases due to the combined increase in use from all individuals.

to be sustainable in some locations and regions. Uptime Intelligence suggests that it is likely that some models have underestimated the energy data needs and the resulting carbon emissions, and that this issue will become more critical in the years ahead.<sup>25</sup> They use some examples to illustrate this point. Bitcoin mining is reliably estimated to have consumed over 73 terawatt-hour (TWh) of energy in 2019. This equates to the electricity use of 6.8 million average US households or 20 million UK households. This is just one cryptocurrency and just one application area of blockchains; there are estimated to be over 1,500 such cryptocurrencies. Online social media provides another sector of runaway energy use. For example, every time an image is posted on Instagram by the Portuguese football star Cristiano Ronaldo his more than 188 million followers consume over 24 megawatt hours (MWh) of energy just to view it. Streaming a two-and-a-half-hour high-definition (HD) movie consumes one kilowatt hour (kWh) of energy, but for 4K (Ultra HD) streaming this will be closer to 3 kWh, a threefold increase. Media streaming represents the biggest proportion of global online traffic and is steadily rising making it the real energy consuming monster of the modern internet. Such video streaming emits as much CO<sub>2</sub> as Spain – over 300 Mt per year – a Shift Project report has found.<sup>26</sup> The 2019 investigation found that the digital ICT sector, including data centres, currently generates up to 4 per cent of global CO<sub>2</sub> emissions with consumption growing by 9 per cent per year. Data centres alone are estimated to have the fastest-growing carbon footprint from across the entire tech sector.<sup>27</sup> And what of recent energy efficiency innovations?

Although the last two decades have seen major energy efficiency improvements, predictions suggest that these may be coming to an end, and this should be a source of some considerable unease. The immense growth in data centre energy use beyond 2020 is uncertain as modelled trends indicate that the efficiency measures that worked in the past may not be enough for the data centre workloads of the future.<sup>28</sup> Successful stabilisation of data centre energy consumption will require new innovations in efficiency to decouple electricity demand from the ever-growing demand for data centre services. No one envisages a reduction in demand for the digital services offered by data centres in the near future meaning energy demand will only increase in the coming decades, so new efficiency innovations and a commitment to decarbonise the industry are needed if the sector is to be seen as ecologically responsible in the face of the increasing climate emergency. That data centre operators are switching to renewable energy must be viewed in a positive light, but none has entirely ditched fossil fuels completely. Amazon, Google and Microsoft are the top three cloud providers and account for approximately two thirds of all rentable computing services. In an article for *Wired* magazine,

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<sup>25</sup>Bashroush, R. (2020). Data center energy use goes up and up and up. *Uptime Institute*, January. Retrieved from <https://journal.uptimeinstitute.com/data-center-energy-use-goes-up-and-up/>

<sup>26</sup>Efoui-Hess (2019).

<sup>27</sup>Avgerinou, Bertoldi, and Castellazzi (2017).

<sup>28</sup>Shehabi, Smith, Masanet, and Koomey (2018).

Daniel Oberhaus maintained that these companies lean heavily on a tool known as a renewable energy credit, which is basically a token representing a utility's green energy generation.<sup>29</sup> These energy credits are how companies like Google and Microsoft can claim their data centres are powered 100 per cent by renewables while still being connected to power grids that use fossil fuels. In reality, only a fraction of each company's energy comes directly from solar or wind installations; the rest comes from these renewable energy credits. For example, Greenpeace claimed that Amazon Web Services is only meeting 12 per cent of its renewable energy commitment as its East Coast presence and energy demand grows.<sup>30</sup> Greenpeace USA Senior Corporate Campaigner Elizabeth Jardim claimed:

[D]espite Amazon's public commitment to renewable energy, the world's largest cloud computing company is hoping no one will notice that it's still powering its corner of the internet with dirty energy.<sup>31</sup>

## **Big Tech's Clandestine Role in Intensifying Climate Breakdown**

While digital big tech firms frequently proclaim themselves as climate change champions and pioneers and frontrunners in the use of renewable energy and clean technology, a different reality emerges when we look closer at the link between the sector and major oil exploration and production companies. Just two years ago – in 2018 – Google created an oil and gas division with the explicit aim of attracting business from the fossil fuel industry.<sup>32</sup> Microsoft and Amazon also offer data management services to fossil fuel companies. This is part of a growing trend that we are witnessing as the dominant tech companies team up with oil giants to use automation, AI and big data services to enhance oil exploration, extraction and production. Google specifically promises that its machine-learning tools, combined with its cloud service, can help these companies better act on

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<sup>29</sup>Oberhaus, D. (2019). Amazon, Google, Microsoft: Here's who has the greenest cloud. *Wired*, December 10. Retrieved from <https://www.wired.com/story/amazon-google-microsoft-green-clouds-and-hyperscale-data-centers/>

<sup>30</sup>Craighill, C. (2019). Greenpeace finds Amazon breaking commitment to power cloud with 100% renewable energy. *Greenpeace*, February 13. Retrieved from <https://www.greenpeace.org/usa/news/greenpeace-finds-amazon-breaking-commitment-to-power-cloud-with-100-renewable-energy/>

<sup>31</sup>Craighill, C. (2019). Greenpeace finds Amazon breaking commitment to power cloud with 100% renewable energy. *Greenpeace*, February 13. Retrieved from <https://www.greenpeace.org/usa/news/greenpeace-finds-amazon-breaking-commitment-to-power-cloud-with-100-renewable-energy/>

<sup>32</sup>Matthews, C. M. (2018). Silicon Valley to big oil: We can manage your data better than you. *The Wall Street Journal*, July 24. Retrieved from <https://www.wsj.com/articles/silicon-valley-courts-a-wary-oil-patch-1532424600>

their data. In other words, the Google service could help the fossil fuel industry extract oil and gas from existing reserves faster and more efficiently. Microsoft is also actively courting the fossil fuel industry. In 2019, the company announced a partnership with the oil and gas giants Chevron and Schlumberger to build upon the creation of innovative petrotechnical and digital technologies using the Azure platform. The partnership provoked an angry response from a coalition of Microsoft employees who accused the company of ‘complicity in the climate crisis’.<sup>33</sup> This response led to a walkout by Microsoft employees as part of the global climate strike. Microsoft is also exploring the use of natural gas to power its data centres. While natural gas does offer some energy efficiency improvements, it is not a renewable resource and thus contributes to the company’s overall carbon footprint. In an interview with *The Real News Network*, technology author and reporter Brian Merchant explored these links between big tech and big oil and framed the consequences in the following way:

Google is assisting [sort of] old school oil and energy firms in Houston to compete with clean energy ventures, giving them access to big data services, giving them access to sophisticated, high-tech tools to compete with clean energy startups. So in some cases they’re actually not only [sort of] accelerating the drive to extract and burn fossil fuels, they’re actually helping the companies doing that to compete and put out of business the clean tech startups that are hoping to move us towards a cleaner, lower emissions means of energy production.<sup>34</sup>

So, while Google, Microsoft and Amazon are putting on a knowledgeable air with regard to climate change and eulogise their own clean energy credentials, they are in reality deep into the process of automating the climate crisis. These tech companies, the climatologist Michael Mann says, have a responsibility to use their capacity for innovation to mitigate the climate crisis, not worsen it.<sup>35</sup>

But at a micro-level, how is the science of climate change being presented and delivered by these tech giants on their social media platforms to individual subscribers and users of such services? While the likes of Facebook and Twitter often receive the most attention when it comes to concerns over misinformation and fake news, the majority of YouTube videos about the climate crisis oppose the scientific consensus and such posts often ‘hijack’ technical terms to make them

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<sup>33</sup>Microsoft workers for climate justice. (2019). *Microsoft Employees*, September 18. Retrieved from <https://github.com/MSworkers/for.ClimateAction>

<sup>34</sup>Lascaris, D. (an interview with Brian Merchant). (2019). How big tech helped big oil automate the climate crisis. *The Real News Network*, April 1. Retrieved from <https://therealnews.com/stories/how-big-tech-has-helped-big-oil-automate-the-climate-crisis>

<sup>35</sup>Merchant, B. (2019). How Google, Microsoft, and big tech are automating the climate crisis. *Gizmodo*, February 21. Retrieved from <https://gizmodo.com/how-google-microsoft-and-big-tech-are-automating-the-1832790799>

appear more credible, a recent study has found.<sup>36</sup> YouTube is part of the Alphabet family of subsidiaries, which includes Google. The study concluded that social media websites and video platforms without editorial control, such as YouTube, provide a very fertile ground for conspiracy theorists and opponents of mainstream science because there are no gatekeepers, and hence, no quality control is taking place on such channels. This means anybody and everybody can upload contents, no matter if it is accurate, verifiable, truthful or not. Why is this so important, you might ask?

A 2018 survey by the Pew Research Center found that 21 per cent – that is more than one in every five people – get their news from YouTube.<sup>37</sup> Another survey, conducted in Germany, reported that about 50 per cent of individuals between the age of 14 and 29 years were using YouTube and other such online video sites to learn about science sometimes or very often.<sup>38</sup> Concerns about the role big tech is playing in the spread of misinformation on the scientific consensus around climate change continues to grow. The head of the US House Committee on Climate Change, Kathy Castor, in a letter in January 2020 to Google CEO Sundar inquired why a company that has been so outspoken in its support of policies to combat climate change outwardly continues to allow its hugely popular video platform to serve as a forum for material that casts doubt on settled science and the urgency of the problem, thus tacitly supporting such mistruth.<sup>39</sup> More damning is an extensive investigation by Avaaz, an online activist network, which found that YouTube is actually driving millions of people to watch climate misinformation videos and that their recommendation algorithm is giving these videos free promotion to audiences who would not have otherwise been exposed to them.<sup>40</sup> YouTube are further incentivising this climate misinformation content through its monetisation programme. Every time an ad is shown on a YouTube video, the advertiser pays a fee, of which 55 per cent goes to the video creator. It appears that promoting man-made climate change denial will make you money on YouTube. The platform has also made substantial contributions to some of the more notorious climate change deniers in Washington DC despite its insistence that it supports political action to tackle the ongoing crisis.<sup>41</sup> The list of recipients of such financial support includes

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<sup>36</sup>Allgaier (2019).

<sup>37</sup>Shearer and Matsa (2018).

<sup>38</sup>Science barometer 2018. *Wissenschaft im Dialog (Science in Dialogue, WiD)*. Retrieved from <https://www.wissenschaft-im-dialog.de/en/our-projects/science-barometer/science-barometer-2018/>

<sup>39</sup>Corbin, K. (2020). Lawmaker wants to know why climate misinformation is rampant on YouTube. *Forbes*, January 28. Retrieved from <https://www.forbes.com/sites/kennethcorbin/2020/01/28/lawmaker-wants-to-know-why-climate-misinformation-is-rampant-on-youtube/>

<sup>40</sup>Avaaz (2020).

<sup>41</sup>The updated biannually list of politically engaged trade associations, independent third-party organisations and other tax-exempt groups that receive the most substantial contributions from Google's US Government Affairs and Public Policy team at [https://services.google.com/fh/files/misc/trade\\_association\\_and\\_third\\_party\\_groups.pdf](https://services.google.com/fh/files/misc/trade_association_and_third_party_groups.pdf).

the Competitive Enterprise Institute (CEI), a conservative policy group that was instrumental in convincing the Trump administration to abandon the Paris agreement. By sowing the seeds of confusion and misinformation, Google is helping to muddy the water with regard to the causes of the crisis, something that very evidently goes against the scientific consensus of anthropogenic climate change. The intrinsic danger being: people who are regularly misled to believe that scientists disagree on climate change tend to feel less certain that it is occurring and show less support for policies designed to mitigate the crisis.

But it is not only YouTube and Google that is casting doubt on the settled science of climate change. By sticking by its non-interventionist policy when it comes to misleading news content, Facebook have become a purveyor of false and dishonest news, accomplices in efforts by climate change deniers to sow confusion and misinform the general public. In one such instance, Facebook facilitated the spread of climate denial misinformation to about five million users,<sup>42</sup> and in another recorded instance, a misleading article linking climate change to Earth's solar orbit racked up 4.2 million views on the platform and was widely shared.<sup>43</sup> While tech giants have recently taken steps to remove, or label as false, potentially harmful misinformation on the Covid-19 pandemic, there has been a seeming acceptance of those who spread false theories on the climate crisis. Michael Mann of Pennsylvania State University, one of the world's best-known climate scientists, told the news website ThinkProgress; 'when it comes to efforts to avert catastrophic climate change, Facebook is no ally. They are an enemy'.<sup>44</sup> The relentless growth, and ongoing proliferation of social media, gives rise to irrational doubt and importantly endangers trust in climate science, and science in general, as was shown in other recent discussions about fake news.<sup>45</sup> Our emotions can, and often do, shape our beliefs more than logic, and as people skim through content on the internet in a state of constant distraction, they can easily get carried away with these emotions and their partisanship rather than relying on reasoning.<sup>46</sup> As the internet is currently organised, individuals can be easily persuaded to hurry and feel rather than stop and think, and this is compounding the

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<sup>42</sup>Nuccitelli, D. (2018). Facebook video spreads climate denial misinformation to 5 million users. *The Guardian*, July 25. Retrieved from <https://www.theguardian.com/environment/climate-consensus-97-per-cent/2018/jul/25/facebook-video-spreads-climate-denial-misinformation-to-5-million-users>

<sup>43</sup>Boyle, L. (2020). 'Everybody's entitled to their opinion - But not their own facts': The spread of climate denial on Facebook. *Independent*, July 23. Retrieved from <https://www.independent.co.uk/environment/climate-crisis-denial-facebook-global-warming-denier-social-media-a9595546.html>

<sup>44</sup>Romm, J. (2019). Facebook is a big obstacle to averting climate catastrophe, scientists say. *ThinkProgress*, May 29. Retrieved from <https://thinkprogress.org/facebook-misinformation-pelosi-climate-science-8bc80493ac7c/>

<sup>45</sup>Weingart and Guenther (2016).

<sup>46</sup>Harford, T. (2020). Facts v Feelings: how to stop our emotions misleading us. *The Guardian*, September 10. Retrieved from <https://www.theguardian.com/science/2020/sep/10/facts-v-feelings-how-to-stop-emotions-misleading-us>

spread of misinformation and falsehoods with regard to climate science. More worryingly, this rush to adopt a position on the cause of the climate crisis is pushing some to openly doubt the mounting available evidence purely and only in the service of political partisanship.

The scientific evidence of anthropogenic climate change is overwhelming, and our views on this should not be a case of left or right ideology. But worryingly, it appears it is. What people profess about the climate crisis does not reflect what they know; it expresses who they are. These were the findings from an independent US study designed to disentangle what people know from who they are in assessing their comprehension of climate science.<sup>47</sup> The study found that Democrats become more likely, and Republicans less likely, to say they believe in human-caused global warming. Yet a large percentage of Republican voters who told pollsters they do not believe in man-made climate change do, in fact, know the most important thing there is to understand about the crisis: that adding carbon to the atmosphere causes the temperature of the earth to increase. Thus, articulating your views on climate change does not convey what you know about the science, but it expresses who you are, particularly in the ideological battle for the soul of America. This is a tragedy of the 'science communications commons', and if we want to overcome it, then we must disentangle competing positions on climate change from opposing cultural identities so that informed pluralistic citizens are not put in the position of having to choose between knowing about the science and being who they are.<sup>48</sup> Individuals should be allowed to think and reason for themselves, free of the distorting impact of the partisanship that individuals view as protecting their own political meaning and self of identify. But the shift from a minimal choice to an extensive choice new digital media and news landscape has led to a strengthening of the emotional and psychological wedge between opposing cultural groups. Yet another reason why, despite the rhetoric and 'for the common good' narrative propagated by the digital oligopoly, these megacorporations should not be allowed free reign to continue to spread misinformation and untruths and should be held to a much higher standard than heretofore, while been compelled to honour their corporate social responsibilities and public utterances.

## **Digital Technology Alone Cannot Save Us?**

Digital ICT has developed extraordinarily over the past two decades and have become almost a near universal subject of faith for some; a faith that proposes that new technologies will solve all the problems facing societies across the world. Not least in this line of problems facing humanity is the urgent issue of climate change. But few of us seem to appreciate that technology may have, in fact,

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<sup>47</sup>Kahan (2015).

<sup>48</sup>Kahan, D. (2014). What you 'believe' about climate change doesn't reflect what you know; it expresses \*who you are\*. *The Cultural Cognition Project*, April 23. Retrieved from <http://www.culturalcognition.net/blog/2014/4/23/what-you-believe-about-climate-change-doesnt-reflect-what-yo.html>

exacerbated many of our current environmental and social problems and hastened the climate emergency. In *Techno-Fix*, Michael and Joyce Huesemann carefully outline the reasons why many technological solutions to social and environment problems are ineffective and the inherent limitations of modern technology can create unintended and unavoidable consequences, some of them irreversible.<sup>49</sup> While not simply focussed on digital technology, they explore in depth some of the many unintentional environmental and social consequences of modern technologies ranging from environmental pollution, global warming, species extinction, topsoil loss and ecological disruptions by genetically engineered organisms to social alienation, high-tech weaponry, human overpopulation and the decline in biological fitness. They persuasively argue that it will require a near complete revision of attitudes towards technologies and towards the puerile notion that science and technology are 'value free' and call for a re-evaluation of our assumptions about technology systems and their relationship to power structures and equity. Their call is a powerful one: one that asks us to be much more critical about the assumptions and blind techno-optimism that is prevalent in society. If digital technologies are to play a role in alleviating the extremes of the climate crisis, then the present crop of digital platforms and megacorporations must be forced to be much more responsible and accountable in their intent, and for their actions. But big tech does not appear to have the imagination nor the will to tackle the most pressing concern facing humanity rather; they are content to embrace an (over)consumption mindset that has led us to the edge of this abyss. They are happy, as corporations, to fiscally bloat beyond recognition, all the while delivering platitudes of the virtues of their social and ecological responsibilities that do not match their actual actions.

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<sup>49</sup>Huesemann and Huesemann (2011).

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## Chapter 9

# Digital Democracy: The Winners and Losers

Free and fair elections are the heart of every democracy. During the 2016 election, we were actively looking for traditional cyberattacks, and we found them. What we didn't find until later were foreign actors running coordinated campaigns to interfere with America's democratic process.

Mark Zuckerberg

There is no reason to believe that the foundation for liberty in cyberspace will simply emerge. Indeed, the passion for that anarchy – as in America by the late 1890s, and as in the former Eastern bloc by the late 1990s – has faded. Thus as, our framers learned, and as the Russians saw, we have every reason to believe that cyberspace, left to itself, will not fulfill the promise of freedom. Left to itself, cyberspace will become a perfect tool of control.

Lawrence Lessig

## The Digital Promise of Democracy

From the early days of the internet, the influence, power and reach of such hyper-connectivity was acclaimed as a potential vital instrument in democratising the world. There was a somewhat naïve assumption that once people were exposed to the virtues of democracy through the medium of the information super-highway, there would be inevitable civic transformation and popular uprisings towards such a political system driven by masses of well-informed citizens of former authoritarian and communist regimes. Many of these states and regions simply needed to know about the merits of democracy to completely and unequivocally embrace this political system, and they would get this understanding

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**The Social, Cultural and Environmental Costs of Hyper-Connectivity:  
Sleeping Through the Revolution, 137–153**



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directly from the internet. And the basis of such optimism was promising. The outwardly unstoppable march of freedom that began in the 1980s and culminated, by the end of that decade, in the fall of communism in the Soviet Union brought with it a sense of victory: a sense of good winning over evil, of a world of common-sense politics prevailing over the perverse and malevolence. The triumph of the West, of the Western civilisation ideals, was evidence, it was claimed, of the total exhaustion of viable systematic alternatives to Western liberalism leading to what Francis Fukuyama termed 'The End of History'.<sup>1</sup> In other states like China that called themselves communist, political and economic reforms were also heading in the direction of a liberal order, he claimed. But lethargy set in over the following decades with regard to approaches to international democratisation that was to see the resurgence of authoritarianism and the emergence and rise of a new form of populism that has now engulfed countries right across the world: from Brazil to Hungary, to Turkey, Egypt and the United States. All the while digital information and communication technology (ICT) was held out as a sabre of freedom that merely needed a deeper appreciation and activation and a willing population to revolutionise, reform and direct towards democracy. People would march to freedom just waving their smartphones in the air. Whether it was the 2009 Iranian 'Twitter' revolution, the Arab Spring or the more recent efforts of Hong Kong residents to retain a semblance of their own autonomy, all these civic uprisings and conflicts would be powered by the freedom enabled by the internet and a host of smart devices and that would ultimately lead to good triumphing over evil.

It is a very seductive notion to think that information alone sets us free and that access to the internet with its vast stores of information will lead those oppressed by authoritarians into the light of democracy. But such technological determinist thinking ignores the underlying social and economic realities that pre-exist and that are the real grounds for civil disobediences and revolution within nations in favour of simplistic cyber-utopianisms unreal expectations as to the power of digital technology and a raft of technological quick fixes. Such high expectations of what digital technology could achieve in democratising the world have today given way to the reality that these very same digital technologies have now been weaponised by other more sinister darker forces in the world and have ironically and skilfully been turned against the very pillars of democracy itself. While many within established Western democracies dithered and failed to truly understand and embrace the real power inherent in digital ICT, others were less hesitant and seized upon the opportunity to use the technology to undermine the institutions of democracy in some of the leading countries of the West. Western liberal democracies not only have failed to truly understand the power that has been unleashed, many of them have been complicit in allowing such a situation develop in the first instance. By failing to rein in the immense influence, power and reach of big tech authorities in the West has abducted their responsibilities to protect their democracies and, in turn, have left their citizens helplessly exposed to persistent misinformation, lies, fake news and manipulation on a vast scale. Yet

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<sup>1</sup>Fukuyama (1989).

while countries comforted themselves with blankets of cyber-delusionism, a few lone tech writers have been sounding the alarm bells for some time now.

## Watching Freedom Fail

Evgeny Morozov is a writer, researcher, and intellectual from Belarus who studies the political and social implications of digital ICT. His 2011 book, *The Net Delusion*, challenges the myth of 'internet freedom' and argues that technology has failed to democratise the world as some had previously told us would happen.<sup>2</sup> Behind many of the eloquent words spoken in high praise of digital ICT lies a combination of utopianism and ignorance that grossly misrepresents the internet's political role and potential. Morozov argues that the West's irresponsible promotion of technological tools as pro-democratic agents has provoked a backlash from authoritarian regimes to crack down on online activity, not just closing down or blocking websites but using online social platforms to infiltrate protest groups and track down protesters and dissenters. They are also sowing the seeds of their own agenda and propaganda online and generally out-resourcing and out-smarting their own beleaguered people and governments of the West. Two misapprehensions about digital information technology, in particular, concern Morozov: cyber-utopianism and internet-centrism. Cyber-utopianism is the belief that the culture of the internet is inherently emancipatory and the stubborn refusal to acknowledge its limitations and downsides. It stems from:

[T]he starry-eyed digital fervor of the 1990s, when former hippies, by this time ensconced in some of the most prestigious universities in the world, went on an argumentative spree to prove that the Internet could deliver what the 1960s couldn't: boost democratic participation, trigger a renaissance of moribund communities, strengthen associational life, and serve as a bridge from bowling alone to blogging together. And if it works in Seattle, it must work in Shanghai.<sup>3</sup>

Internet-centrism is the conviction that every important issue and concern about modern society and politics can be framed in terms of the internet. It is not a set of beliefs rather; it is a philosophy of action that informs how decisions are made and long-term strategies are developed. Internet-centrists tend to react and respond to every question about democratic change by first reframing it in terms of the internet rather than the exact context in which that change is to occur.

Morozov presents a good example of the unrealistic expectations and the broadly misrepresented impacts of digital ICT in social and civil unrest. In June 2009, mostly young Iranians took to the streets of Tehran and other cities to protest what they believed to be fraudulent and rigged elections, later to become known as 'the green revolution' or green movement. While these protests grew in number, a counter argument surfaced among many other Iranians that the

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<sup>2</sup>Morozov (2011).

<sup>3</sup>Morozov (2011, p. xiii).

elections were, in fact, fair and they set out to defend the incumbent president of the day Mahmoud Ahmadinejad. As the two sides – representing modernity and conservatism – squared up to each other, the country faced its worst social and political crisis since the 1979 revolution which saw the return of the Ayatollah Khamenei. Meanwhile, in the West, a very simple and alluring narrative of what was occurring began to emerge and of how the internet was beginning to usher in the building blocks of freedom and a new dawn of democracy in Iran. In a series of blogs for *The Atlantic*, Andrew Sullivan proclaimed ‘the revolution will be twittered’ in which he claimed that the microblogging site Twitter not only managed to avoid the shutdown of communications in the country but that it was becoming a critical tool for organising the resistance in Iran.<sup>4</sup> He offered little evidence to back up such claims. But his claims did echo with many cyber-utopianists who had patiently waited for digital tech’s big break in beginning about global democratisation, and if the evidence was not as apparent yet it was only a matter of time before it emerged. Such optimism quickly went mainstream with prominent print media organisations such as *The New York Times*, *Wall Street Journal*, *Los Angeles Times*, *Baltimore Sun* and *Financial Times*, as well as other non-governmental organisation (NGO) and religious publications, eulogising the power of Twitter – and by default the internet – for its ability to organise and empower ordinary citizens in the face of authoritarianism and tyranny. Even when Twitter scheduled maintenance for the website, the US state department requested the company to postpone this work so that the service would not be interrupted as, they claimed, it was being used to rally people into the streets to protest against the election. Former deputy national security advisor in the George W. Bush administration, Mark Pfeifle, even launched a public campaign to nominate Twitter for the Noble Peace Prize arguing that ‘without Twitter, the people of Iran would not have felt empowered and confident to stand up for freedom and democracy’.<sup>5</sup>

But this story was not to have its fairy tale ending. The green movement quickly lost much of its momentum in the months following the election, and realisation slowly began to dawn on those people so fervent in their belief that the internet was destined to be a liberating tool against the oppressors across the world. Young people, merely armed with their smartphone and a Twitter account, were not, in fact, leading the charge to freedom and the spread of democracy. So, what had gone so wrong? It was later discovered that estimates of fewer than 1,000 active Twitter users were actually living in Iran at the time of the election and not all had joined the demonstrations.<sup>6</sup> Many supporters of the green movement were from outside the country – the Iranian diaspora is highly active on social media – and got carried away by the enthusiasm of the protests, and numerous Twitter users across the world switched their location setting to Tehran in an attempt to confuse Mahmoud Ahmadinejad’s security forces and shield individuals within the movement.

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<sup>4</sup>‘The revolution will be twittered’ for *The Daily Dish Blog*, featuring Andrew Sullivan, for *The Atlantic*, June 13 2009. Retrieved from <https://www.theatlantic.com/daily-dish/archive/2009/06/the-revolution-will-be-twittered/200478/>

<sup>5</sup>Morozov (2011, p. 4).

<sup>6</sup>In 2009, the population of Iran was estimated to be around 73 million inhabitants.

The Iranian government itself also worked to audaciously turn the technology against the protesters, and officials from within the regime started several fake opposition accounts on Twitter which began tweeting propaganda and misleading information. Iran had not undergone a Twitter revolution, and it was argued by Reese Erlich, an author and freelance journalist who had covered the election and had extensive knowledge of the circumstances of the protests, that the term simultaneously mischaracterises and trivialises the important mass movement that had developed at that time in Iran.<sup>7</sup> Later, similar claims were made about the influence and power of Facebook, YouTube and other social media platforms as a catalyst for change in the context of the Arab Spring, and although there's some evidence that these were used for mobilising and organising street protests and gatherings, the true vehicles for change during that period of time were the protests themselves and the underlying grievances against the ruling authorities. Digital ICT has the potential to play a significant role in unifying and rallying people around a cause, but in the face of subsequent leaderless disorganisation, what happens then? It is also earlier for authorities to combat such protest by simply spreading misinformation through the same medium used to organise in the first instance and to single out individual deemed to be arranging such protests.

### **Weaponising the Internet against Liberty**

One of the most significant developments with regard to the organisation and ultimate collapse of the green movement and protests in Iran was the way the authorities fought back, in particular, the use of sophisticated means of disinformation by governmental officials and agencies. The regime quickly understood the real potential in the use of social media and how it can be a willing and more than capable instrument in disrupting the messages of the protest. Propaganda and government misinformation are nothing new, but social media and other forms of online broadcast media available on the internet just makes it much easier and much more effective. The real state originator of this use of online misinformation was Russia, and they have been doing this for some time now. Long before the 2016, US presidential election and the Brexit referendum, Russia, China and Iran were just some of the states who had begun to use such cyber techniques to thwart dissidents and opponents of their own regimes. As the Soviet Union began to crumble in the early 1990s, the enormous cost and elaborate planning that went into surveillance of individuals began to be questioned. Such expense and time were also no indicator of success, and the human factor could easily ruin months of diligent surveillance work.

The shift in communications into the digital realm solved this problem. Not only was the storage of enormous amounts of data now possible, mining through such data was made much simpler. Identifying keep words or phrases in communications such as 'democracy', 'freedom', 'free elections' or 'Putin must go' was achievable by a simple search for such keywords or phrases, thus exposing the individuals involved

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<sup>7</sup>Erlich, R. (2009). It's not a Twitter revolution in Iran. *Reuters*, June 26. Retrieved from <http://blogs.reuters.com/great-debate/2009/06/26/its-not-a-twitter-revolution-in-iran/>

in such communications. What's more, much of this information is given up freely and widely available online, so authorities do not even have to hack communications for some evidence. Many people elect to freely give away much of their personal data on social networking platforms and are then surprised when authorities know so much about them. Morozov recounts the story of a young activist from his native Belarus who was called into his university to talk to the KGB, which still exists and remains very active in that country.<sup>8</sup> The officers had detailed knowledge of Pavel Lyashkovich's travel arrangements, his involvement with anti-government organisations and his associates in the dissident community, merely from checking his online social networking activity. While it is easy to say that Lyashkovich is to blame for his own predicament, the point is social networking platforms were initially set up as the means for us to stay connected to one another, but now even our most casual conversations broadcast online can be intercepted and misrepresented by authoritarian regimes and others to build a damaging case against us.

A persistent myth with regard to the internet and authoritarian governments has been that they are weak and ineffective regimes that do not truly understand the technology nor how to use it effectively. But anti-democratic forces have become very savvy and immensely sophisticated at manipulating the Web, and one of the main reasons for this is that they have surrounded themselves with the best and brightest talent and online visionaries from their country. The Kremlin, for example, have been particularly successfully in cultivating strong connections with Russia's vibrant internet culture and have used such experience to their own ideological advantage. Morozov suggested that no one embodies this level of sophistication and linkage more than Kontntin Rykov, a key figure of the early Russian internet and now working as head of the internet department of the Russia' Channel On, and creator of a range of political websites and staunch ally of Vladimir Putin. In addition to his own personal involvement in Russian politics, Rykov has also reportedly used his internet credentials and relationship with Kremlin officials to involve himself in various political campaigns and referendums in both Russia and other countries.<sup>9</sup> Rykov developed tactics to help the Kremlin boost support for its image online and showed how to spread competing narratives on social media to deflect attention away from reporting that was critical of that regime's activities. These kinds of disinformation techniques and campaigns were used to great effect when the Russian Federation annexed Crimea in 2014. In 2015, Rykov built a new website using the domain Trump2016.ru, which marked the beginning of active campaigning for Donald Trump and Russian interference in the 2016 US presidential elections. According to the special counsel investigation's *Mueller Report*, the first indication of Russian interference was the use of the Internet Research Agency, a Kremlin-linked troll farm based in St Petersburg, to wage a social media campaign that favoured Donald Trump and

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<sup>8</sup>Morozov (2011, p. 155).

<sup>9</sup>Schwartz, M. (2018). The man who taught the Kremlin how to win the internet. *The World*, May 31. Retrieved from <https://www.pri.org/stories/2018-05-07/man-who-taught-kremlin-how-win-internet>

disparaged Hillary Clinton in those elections.<sup>10</sup> These campaigns also sought to provoke and amplify political and general social discord across the United States by spreading fabricated election articles and disinformation. For such transnational meddling to truly succeed, trust in traditional media and pillar institutions of state first needed to be undermined and then their creditably destroyed.

## A Free and Open Press

One of the central tenets of a democratic system is a free and open press, which is also critical to sustaining the rule of law. In the past, traditional newspapers and broadcasters created the possibility of a single debate or conversation on an issue of national importance. This helped citizens to join together, not in a like-minded set of opinions but rather a singular conversation. Newspaper and broadcast journalism were required to conform to formal and informal ethical and moral codes of practice. But the rapid and wholesale shift in advertising revenue to digital internet giants has, within just a short decade or so, severely damaged the ability of both traditional print and broadcast media to investigate, collect and report on malpractice and convey essential information. This has led some media outlets discontinuing reporting news altogether, and yet others to assume an extreme partisan position in their reporting. The arrival and proliferation of digital online media means there are no longer common debates nor common narratives. Indeed, it is argued, that people have always had different opinions, but now they are presented with different facts.<sup>11</sup> Anyone and everyone can now be anonymous and no one needs to take responsibility for what they report or say, or whether it is true or false. In what he termed ‘the cult of the amateur’, Andrew Keen argues that our most valued cultural institutions – our professional newspapers, magazines, music and movies – are being overtaken by an avalanche of amateur, user-generated free content.<sup>12</sup> In this present self-broadcasting culture, where amateurism is celebrated, and anyone with an opinion, however ill-informed or ridiculous, can publish a blog or post a video on a sharing platform, the distinction between accomplished and experienced experts and uninformed amateurs has become dangerously blurred. When anonymous bloggers and videographers, unconstrained by professional standards or editorial norms, can alter the public debate and manipulate public opinion, then truth becomes a commodity to be bought, sold, packaged and reinvented. The ongoing erosion of trust, whether it be in the political realm or in the media, weakens the democratic system, and the ever-changing and developing digital ICT landscape and an evolution in the way people now consume news has brought about critical challenges in how we do politics and what we want our society to look like. Among them, fabricated and misleading news stories shared on social media sites and a tendency of readers

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<sup>10</sup>Read and search the full Mueller report. *CNN Politics*. Retrieved from <https://edition.cnn.com/2019/04/18/politics/full-mueller-report-pdf/index.html>

<sup>11</sup>Applebaum (2020, p. 113).

<sup>12</sup>Keen (2007).

to only consider news stories that adhere to their own political ideology are undermining press freedoms and leading to levels of mistrust that are severally damaging for a free, open and democratic society.

Lawrence Lessig suggests that unless we find a reason for democracy, there is no fight for democracy to be had.<sup>13</sup> As a former self-confessed apologist for the internet, he is now a critic of how digital-enabled news has become fragmented and polarising and is damaging to the ideals and notion of democracy. In his analysis of the twentieth century and the development of the television, he notes that in 1977 almost 90% of people in the United States got their news from just three networks, and these were the sole sources of national and international news. Having this concentration of news through channels that was inherently understandable to everybody – the ordinary citizen as well as the elites alike – gave everyone an egalitarian exposure to politics because they were exposed to trusted sources that created a common understanding and common set of facts. Instead of just polarised extremes voting in elections, ordinary people were much more engaged and turned out to vote based on knowledge and understanding, and this shifted the political landscape of the country in true expressions of democracy. While he does not set out to eulogise this era and does point to issues of bias within this system at that time, he argues that the underlying architecture made it possible for a public to understand a common set of questions and issues. However, in the twenty-first century, there are no longer concentrated, universally trusted sources of news information, and many people now consume news through social media platforms, which are unrestrained by any form of editorship or formal and informal codes of conduct. Such fragmentation of news information means there are no longer any common stories, common facts, and the resulting radical polarisation is damaging for democracy. More worrying, he suggests that the business model now employed by many of these new digital media outlets is to increase this polarisation, thus increasing media brand loyalty.

But traditional media organisations themselves must foot some of the blame. The 24-hour news cycle, made possible by advancements in digital technologies over the recent past, can be distracting for many individuals and, it is suggested, is trivialising much of what we now understand as news.<sup>14</sup> The *Reuters Institute Digital News Report* provides crucial new insights into key issues including people's willingness to pay for news, the move to private messaging applications and groups and how people see news media from around the world performing their civic and public roles and responsibilities.<sup>15</sup> The report is based on a survey of more than 75,000 people in 38 markets, along with additional qualitative research, which together make it the most comprehensive comparative study of news consumption in the world. The report pointed to a complex set of enduring challenges for the news industry specifically and for the media environment more broadly. This included the ongoing disruption of the inherited business model for news,

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<sup>13</sup>Lessig, L. (2017). How the net destroyed democracy. *TEDxBerlinSalon*, August 10. Retrieved from <https://www.youtube.com/watch?v=rHTBQCpNm5o>

<sup>14</sup>Dobelli (2020).

<sup>15</sup>Newman, Fletcher, Kalogeropoulos, and Nielsen (2019).

persistent evolution in how individuals use digital media and the ways in which we are constantly reminded of how some of the information we come across is untrustworthy and sometimes spread with malicious intent and social upheaval associated with the rise of populism and general low trust in many state institutions. While the arrival of democracy usually results in enhanced levels of social trust, especially trust in government, this trend commonly reverses after several years or decades of citizens' unmet expectations. It is argued that government is often the least trusted social actor, ranking below governing bodies, security institutions and the media.<sup>16</sup> This finding is somewhat inconsistent across societies however. In some of the most populated countries, such as the United States, Russia and China, people have more trust in the government than the media, which is now the least trusted institution in both the United States and Russia:

From a normative perspective, these results should be viewed with some concern. In democratic societies, the media are entrusted with the responsibility of serving as a watchdog for the public interest and to scrutinize the movements of all three branches of government (executive, legislative, and judicative). A media system in which citizens do not place their trust in will be hardly able to watch over any authority or institution.<sup>17</sup>

## **Distrust, Disinformation and Discontent**

Returning to the issue of interference in the 2016 US presidential elections, Russian's use of social media platforms to spread propaganda and disinformation was expansive with the use of Facebook, Twitter and a host of other publicly accessible online outlets coming under the spotlight. Advertisements bought by Russian operatives for circulation on the Facebook social media website were estimated to have reached 10 million users, while many more users were also contacted by accounts created by Russian actors. In total, 470 Facebook accounts are known to have been created by Russians, of those accounts six generated content that was shared at least 340 million times according to research done by Columbia University's Tow Center for Digital Journalism and New Knowledge, Canfield Research.<sup>18</sup> The Mueller Report also found the Russian-financed Internet Research Agency spent some \$100,000 for more than 3,500 Facebook advertisements from June 2015 to May 2017, mostly anti-Clinton and pro-Trump proclamations. Facebook initially denied that fake news on its platform had influenced the election and insisted it had been unaware of any Russian-financed advertisements. They later admitted that Russia-based operatives had, indeed, published about 80,000 posts on the social network platform over a two-year period in an effort to sway US political opinion, and that about 126 million Americans

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<sup>16</sup>de Zúñiga et al. (2019).

<sup>17</sup>de Zúñiga et al. (2019, p. 245).

<sup>18</sup>DiResta et al. (2019).

may have seen the posts during that time.<sup>19</sup> While Facebook claim to have made significant changes to reduce the spread of misinformation and provide more transparency and control around political advertisements, in August 2019, a group of philanthropies working with the company to study the social network's impact on democracy threatened to quit saying the company had failed to make data available to researchers as pledged.<sup>20</sup>

Further insight into the growing sophistication of user manipulation for unfettered purposes was made public during the Cambridge Analytica scandal. Cambridge Analytica, also discussed in an earlier chapter, was formed around 2013 initially with a focus on the US elections, with \$15 million in backing from billionaire Republican donor Robert Mercer and the backing of former Trump White House adviser Steve Bannon and funding from several UK Conservative Party's biggest donors. It was an offshoot of the wider SCL Group, which had worked on psychological targeting methods across the world. Having trialled their methodology in poorly developed countries with weak data protection laws, often on behalf of North Atlantic Treaty Organization (NATO) military objectives, they went on to commercialise their product for use in targeting voters during elections and referendum campaigns in some democratic states. Cambridge Analytica markets itself as providing consumer research, targeted advertising and other data-related services to both political and corporate clients and was staffed by mostly British workers. In an undercover investigation by Britain's Channel 4 News, the company boasted it had developed psychological profiles of voters, which was the 'secret sauce' it used to sway such voters more effectively than traditional advertising ever could. They had been able to achieve this by harvesting the data of some 50–87 million Facebook users by a means that deceived both the users and Facebook itself. They were then able to specifically micro-target political advertising back at these Facebook users that would psychologically appeal to some of their base instincts as voters. In identifying people most susceptible to persuasion, they were able to induce them to vote in a particular way: to get voters to see the world as you wanted them to see it. They called this group of susceptible individuals 'the persuaders'. The company also stands accused of voter suppression, particular in the context of 2010 'Do So' campaign and election in Trinidad and Tobago.<sup>21</sup> Ted Cruz had initially hired Cambridge Analytica to help with his

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<sup>19</sup>Ingram, D. (2017). Facebook says 126 million Americans may have seen Russia-linked political posts. *Reuters*, October 30. Retrieved from <https://www.reuters.com/article/us-usa-trump-russia-socialmedia/facebook-says-126-million-americans-may-have-seen-russia-linked-political-posts-idUSKBN1CZ2OI>

<sup>20</sup>Paul, K. (2019). Funders threaten to quit Facebook project studying impact on democracy. *Reuters*, August 28. Retrieved from <https://www.reuters.com/article/us-facebook-election-research/researchers-studying-facebooks-impact-on-democracy-threaten-to-quit-idUKKCN1VI04F?edition-redirect=uk>

<sup>21</sup>This 2019 documentary *The Great Hack* lays bare the circumstances surrounding Cambridge Analytica's harvesting of personal information from millions of Facebook users, and how these data were used in a number of different ways of voter suppression and manipulation: see <https://www.thegreathack.com/>.

presidential campaign, and Donald Trump's 2016 presidential campaign further utilised the harvested data to customise messages and target specific voters in key swing states. Cambridge Analytica was also hired to assist Leave.eu and the UK Independence Party throughout 2016 and assist with efforts to convince voters in that country to support leaving the European Union in the Brexit referendum.<sup>22</sup> In her testimony before a committee of UK parliamentarians, former Cambridge Analytica employee Brittany Kaiser, who has a deep understanding of the operations and techniques used by the firm, suggested that the psychographic micro-targeting used by the company should be classified as 'weapons grade' techniques and only used in conflict situations.<sup>23</sup>

## The Retreat from Reality

In the 2016 BBC documentary *HyperNormalisation*, Adam Curtis maintained that over the past 40 years, politicians, financiers and technological utopians, rather than face up to the real complexities of the contemporary world, had retreated into a simpler version of the world in order to hang onto what they believed to be power.<sup>24</sup> And as this unpretentious world grew more and more, people went along with it because the simplicity was reassuring to all. These were mostly the 'starry-eyed' former hippies who were hopeful that the digital age would deliver on the expectations and dreams of the 1960s that Morozov had referred to.<sup>25</sup> But in this retreat from the reality, an entire generation was beginning to lose touch with politics and the realities of power and governance. Reflecting on the works of William Gibson, who coined the phrase 'cyberspace',<sup>26</sup> Curtis suggested that by the middle of the 1980s, the banks and new corporations were beginning to link themselves together through computer systems creating a series of major networks of information that were invisible to ordinary citizens and politicians. Such networks gave these corporations and financiers remarkable new powers of control in a cyberspace where there were no laws or, indeed, politicians or governments to protect ordinary citizens. This was a vision of a future of raw brutal corporate power at work. Meanwhile, a group of technological utopian visionaries were emerging on the west coast of America, based around Silicon Valley, who began exploiting Gibson's ideas of cyberspace and replacing this former frightening dark vision of a world oppressed and dominated by large and powerful corporations with a much safer cyberspace and world where radical dreams could come through. This, Curtis argued, was an ideal place for

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<sup>22</sup>MacAskill, A. (2018). What are the links between Cambridge Analytica and a Brexit campaign group? *Reuters*, March 21. Retrieved from <https://www.reuters.com/article/us-facebook-cambridge-analytica-leave-eu-idUSKBN1GX2IO>

<sup>23</sup>Brittany Kaiser testifies before MPs. *YouTube*. Retrieved from <https://www.youtube.com/watch?v=xZAvQzRhJ0I>

<sup>24</sup>Curtis (2016).

<sup>25</sup>Morozov (2011, p. xiii).

<sup>26</sup>Gibson (1982).

progressives and radicals to retreat to leaving behind the very harsh real world of Regan's 1980s America and Thatcher's Britain. What made this retreat from reality easier for these radicals were their roots in the counterculture of the 1960s and in particular the use of LSD.<sup>27</sup>

The activists of the 1960s counterculture believed that taking LSD offered much more than just a short escape from their ordinary lives, it opened people's perception and the mind to an entirely new possible certainty normally hidden from them. It freed them from the normal day-to-day constraints of life, such things as basic political decision-making and the workings of mundane governmental power. The early period of the 1980s saw computer networks appear and offer a new alternative reality, a space to again retreat from the real world, only this time one that was not chemically induced. In this new cyberspace, corporeality people were freed from the realities of normal politics, decision-making and power, and individuals could begin to explore new ways of being and living. Indeed, one of the leading advocates of this new reality, John Perry Barlow, wrote *A Declaration of the Independence of Cyberspace*<sup>28</sup> in response to the passing of the US Telecommunications Act of 1996 in which he sets out a rebuttal to government and against interference with the internet by any outside forces. It declared that the states and politicians did not have the consent of the governed to apply laws to the internet as it was outside any country's borders. Instead, the internet was developing its own social contract to determine how to handle its own problems, based on language evocative of the US Declaration of Independence:

We must declare our virtual selves immune to your sovereignty, even as we continue to consent to your rule over our bodies. We will spread ourselves across the Planet so that no one can arrest our thoughts. We will create a civilization of the Mind in Cyberspace. May it be more humane and fair than the world your governments have made before.<sup>29</sup>

Barlow had laid out an alternative existence to the harsh existing world in which people could be freer without the unnecessary oversight of interfering politicians and governments and the old systems of power. This vision has come to dominate the internet as we know it today. Meanwhile, moves towards Perception Management in the United States and Britain were beginning to blur the

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<sup>27</sup>Lysergic acid diethylamide (LSD) is an extremely potent hallucinogen and long-lasting psychoactive drug that distorts and alters perceptions and sensations. The use of LSD reached its peak in the 1960s and 1970s when it was said by some to be the key to unlocking the inner mind, although this is heavily disputed by many in the scientific community.

<sup>28</sup>Barlow, J. P. (1996). A declaration of the independence of cyberspace. *Electronic Frontier Foundation*, February 8. Retrieved from <https://www.eff.org/cyberspace-independence>

<sup>29</sup>Barlow, J. P. (1996). A declaration of the independence of cyberspace. *Electronic Frontier Foundation*, February 8. Retrieved from <https://www.eff.org/cyberspace-independence>.

lines between fact and fiction by telling dramatic stories that would capture the public's imagination, and it did not matter if the stories were true or false.<sup>30</sup> Many of these stories, Curtis claimed, were simply devised to distract people and other politicians from the realities of what was happening around them and the real complexities and challenges of the modern world. Then, with the collapse with the Soviet Union and the crumbling of the iron curtain, a new type of politics began to emerge in the West; one that was no longer focussed on trying to change things but simply managing things, trying to predict risk into the future and seek out ways of avoiding such risks.

The computer age affords us the ability to collect and analyse vast quantities of data rapidly. Computers were also beginning to hold a mirror to individuals, and they liked how that made them feel. They began to not only predict societal risk but also, at the micro level, what people liked and wanted based on their interactions with digital computing. Politics now became just part of the wider goal of managing the world in very simplistic ways. This was best epitomised by the approach adopted by George W. Bush and Tony Blair who viewed the removal of Saddam Hussein in Iraq as a simple fight between good and evil. Politics, democracy and movements for change began to become irrelevant in this new managed world, and a resentment to this began to grow and fester. Even when millions worldwide marched against the impending war in Iraq<sup>31</sup> both Bush and Blair ignored this considerable public opinion in favour of their simple narrative and went to war in 2003 in the face of these protests. The effects of this are now widely felt. Not only did millions feel they were lied to when the true extent of the threat from the Saddam Hussein regime became known, but more importantly, they felt helpless in the world and believed that no matter what they did, it had no real positive effect on any eventual outcome. Protesting the war has been a waste of time, and they were demoralised and powerless about the world as it was around them.

Curtis went further to suggest that liberals, radicals and a whole generation had by now retreated into another world that was free of such hypocrisy and what they saw as the corruption of power and politics. They withdrew into cyberspace and here they found comfort in the company of like-minded individuals brought together by filter bubbles and algorithms which sought out and grouped people by means of their own personal data and preferences freely given to mega online corporations and platforms. Such online companionship created echo chambers

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<sup>30</sup>Siegel (2005) defines perception management as the ability to shape worldwide perceptions in one's favour to foster compliance and facilitate mission accomplishment. A critical part of perception management is efforts to understand others' perceptions and basis for those perceptions as a path towards understanding how one might then influence them. The 'basis' for perceptions includes many issues that are not just outside Department of Defence's but US government control - such as television and cable sitcom or even the millions of personal home pages of American teenagers that are accessible to anyone with internet access.

<sup>31</sup>According to French academic Dominique Reynié, between 3 January and 12 April 2003, 36 million people across the globe took part in almost 3,000 protests against the war in Iraq.

which worked simply to reinforce beliefs and opinions rather than challenge them. But while such beliefs were being buttressed by compatible thought and opinion, such online environments did not allow for such beliefs to be challenged or developed by opposing viewpoints, a natural and healthy way for individuals to develop their own capacity for critical thinking. Moreover, it did not allow these radical or progressive thinkers to challenge opposing viewpoints from other individuals simply because the online platforms were keeping divergent groups apart. Through the worst of the financial crisis, which began in 2008 and lasted for several years, people retreated deeper and deeper into these online like-minded groups, shouting at the world but failing to understand or lay a transformative glove on power. There is an illusion of control and power online, but it was something completely different altogether; it is delusion.

### **Back to Reality: Enter the Showman**

Then, in 2016, with the election of Donald Trump, the real fallacy of the power of cyberspace and the retreat from the real world became apparent. Here was a president who could regularly and pathologically lie to the camera and mismanage a pandemic in one of the most powerful nations in the world and yet remained unwavering in his views and unchallenged in his actions to any great extent. He is an extremely savvy media operator who can 'suck the oxygen out of the room'<sup>32</sup> and whose own online rhetoric is designed to make those tied to the ideals of liberal democracy shocked, insulted, angry and offended at every opportunity. Cyberspace is the preferred forum for many progressives and liberals to vent this anger, but this did not in any way affect nor change the Trump administration's policy positions. Meanwhile, Facebook, Twitter and other such social media platforms were teeming with comments and suggestions from individuals and groups feeling insulted, mistreated and angry and suggesting all manner of ways of removing Trump from office. Ironically, these people themselves are more removed from power than ever before in the democracy age. Trump supporters and those on the right of politics have also mobilised on social media platforms, albeit in separate filter bubbles and echo chambers. And as his presidency comes to an ignominious end in 2021, it is now the turn of these individuals to feel cheated, marginalised, angry and resentful, notwithstanding this is based on the lie of a stolen election. People have become more and more dissatisfied and demoralised as time goes by and blame their unhappiness on everyone and everything but themselves. Few point the finger at digital media, which in some cases is having a directly negative impact on our collective well-being.<sup>33</sup> Instead, retreating into cyberspace filled with echoes chambers and filter bubbles comforts individuals but also acts to widen the political divide between large sections of society, while fake

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<sup>32</sup>Stokols, E., & Schreckinger, B. (2016). How Trump did it. *Politico*, February 1. Retrieved from <https://www.politico.com/magazine/story/2016/02/how-donald-trump-did-it-213581>

<sup>33</sup>Twenge (2019).

news and the micro-targeting of voters with machine-generated messages designed to trigger individual prejudices reinforces the anger and hatred of the ‘other side’.

The playbook of many at the extremes of politics and society is to sow confusion and doubt about the legitimacy and authority of the institutions of democracy to represent all of the people. And whether its ‘fake news’ mainstream media or ‘draining the swamp’ of established politicians, digital ICT is today the extremist’s greatest weapon and means of spreading mistrust. There is an almost perfect symbiosis between conspiracy beliefs, such as the QAnon,<sup>34</sup> and digital ICT, which acts to channel anger and negative energy towards irrationality and illogical thinking and which ultimately harms social cohesion and democracy. Groups and individuals at the extremes of societal thinking use the maxim: to change society, you must first break it, and thus such forces seek chaos and a total disruption to the existing fundamentals of democracy. All the while big tech looks on and does nothing and in many ways must be viewed as complicit in such chaos.

We now live in a world where most political debate happens on partisan public media outlets or bias online forums. In cyberspace, to challenge authority, protest against injustice or seek redress or social change, you no longer need to take to the streets and convince others who may not hold similar views. The new form of way of revolution looks nothing like past ones. You simply login to a website that articulates like-minded views or converse with others of comparable views on social media platforms: that never-ending cyber filter bubbles and echo chambers that comfort people into thinking they are doing something meaningful. Political action in the form of Facebook and Twitter ‘likes’ and ‘shares’. But such online activism is frequently perceived as nothing more than white noise which in many democratic countries is simply ignored but in more authoritarian states exposes the individual as a person of interest to repressive regimes and security forces. As frustration grows, leading to a change in the public mood, a shift in civic sentiment, and the collapse of political party allegiance, many in the West have turned to the strongman and embraced the concept of all-powerful authoritarian rule. Donald Trump is the poster boy president of the digital age, carried to victory in no small way on the shoulders of big tech and complicity about the need to continually work to protect and strengthen democracy.

As authoritarianism grows and expands across the world, it is interesting to observe how such regimes develop and receive their support. Anne Applebaum, a leading historian of communism and contemporary politics, maintains that the ‘authoritarian predisposition’ is not one of closed-mindedness but rather simple-mindedness.<sup>35</sup> People who are attracted to the notion and ideals of authoritarianism are bothered by complexity; they dislike diversity and prefer unity. They seek

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<sup>34</sup>QAnon is a disproven and discredited far-right conspiracy theory network that alleges, for instance, that a cabal of Satan-worshipping paedophiles – made up of liberal Hollywood actors, Democratic politicians and high-ranking government officials – is running a global child sex-trafficking ring and plotting against President Donald Trump, who is battling against this cabal.

<sup>35</sup>Applebaum (2020).

understanding and solutions in new political language that makes them feel safe and more secure. There is a revival of nostalgia, a disappointment with meritocracy, there is appeal in conspiracy theories, and a part of the answer may lie in the contentious, cantankerous nature of modern discourse itself; the ways in which we now read about, think about, hear and understand politics.<sup>36</sup> And much of this authoritarian validation and unity is seeded and fomented online. Our new digital lives mean people have now become unaccustomed to the normal political and social public discourses that occur in functioning democracies and instead have become entrenched and obstinate in their opinions and mindset.

### **The Wizards Behind the Curtain**

The digital ICT revolution promised much for democratic politics in the twenty-first century but so far has delivered little but disruption. The dawn of the internet age was to bring a decisive shift towards the citizen and information was to become free and limitless, and enlightenment and empowerment would follow. But while digital technologies provide us with the opportunity to accumulate quantities of information that one time may not have been possible, big tech and the state remains much better equipped than any private citizen to take full advantage of this opportunity. In many ways, digital technology has been weaponised against the very system it was purported to support and defend and the citizens it was meant to engage, protect and enlighten. Authoritarian regimes across the world have seized upon the opportunities provided by such technology to increase surveillance and control of their people while simultaneously spreading misinformation and confusion, undermining many of the established Western liberal democracies. It would be rather naïve to think that democratic governments are not also regularly using similar digital surveillance technique under various guises and security apparatuses. And all the while big tech is the real big winner. The pioneers of surveillance capitalism Google were emboldened and benefitted from historical events when a national security apparatus, galvanised by the attacks of 11 September 2001, saw the emergent capabilities and the promise of some certainty in how Google's storage and use of huge stocks of personal data could be used to shadow and predict the behaviour of individuals.<sup>37</sup> Zuboff believes that the concepts underpinning surveillance capitalism are facilitating the overthrow of the people's sovereignty and is a prominent force in the perilous drift towards democratic deconsolidation that now threatens Western liberal democracies themselves.

And this is a common complaint in the twenty-first century; democracy itself has lost control of corporate power in the form of big tech companies, who use whatever means possible to hoard vast wealth and influence while fuelling inequality, damaging the planet and avoid paying their fair share of taxes.<sup>38</sup> Today's big tech behemoths exist in a political culture that has grown accustomed and accommodating

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<sup>36</sup>Applebaum (2020, p. 109).

<sup>37</sup>Zuboff (2019, pp. 9-10).

<sup>38</sup>Runciman (2018, p 161).

to their every need, and Runciman argues, in the United States, this was further cemented by the Supreme Court decision in the Citizens United case of 2010 to grant corporations the same rights to free speech as individual citizens.<sup>39</sup> The ideals and very notion of liberal democracy are now under constant pressure from many angles, and the traditional hierarchy of power is also under increasing danger. The power of modern corporate power, in the form of big tech, has grown exponentially over the past decade to the point where it now has the wherewithal to undermine how democracy itself operates and not be overly worried about the consequences. A major imperative now for every citizen and democratic nation must be to reassess the inequitable influence of big tech corporate power and the internet, particularly as it relates to our personal data, and to question: who owns and controls such power, and what right do they have to use and misuse our personal data to undermine our key democratic institutions? Democracy must be seen to represent the wishes of the people rather than viewed as a system of corporate tyranny.

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<sup>39</sup>Runciman (2018, p. 132).

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## Chapter 10

# Retaking the Reins

Currently, humans risk becoming similar to domesticated animals. We have bred docile cows that produce enormous amounts of milk but are otherwise far inferior to their wild ancestors. They are less agile, less curious, and less resourceful. We are now creating tame humans who produce enormous amounts of data and function as efficient chips in a huge data-processing mechanism, but they hardly maximize their human potential. If we are not careful, we will end up with downgraded humans misusing upgraded computers to wreak havoc on themselves and on the world.

Yuval Noah Harari

Throughout history every single time something has gotten better is because somebody has come along to say this is stupid, we can do better. [Like] it's the critics that drive improvement, it's the critics who are the true optimists.

Jaron Lanier

## Make Digital Get Again

Beginning in the early months of 2020, the arrival of the Covid-19 coronavirus heralded a new era of uncertainty and anxiety for most people across the world. This unprecedented pandemic event led to an almost universal global economic and social slowdown and then shutdown, with many confined to their homes and their immediate locality for extended periods of time. In these uncertain times, a new appreciation for the way digital information and communication technology (ICT) has kept us all closer our family, friends, neighbours and work, albeit virtually, has emerged. In acknowledging the ways and means we now use our digital technologies to remain connected, it may appear somewhat trite to confront and challenge some of the darker sides of this new digital reality and not just simply

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**The Social, Cultural and Environmental Costs of Hyper-Connectivity:  
Sleeping Through the Revolution, 155–165**



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accept and embrace it for what it is, or rather what we are told it is. But it is precisely because our digital technologies have proved invaluable in our time of need that we must double down on our efforts to protect and nurture the integrity and veracity of these technologies, and the global interconnected network, in our everyday lives so that it serves the common good and can truly be an instrument for human flourishing. This is not the case at this moment in time. A handful of big tech corporations have come to dominate the online landscape of many developed and developing countries, and despite the rhetoric of social responsibility and virtuousness, many of the practices employed by these digital behemoths are anticompetitive and frequently damaging to society and the democratic process, the environment and the economic prospects of early digital technology innovators and entrepreneurs. As the pressure increases from many angles of the digital tech debate on these corporate giants, a slow realisation of how they are now perceived in many sectors of society may well be hitting home. ‘Don’t be evil’ is the phrase adopted in Google’s original corporate code of conduct, which it adopted as the motto for the company. The motto attracted its fair share of criticism for being overly ambiguous and potentially hypocritical,<sup>1</sup> and when Alphabet took over as Google’s new holding company, it immediately dropped the *don’t be evil* mantra. Alphabet adopted a somewhat modified version of the motto, ‘do the right thing’, but the question remains to be asked: do the right thing for whom?<sup>2</sup>

### **Doing Nothing Is Not an Option**

The mythology and star quality that surrounds digital ICT and big tech corporations as the beacon of progress has foundered of late, just as it did for the robber barons of the late nineteenth century, and a new era of antitrust legislation may well be on the way. Many politicians, scholars, lawmakers, journalists and the public at large have expressed real concerns that big tech has become too big and too powerful, and critics have now called for a renewal of stringent antitrust enforcement; more assertive antitrust authorities; and a general rebalancing of the economic, social and political power of their megacorporations. In July 2020, the US federal government turned its full investigative powers and attention to examining the world’s biggest technology companies, building upon a growing backlash against the tech sector that has been mounting over the last few years.<sup>3</sup> Lawmakers in the House Judiciary committee’s antitrust subcommittee repeatedly accused the corporate leaders of Facebook, Amazon, Google and

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<sup>1</sup>Bogost, I. (2013). What is “Evil” to Google? *The Atlantic*, October 15. Retrieved from <https://www.theatlantic.com/technology/archive/2013/10/what-is-evil-to-google/280573/>

<sup>2</sup>Facebook’s motto has also changed many times since that company was founded. At first, it was ‘Move Fast and Break Things’. After years of growth and developers dealing with bugs, it became ‘Move Fast and Build Things’. Then in 2014, it became the much less catchy ‘Move Fast with Stable Infra’ before finally simply becoming ‘Move Fast’.

<sup>3</sup>Wakabayashi, D., Benner, K., & Lohr, S. (2020). Justice Department opens antitrust review of big tech companies. *The New York Times*, July 23. Retrieved from <https://www.nytimes.com/2019/07/23/technology/justice-department-tech-antitrust.html>

Apple of engaging in anticompetitive and monopolistic practices that pose a real threat to free markets and digital technology innovation. In December 2020, the attorney generals of more than 30 US states hit Google with a major antitrust lawsuit, accusing the tech company of illegally protecting a monopoly over its search business.<sup>4</sup> This followed on from lawsuits initiated against Facebook that could ultimately break up that company and charges brought by the European Union against Amazon for their monopoly practices.<sup>5</sup> But much more international cooperation is required on this issue.

One of the main lessons we must learn from the Covid-19 coronavirus pandemic of 2020 and 2021 must be the interconnectedness of our world and that acting alone in such circumstances is both futile and foolhardy. In a highly mobile hyperconnected world, nations and regions must act in unison in tackling the most pressing social and ecological issues facing humanity. Top of this list of concerns requiring global coordinated action is the climate emergency, but controlling and regulating unfettered transnational digital corporations must also be high on our list of priorities. The power that just a few individuals in the tech sector now have can be astounding to behold at times. Regardless of the rights and wrongs of the issues involved, Twitter's decision to permanently suspend Donald Trump's account after a decision a day earlier by Facebook to ban the president at least through the end of his term was a watershed moment in the history of social media and an example of where power now resides.<sup>6</sup> Both organisations had spent years defending Mr Trump's continued presence on their social media platforms, only to change course days before the end of his presidency effectively muzzling the president of the United States, the most powerful nation on the planet. Such actions have reignited debates on free speech and censorship and big tech role as primary arbitrators in such decision-making.

So while these corporations may have their backs to the wall at this moment in time, they will be working hard on their survival strategies, and some worry that at the end of the coronavirus crisis, these big tech giants could have all the power and absolutely none of the accountability.<sup>7</sup> The power and influence of big tech has increased during the months of the Covid-19 coronavirus pandemic, and they may well have now become 'too big to fail' because of inaction by politicians and lawmakers over the last number of years. A recent Oxford University

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<sup>4</sup>Paul, K. (2020). 'This is big': US lawmakers take aim at once-untouchable big tech. *The Guardian*, December 19. Retrieved from <https://www.theguardian.com/technology/2020/dec/18/google-facebook-antitrust-lawsuits-big-tech>

<sup>5</sup>Swartz, J. (2021). Big tech has an antitrust target on its back, and it is only going to get bigger. *MSN*, January 2. Retrieved from <https://www.msn.com/en-us/money/companies/big-tech-has-an-antitrust-target-on-its-back-heres-why-that-should-concern-investors/ar-BB1bP8YM>

<sup>6</sup>Roose, K. (2020). In pulling Trump's megaphone, Twitter shows where power now lies. *The New York Times*, January 9. Retrieved from <https://www.nytimes.com/2021/01/09/technology/trump-twitter-ban.html>

<sup>7</sup>Swisher, K. (2020). The immunity of the tech giants. *The New York Times*, May 3. Retrieved from <https://www.nytimes.com/2020/05/01/opinion/tech-companies-coronavirus.html>

study suggested just this point and that, like the banks and financial institutions in the 2008 economic crisis, these tech giants have grown so enormous that failure would be so highly disruptive and damaging to society that they should be preserved and protected.<sup>8</sup> The study also called for new regulations to protect users and society in the event of a possible collapse. So, what should the way forward for digital ICT be and how can we, as a society, rebuild our attention and efforts in a way that digital technology serves not just the few but the many. Such digital technologies should not lead to a cognitive redundancy or diminish our prospects for well-being but instead lead to growing and sustaining our humanity while being to the forefront in protecting our environment. This final chapter will outline some key guiding principles that can help to reignite a genuine digital technology revolution that would benefit everyone and our overall anthropological and ecological development.

Private data are private and personal information and should be subject to the same protection as our private and personal property. One of the main ways big tech has been able to become so powerful over the past decade has been through the use, mismanagement, manipulation and misuse of personal data, and the monetarisation of such data has, and continues, to be more and more problematic and damaging to the individual and society over time. The true extent of the value of our own personal information to these digital goliaths is widely underestimated by users of these platforms, and such value must receive much more recognition and protection in regulation and law than heretofore. Our data are just that, ours, and no terms and conditions trickery should be permitted to change that fact. It must become mandatory for big tech to ask for permission every time they wish to use our personal information and to be much more upfront and transparent about the reasons and purpose for using such data. Legal safeguards must be forthcoming to protect an individual's right to the ownership of their own personal data, and this must be enshrined in national and international laws. Big tech cannot be trusted to protect or do the right thing by such data, as evident in their past actions and deeds. While these digital behemoths grow bigger and wealthier by monetarising and weaponising enormous quantities of aggregated personal data, the social consequences of their actions are trivialised or dismissed outright. If such personal data are set to continue to be the capital that powers and shapes the digital economy and corporate world, then its ownership and protection must become a basic human right. Data rights are human rights, and the European Union would tend to agree as it believes the protection of personal information is the same as other fundamental rights, including the right to freedom of expression. Your personal data are your private information and are closely linked with your private life. Human rights protect your privacy. Therefore, any activity using or misusing your personal data interferes with your human right to a private life. Big tech must outline the exact purpose for which they wish to use your personal data, and if access is granted must adequately compensate the individual for the use of such important resource. After all, if

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<sup>8</sup>Öhman and Aggarwal (2020).

money is to be made from the content we create online, then it is only fair and proper that we share in the fruits of such endeavours.

The digital oligopoly must be broken up in a controlled and strategic manner in order to protect and nurture digital technological innovation, invention and creativity that supports a digital environment of healthy competitiveness. Big tech oligopolies have now amassed too much power over our society, economy and environment and regularly devour and destroy new and innovative competition, damage or shut down many small businesses and stifle digital innovation. They have been able to accomplish such dominance by adopting monopoly business models, through a series of mergers, and by using proprietary marketplaces in which the partisan promotion of their own products and services undermines and crushes such competition. Nearly two decades after the landmark Microsoft antitrust case, big tech companies have now more market power than ever before. Amazon has close to 50 per cent of all online retail spend in the United States<sup>9</sup> and has long controlled pricing decisions on goods it buys and resells on its platform and manipulated the prices of other people's products for its own purposes and gain. And as they and other digital behemoths continue to grow and expand, they continue to vacuum-up new and promising start-ups that may have the potential to challenge big tech's dominance sometime in the future. Facebook, for example, scooped up WhatsApp for nearly \$20 billion when it was merely five years in existence with a staff of just 50 and Instagram for \$1 billion in 2012 when that company had only 13 employees. Documents show that Facebook bought Instagram to quash competition and because they were concerned about the fast-growing company's potential to turn users away from their own platform.<sup>10</sup> To date, Facebook has acquired some 82 other companies over a 15-year period. The effect of all these mergers and acquisitions by large tech giants is that they are hindering and blocking future competition and innovation in the industry, while exerting undue power and influence over some smaller nation states and failing to pay their fair share of tax. Regulation against these anticompetitive strategies will stimulate innovation by giving small firms a fair chance to sink or swim instead of being immediately scooped up or crushed by their larger predatory competitors.

While there are recent signs of moves against these digital monopolies, traditionally the United States has been slow to take strong action against these big tech companies. In contrast, the European Union and regulators from many of its member countries have been strongly pressing these corporations to change policies that are in violation of antitrust laws or that pose serious risks to user privacy. Five of the most valuable US companies – Alphabet, Facebook, Amazon, Apple and Microsoft – have already faced regulatory action in Europe, and it's

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<sup>9</sup>Day, M., & Gu, J. (2019). The enormous numbers behind Amazon's market reach. *Bloomberg*, March 27. Retrieved from <https://www.bloomberg.com/graphics/2019-amazon-reach-across-markets/>

<sup>10</sup>Frier, S. (2020). Documents show Facebook bought Instagram to quash competitor. *Bloomberg*, July 29. Retrieved from <https://www.bloomberg.com/news/articles/2020-07-29/documents-show-facebook-bought-instagram-to-quash-competitor>

likely that most pressure will continue to come from Europe.<sup>11</sup> Facebook's official response to the Irish Data Protection Commission's<sup>12</sup> preliminary decision on the company's data transfers to the United States was to throw a legal 'hissy fit', and in a sworn court affidavit, Yvonne Cunnane, Facebook's Ireland's head of data protection and associate general counsel, threatened that Facebook and Instagram may well pull all of its services from European users in order to fully comply with data protection parameters laid out in the Schrems decision of the Court of Justice of the European Union.<sup>13</sup> In response to one of the probing questions asked at the US Congress's House Judiciary Committee of Google and Amazon involving accusations that they used their dominant platform positions to scoop up data about competitors in a way that gave them an unfair advantage, Jeff Bezos testified that he could not guarantee that the company had not accessed seller data to make competing products, an allegation that the company and its executives had previously denied.<sup>14</sup> In November 2020, the European Union charged Amazon with damaging retail competition, accusing the online giant of using its size, power and data to give it an unfair advantage over smaller merchants that sell on its online platform.<sup>15</sup> It is also argued that even if one of these big tech companies attained its dominant position without employing anticompetitive practices, there is still no guarantee that it will continue to use that power for good or even for the benefit of its own users and consumers.<sup>16</sup> Strategically breaking up this digital oligopoly will allow us reboot the digital tech revolution for the betterment of the industry and the population it serves, but we need some agreed guiding principles to nurture and protect this new divergence and rebirth.

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<sup>11</sup>Relihan, T. (2018). Will regulating big tech stifle innovation? *MIT Management Sloan School*, September 27. Retrieved from <https://mitsloan.mit.edu/ideas-made-to-matter/will-regulating-big-tech-stifle-innovation>

<sup>12</sup>The Irish Data Protection Commission (DPC) is the national independent authority responsible for upholding the fundamental right of individuals in the EU to have their personal data protected. The DPC is the Irish supervisory authority for the General Data Protection Regulation (GDPR) and has functions and powers related to other important regulatory frameworks including the EU Directive known as the Law Enforcement Directive.

<sup>13</sup>Lillington, K. (2020). Will Facebook walk away from European market after data protection "hissy fit"? *The Irish Times*, September 24. Retrieved from <https://www.irishtimes.com/business/technology/will-facebook-walk-away-from-european-market-after-data-protection-hissy-fit-1.4362678>

<sup>14</sup>Online platforms and market power, part 6: Examining the dominance of Amazon, Apple, Facebook, and Google. (2020). *The House Committee on the Judiciary: Subcommittee on Antitrust, Commercial, and Administrative Law*, July 29. Retrieved from <https://judiciary.house.gov/calendar/eventsingle.aspx?EventID=3113>.

<sup>15</sup>Porter, J. (2020). Amazon accused of EU antitrust violation over Marketplace data. for *The Verge*, November 10. Retrieved from <https://www.theverge.com/2020/11/10/21558119/amazon-european-union-antitrust-charges-competition-commission-margrethe-vestager>

<sup>16</sup>Van Reenen (2018).

The digital technology sector must adopt a binding moral, ethical and ecological code of practice that enshrines their corporate societal and environmental responsibility to avoid social and planetary harm. There is currently an absence of internationally mandatory or enforceable codes of practice for how the digital tech sector should conduct itself, and so they are free to use the vast power and influence they have accumulated over the past two decades in whatever way suits their corporate agendas. Faced with the growing possibility of antitrust actions and legislation to curb their powers, the big four digital technology companies – Amazon, Apple, Facebook and Google – have instead amassed an army of lobbyists and spent a combined \$55 million on lobbying in Washington in 2018 alone.<sup>17</sup> In July 2020, when the Australian government released the first draft of a new code of conduct managing the way tech giants should deal with local media companies, specifically requiring them to pay for the content others had created,<sup>18</sup> Google reacted by suggesting that the new code would give news media an unfair advantage over all other websites, as well as threaten Google’s free services. This perpetuates a strongly held ‘cuckoo’ approach of ‘ask for forgiveness not permission’ for the content others create that is pervasive throughout the digital tech sector. Yet Google and the other big tech goliaths themselves guard their own content and proprietary software with the strength and legal muscle only a mega-corporation of their size can muster. Together with Facebook, Google have now captured about two thirds of all online advertisement revenue, and this percentage continues to grow while newspapers, magazines and other online news publications – the content creators – have been forced to laid off tens of thousands of reporters and editors because the bulk of such advertising revenue has been diverted into the coffers of big tech.<sup>19</sup> In other lucrative parts of their business model, Google, Facebook and others continue to build a business on their ability to manipulate individuals’ thoughts and perceptions, and fears and desires, by capitalising on all our personal data. All the while, if you want Amazon to carry your goods on their platform, you must pay whatever Amazon demands to handle them, as well as whatever it demands to advertise them to buyers, otherwise you stand to be crushed by their dominant market position and the sheer weight they can bring to bear on competition.

Digital social media is also giving voice to those who are deeply anti-science and deny the scientific consensus of anthropogenic climate change. Such individuals deny science in general because they view it as progressive, modern and

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<sup>17</sup>Kang, C., & Vogel, K. P. (2019). Tech giants amass a lobbying army for an epic Washington Battle. *The New York Times*, June 5. Retrieved from <https://www.nytimes.com/2019/06/05/us/politics/amazon-apple-facebook-google-lobbying.html>

<sup>18</sup>News media bargaining code. (2020). *Australian Competition & Consumer Commission*, July 31. Retrieved from <https://www.accc.gov.au/focus-areas/digital-platforms/news-media-bargaining-code/draft-legislation>

<sup>19</sup>Lynn, B. C. (2020). The big tech extortion racket: How Google, Amazon, and Facebook control our lives. *Harper*, September. Retrieved from <https://harpers.org/archive/2020/09/the-big-tech-extortion-racket/>

universal and because this comes into direct conflict with their own emotional response to place, patriotism and rational thought. The bizarre result of such a world view means that the scientific community are regularly labelled ‘sheep’, ‘asleep’, ‘idiots’ and ‘foolish’ on social media by those who reject logic and evidence-based reasoning. It is absurd that the unsubstantiated meanderings of the ignorant<sup>20</sup> is given equal billing to that of the career climatologist on the subject of climate change, and that social media platforms do nothing about this misbalance and distortion of the facts. Do not believe digital big tech when they maintain they cannot do anything about what their users post. They are very capable and adapt at blocking and removing pornography from their platforms but simply do not show the same will to block lies and untruths when it comes to climate change and general science. The digital tech sector must re-orientate their business models and use their expansive knowledge, innovation and expertise to focus on creating digital technology that protects the environment and aims to maximise human well-being and flourishing and strives to eliminate misinformation and falsehoods that intentionally and malevolently undermines our trust in the key institutions of society and democracy. Heretofore, they have been unwilling and uncooperative in articulating such a vision for their industry in any enforceable and binding code of practice or conduct. Decisions on such a vision and self-regulation must now be taken out of their hands.

It is our duty and responsibility, as global citizens, to understand and question the aims and objectives of the digital tech sector and to push for regulation when harmful social or environmental activities become apparent, or market competitiveness is threatened. In the end, it is all our responsibility, as global digital citizens, to hold the tech industry to account and not be hoodwinked into simply believing the narrative of ‘do[ing] no evil’. Big tech has every right to make money for their shareholders in the capitalist economic system that prevails in many developed nations, but they must operate to the moral and ethical rules of the society that they draw their revenue and legitimacy from. As a society, we must become much more aware of the dangers that are emerging, and will continue to grow, from the amassing of so much power and influence that big tech has managed to accrue over the past decade, how they have conducted themselves in amassing such power and the likelihood of their monopolist behaviours changing in the short and medium terms. Early signs of positive corporate behavioural change are not promising. When confronted by the realities of their actions, big tech has shown it will lobby and bluster its way out of its obligations as responsible corporate entities. So, it is our duty not to be fooled by the narrative emanating from the tech industry and instead do our duty as national and global citizens to hold these big corporations to account when they threaten our societal well-being; to become active ‘digital citizens’ in a world where we protect the best digital ICT has to offer and reject the practices that

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<sup>20</sup>The word ‘ignorant’ is used here not as a form of abuse but in its real definition as resulting from or showing a lack of knowledge or intelligence on a particular subject matter.

threaten our environment, damage our democracies, diminish our cognitive abilities and harm our overall happiness and sense of well-being. Digital technologies will have a crucial role to play in our lives in the medium term, but we must be the arbiters of its overall trajectory and demand from our politicians, legislators and decision-makers that they do the right thing by their citizens rather than buckled under the weight of the tech sector's corporate lobby groups and business self-interests.

But we can take heart that the tide might well be turning with regard to holding big tech to account and making the digital ICT landscape more conducive to serving our health and well-being needs into the twenty-first century. Many former tech luminaries have begun, and have continued, to magnify their criticisms of the behaviours of the digital technology industry. The former Googler Tristan Harris now fronts the Center for Humane Technology, whose website tagline suggests that 'as long as social media companies profit from outrage, confusion, addiction, and depression, our well-being and democracy will continue to be at risk'.<sup>21</sup> Tech visionary Jaron Lanier has long warned us about the direction digital technology was taking and about the damage our addiction to social media can inflict upon us. His most recent work sets out a clear and definitive account of the harm he feels companies like Twitter, Facebook and Google do to society in general and to our individual psyches.<sup>22</sup> He previously pointed to the risks to society from today's faulty 'information economy' in which corporations with the biggest computers and storage facilities, using data they have scooped up for free from everyone else, are able to calculate ways to avoid risk, thus making society riskers for everybody else.<sup>23</sup> Other former digital tech insiders, such as Andrew Keen and Wendy Liu, have given us very personal accounts of their experiences and ultimate rejection of the prevailing digital regime, while people like the Facebook co-founder Chris Hughes have called for the US government to break up that company claiming it is a 'powerful monopoly' in which Mark Zuckerberg has 'unchecked power' and influence 'far beyond that of anyone else in the private sector or in government'.<sup>24</sup>

The 2020 docudrama *The Social Dilemma* features a host of digital tech luminaries and explores the damage social media has caused to society, focusing on its exploitation of its users for financial gain through surveillance capitalism and data mining, how its design is meant to nurture an addiction, its use in politics, its effect on mental health and its role in spreading conspiracy theories and misinformation.<sup>25</sup> Scholarly tech critics such as Evgeny Morozov, Shoshana

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<sup>21</sup>Center for Humane Technology. Retrieved from <https://www.humanetech.com/>

<sup>22</sup>Lanier (2018).

<sup>23</sup>Lanier (2015).

<sup>24</sup>Hughes, C. (2019). It's time to break up Facebook. *The New York Times*, May 9. Retrieved from <https://www.nytimes.com/2019/05/09/opinion/sunday/chris-hughes-facebook-zuckerberg.html>

<sup>25</sup>See 'The social dilemma' directed by Jeff Orlowski and written by Orlowski, Davis Coombe and Vickie Curtis. Retrieved from <https://www.thesocialdilemma.com/>

Zuboff, Tim Wu and Sherry Turkle, among others, have worked diligently over the past number of years to tackle the myths and narratives of the faux virtues of digital technology that emanates from big tech and have created new rallying cries for those inside and outside the industry in which healthy debate and discussion about the future direction of the sector can be accommodated. The Contract for the Web was created by representatives from over 80 organisations – representing governments, companies and civil society – and sets out commitments to guide future digital policy agendas.<sup>26</sup> To achieve the contract's goals, governments, companies, civil society and individuals are asked to commit to sustained policy development, advocacy and implementation of the contract, which includes the following principles: that it ensures everyone can connect to the internet, that it is kept available at all times, and that people's fundamental online privacy and data rights are both respected and protected.

## Epilogue

The world is a better place because of digital ICT and, regardless, the genie is out of the bottle, and such technology will remain with us for the foreseeable future. But as a society, we never did engage in the type of public debates that would allow us discuss and plot the trajectory of its development so that it happens in a manner that serves humanity and the planet and that limits or eliminates human suffering and ecological destruction. This text, it is hoped, has added to the discussions around digital technology and digitalisation and its role in our lives, in pursuance of a more humane and responsive digital technology future. The notion of value-neutral digital technology is a myth; such technology embodies the values and principles of those who code, advance and, ultimately, control its development. Online platforms and software that uses real-world data merely recycle similar biases that exist in the real world. It has been a case of deflection, subterfuge and deceit on behalf of big tech to point to governments, regulators and other countries as the villains: those who would threaten the 'freedom of the internet', all the while they themselves amassed control of the network that now appears almost impossible to disrupt or end. 'If you look at where the top technology companies come from, a decade ago the vast majority were American. Today, almost half are Chinese', Facebook's Mark Zuckerberg said in his opening remarks at the hearings of the House Judiciary Committee's antitrust subcommittee.<sup>27</sup> He claimed, 'there's no guarantee our values will win out', and that limiting Facebook's power, he implied, would only play into Beijing's hands. Zuckerberg and the other big tech executives returned to the spectre of Chinese technological dominance more than 30 times over the course of the afternoon, according

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<sup>26</sup>See 'Contract for the web'. Retrieved from <https://contractfortheweb.org/>

<sup>27</sup>Goldberg, C. (2020). To counter China online, regulate big tech. *World Politics Review*, August 26. Retrieved from <https://www.worldpoliticsreview.com/articles/29018/to-counter-china-online-regulate-big-tech>

to a *New York Times* tally.<sup>28</sup> But competing with China on a level playfield will not happen because of the regulation of big tech, instead it can only occur through a fair balance between a free and open online environment and protecting privacy and democratic institutions on the other.<sup>29</sup> It requires promoting a vision of a truly open and inclusive online environment and that will require meaningful regulations to restrict the power and overreach of current tech giants. A free and open internet that allows us access to the vast stores of knowledge while respecting and protecting our private data is worth fighting for, and the beginning of such a fight starts with a deeper understanding of the issues and problems that currently exists within the digital tech industry and the technology and devices we use to harness this critical resource. It is not enough to just connect the world; we must redouble our efforts to make sure it is a network worth connecting to in the first instance.

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<sup>28</sup>Ovide, S. (2020). Lawmakers from both sides take aim at big tech executives. *The New York Times*, July 29. Retrieved from <https://www.nytimes.com/live/2020/07/29/technology/tech-ceos-hearing-testimony>

<sup>29</sup>Goldberg, C. (2020). To counter China online, regulate big tech. *World Politics Review*, August 26. Retrieved from <https://www.worldpoliticsreview.com/articles/29018/to-counter-china-online-regulate-big-tech>

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