Palgrave Studies in the History of the Media

Media and the Government of Populations

Communication, Technology, Power

Philip Dearman, Cathy Greenfield
and Peter Williams

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Palgrave Studies in the History of the Media
ISBN 978-1-137-34772-5 ISBN 978-1-137-34773-2 (eBook)
https://doi.org/10.1057/978-1-137-34773-2

Library of Congress Control Number: 2018934669

Cover credit: © Blend Images/Alamy Stock Photo

This Palgrave Macmillan imprint is published by the registered company
Springer Nature Limited
The registered company address is: The Campus, 4 Crinan Street, London, N1 9XW, United Kingdom

In memoriam
Peter Williams
colleague, teacher, partner, constant confidant
"… what actually happened …"

Preface

Much writing concerned with the social, cultural, and especially political significance of media is focused on the public sphere and publics. In this book, we argue for shifting attention to populations. In providing multiple examples of populations of various kinds and scales using and caught up in media and communication technologies, we trace connections between individuals, groups, and media that are not of the sort confined to the public sphere framework of consciousness or rationality. Making populations of various kinds and scales our vantage point for considering media and communication technologies helps us to assess claims made about the role of new media in change, and it helps us remember the status of individuals and populations as historically curious and novel figures and as thoroughly political inventions.

The book is primarily a work of synthesis and is crafted for readers not already versed in the governmental school. It aims to bring the insights of this school to those readers whose concern is chiefly with media and communication; readers whose interest lies with politics will find a project to enlarge how we understand that term, without sacrificing interest in politics as ordinarily understood. Past and current scholarship is drawn on and drawn together to focus on the ways particular populations are rendered literate, productive, accountable, skilled, connected, patriotic, fit, surveilled, marginalized, enterprising, entertained, informed, and creative—and how this is achieved in relation to widely variant governmental programs and projects undertaken within and across diverse institutions and organizations. Our aim is to make it difficult, after reading

this book, to treat communication and media as separate from relations of power between groups and individuals and, therefore, from politics and governing. Our aim is equally to make it difficult to treat the activity of politics as separable from uses of communication media.

The chapters take readers through a wide range of examples of populations and the uses of communication technology. Chapter 1 sets out key working concepts that are central to our populational perspective. Chapter 2 presents lessons from the histories of print, of telegraphy, and of broadcast technologies, pointing to how they have been (and remain) implicated in exercises of power bearing on specific populations and how they have been apprehended as harbingers of change. It establishes central themes for thinking about how all types of media and communication matter politically. Chapters 3 and 4 turn more concertedly to how particular populations are caught up in digitally networked environments. Chapter 3 further explicates what the category of population means for ways we can make sense of power and of rolling changes in what it means to be human, and describes the building of knowledge and creative economies as places where these changes are occurring. Chapter 4 examines the incorporation of digital technologies into projects for governing institutional and organizational populations in the domains of work, education, and health. Chapter 5 draws on themes of mobile privatization and democratization, addressed in the earlier chapters, to assess recent pervasive styles of governing populations.

When we started to think about what this book could be, we thought of the legions of students we had taught over many years, about the benefit we and they derived from speaking and thinking about media and the government of populations. This book is for them—past, present, and future. Of course, we entertain the possibility we might persuade a few colleagues along the way.

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When we started there were three of us. We lost one along the way. Peter Williams died in November of 2015, but his determined intellect and his inspiring teaching are embedded in all that is here. In many ways, this book began with the Honours and Masters courses Peter taught for many years at RMIT. Blind through this period, Peter's teaching was made possible by the love and labors of Mick Counihan and Deborah Kessler, who were his weekly readers throughout these years. These courses were important for many students, for what was taught and

learnt, and also for Peter to continue a vocation. One of Peter's students, Sharanjeev (Terry) Johal, has written this about him:

> I have been lucky in life to have many good teachers, a few great ones, and fewer still inspirational ones. Even fewer are those, who as a teacher myself now, I aspire to be. Peter Williams was one of those … Peter was the first teacher I had who thanked us for letting him teach us, and making it a pleasure for him. Thanked us - his students! He said that he learned from us. A man whom we all thought was a genius and a truly remarkable man had learned from us.

Also embedded in *Media and the Government of Populations*—because how is any work done without the help of others?—is the love and patience of our colleagues at RMIT University, and especially our families: Deborah, Elliot, Blake, and Kerry.

Melbourne, Australia

Philip Dearman
Cathy Greenfield
Peter Williams

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CHAPTER 1

Introduction: Communication, Government, Populations

In the story of how we are governed, and how we govern ourselves, is there a place for how we speak, watch, write, read, listen, gesture? Is there a place for thinking about communication in how we are governed and govern ourselves as workers, consumers, lovers, voters, and in many other roles?

In one sense, this is an easy question to answer: in the twenty-first century it is received wisdom that more and better communication is the answer to all problems—in business, in politics, and in our private lives. But in another sense, it is much harder to establish what role all the things we call communication have in how we are ruled: things as changeable and unremarkable as news reports, billboards, radio talk, advertisements blurring into the background of daily routines, countless screens showing countless creatively orchestrated sounds and images, the speeches of officialdom, familiar phrases and turns in a workplace discussion, the patterns and topics of household conversations, textings, a book, a company report. How do we keep sight of the actual mundanity of all these activities and artifacts, avoid inflating their importance out of keeping with the moments of their production and use, and yet grasp their consequences beyond the instrumentality of these occasions?

This book sets out to answer this question: to pull into view the myriad, unassuming ways that communication is part and parcel of power and how it is exercised, to consider how the lives of people are shaped through the applications and uses of communication technologies.[1]

P. Dearman et al., *Media and the Government of Populations*,
Palgrave Studies in the History of the Media,
https://doi.org/10.1057/978-1-137-34773-2_1

It deals with how these technologies have been and are now used to change the ways people are governed, and indeed brought to participate in their own government. To do this, it provides multiple histories of the uses of different media that help us to understand their role in pervasive modern forms of power. Thus, the book is concerned with both the communication and media of politics and power *and* the politics and power of communication media. It focuses on how politics and power rely on communication media to operate, and how communication media are integrated with different scales of politics and power.

Such an investigation responds to where we find ourselves in the twenty-first century, surrounded with claims about the all-determining importance of communication, especially new forms of communication. The latest social media revolution grabs the headlines and is said to be transforming how people learn, become informed, earn, and play. Such claims occupy public discussion, are repeated with increasing regularity, and then suffer the fate of either becoming clichés or dismissed as overblown, with counterclaims about the eternal verities of human psychology, human biology, plain old human nature, or simply common sense being the *real* key to understanding current events and forms of life. Communication fades to a surface expression of these deeper verities and explanations.

Caught up in a seesaw of hyperbole and relegation, just how the significance of communication can be plausibly grasped is perplexing. The accelerated development and spread of diverse applications of new media and communication technology both contributes to this situation and provides one reason for seeking to remedy it. In this sense, the book responds to the current phenomena of communicative abundance—of broadband, of digital economies, of ubiquitous computing and organizational surveillance, of mobile media and social media—locating them in a history of the present and the role of communication in it.

But looking at the proliferation of new communication devices does not answer the question of how and in what ways communication matters. Instead, we make a case for taking note of the connections, often unlikely, between communication media practices and the ways in which the dispositions, capacities, and activities of various populations are formed, shaped, and regulated. In so doing we describe such connections as they exist now but also in different times and places, revisiting episodes in earlier histories of print, broadcast, telegraphic, and other media.

Thus, at a time when great store is put on communication literacy in education, in business, and in democratic politics, we hope to make a particular contribution to and argument about the shape this literacy can most usefully take, making sense of communication through exploring it as bound up with technology, with power, and with the lives of specific populations. To do this we must begin by saying exactly what we mean by communication, by technology, by power, and by population: this is the chief work of this introductory chapter. First, we start where we imagine most of our readers are—either at home with or, alternatively, still grappling, negotiating, or otherwise dealing with broadband.

"Connected": What's in a Norm?

Communication in the twenty-first century means a myriad of things, but while much is routinized and normalized, how people access the digital application of the Internet is not quite so—or, rather, it is on the cusp of being normalized for many people but utterly not for many more again. Whether you have been living during the past 10 years or so in the UK, in Australia, in South Korea, or Singapore will make a considerable difference here, as well as *who* you are and *where* you have lived in these countries. For a person living in Singapore, "always on" fast broadband access is highly likely to be a daily norm. The Singapore Government began its broadband policy in 1996, and by 2014 broadband access at home was a matter of course for 88% of the population. In South Korea 97.2% of all households had broadband access by 2011. In the same year, the figure was 80.4% for the UK, and only 72.6% in Australia and lower again at 68.2% for households in the United States (US) (OECD 2017). What broadband access *meant*, country by country, has been something else again. In 2014, for example, actual download speeds for fixed broadband ranged from a median of 50.67 megabytes per second in Korea, to 23.89 in the UK, 14.18 in Australia, and 21.23 in the US. Just which households, whether they were in cities or in rural areas, and which people within households were accessing these speeds for using the Internet, adds another several layers of contingency.

Broadband access as a norm means moving beyond calculations of how long it will take to look something up on the web relative to other information sources, and, fairly quickly, abandoning those other sources (doorstop telephone directories, for instance); it means taking for granted a plethora of entertainment options (and the opportunity to

move away from television schedules); and it means teleworking becomes a possible "solution" for a white collar worker's workday. As a norm, use of broadband differentiates a household in its practical operation in a host of small activities (making appointments, receiving invitations and invoices, banking, news sourcing, paying tax, delivering work or study documents, and so on)—that is, conducting itself in ways that become normative with this technology—from one that is not so arranged. One household is, thereby, more, and the other less, "connected." As the Australian telecommunications company, Telstra, put it in their early broadband advertising, 'Home Sweet Über Connected Home: Connection makes life richer, more interesting and more fun' (Telstra 2011). One household is more, the other less, technologically adept and future oriented, even more, and less, respectively, part of the twenty-first century. The time in which you are living, apparently, is not simply objective calendrical time but is dependent upon your capacities for telecommunication. Let's qualify that: the state of your household—its relation to the current moment and to the future and its possibilities—is dependent upon your capacities for telecommunication, according to the conducts and the rhetorics associated with this specific norm. (We step into and take up those rhetorics offered to us, although not always and not uniformly: it depends how persuasively and persistently their material circulation, and perhaps what others we have available to us.) Of course, households with broadband access but with multiple occupants may also be differentiated internally in terms of their adherence to this norm, especially along generational lines.

The capacity to embrace this norm has, unsurprisingly, been tied to income. Around 2011, the proportion of their salary that most Africans paid for broadband services was tenfold that paid by people in Europe and North America (Muente-Kunigami 2014), and although mobile broadband has driven increased access in recent years, in 2013, for people in 25 of the 135 countries with mobile access, it cost more than a month's pay to buy a year's mobile broadband service (Gulati et al. 2016, p. 2153). Embracing this norm is also tied to infrastructure provision. Elected governments, charged with running national economies, are involved here, although political views on the virtue of such involvement and its advisable extent are sharply divided. Again in Australia, the Opposition communications spokesman has in the past described the Labor Federal Government's National Broadband Network as the 'last bastion of communism' and 'the telecommunications version of Cuba'

(Yeates 2011) because of the level of public expenditure it involved. This hyperbole aside, a number of governments—Singapore, Australia, Malaysia, New Zealand, and Greece—have taken ownership or control of next-generation broadband networks (Economist Intelligence Unit 2011), in contradistinction to countries such as Japan, South Korea, and many European countries where facilitation of market-driven infrastructure provision is the preferred policy. Even in China, the *Economist's* Intelligence Unit reports the government's role is one of providing stimulus rather than control.

Regardless of the different policies adopted by their respective governments, Singapore, Japan, South Korea, and also Sweden have led the way in either funding or encouraging private rollout of near-ubiquitous high-speed broadband. Whether through ownership, stimulus, partnership, or regulation, governments are major drivers of broadband infrastructure, regarding it as important to their economies' gaining or keeping a competitive edge. In a range of countries around the world, governments and organizations have developed or are embarking on policies to facilitate what are called, with some degree of interchangeability, digital and creative economies—the economic activities and relations that networked technologies make possible, 'the global network of economic and social activities that are enabled by platforms such as the internet, mobile and sensor networks' (Department of Broadband, Communications and the Digital Economy 2009, p. iv).

The "digital economy" is a particular and increasingly central aspect of knowledge economies. In turn, the networks and interoperability of the digital economy in the current Web 2.0 period foster the promotion of "the creative economy," characterized by a distributed creativity capable of providing leadership for innovation across all economic sectors. Digital and creative economies, about which we say more in Chapters 3 and 4, are the forms of economic life that are underpinned by broadband. These economies are the sectors that governments searching for new avenues of productivity, growth, and competitive advantage in the financialized environments of the twenty-first century are persuaded to invest in, financially and rhetorically.

While all this attention to broadband acquaints us with the communication preoccupations of national governments and of affluent and relatively affluent populations, whether people have access to the Internet at all (and where: home, schools, work) has divided populations, nationally as well as intranationally, even more decisively than the twenty-first century,

rich-country norm of high-speed broadband. In 2016, less than a third of India's population had access to the Internet, regardless of the raw numbers; in Sweden, 98% of the population was online. For all the talk of the Internet's pervasive presence, usage is far from universal or uniform.

In sketching just a few selected aspects of twenty-first century media and communication use—utilizing the Internet; how it is accessed; the geopolitical, generational, economic, and infrastructural conditions of such use and access; the emerging economic formations within which such normalized Internet activity may be counted and valued; and the differentiation of household and divisions of populations which ensue—our immediate objective here is to demonstrate this book's agenda. We write about communication and technology because of their connection with power: what gets to be said, envisioned, argued over, instated, arranged, done, and made part and parcel of people's lives and how they are able to live them. To approach communication and technology in this way is to highlight rather than sidestep the problems, large and small, that accompany them. To ask, which problems, for whom? To be interested in the situations in which problems arise and require negotiation and deciding—and which may indeed produce welcome possibilities along with unwelcome pressures. Much talk about new communication technologies has habitually veered into futurology, or championed and boosted the "new," or bemoaned a lost past the new has despoiled. But, as an increasing volume of scholarship has shown, things are more complicated than that and less amenable to one-sided positions, if the full array of social relations within which communication technologies are caught up is brought into view. The rationale for this book is to contribute to developing an attention to communication media that brings these relations and these problems, in their different scales, into view. These are problems of social and economic equity—about what communication resources are available to whom—and they are problems also of what kinds of social existence are facilitated by, entangled with, or impinged upon by these communication technologies. The small problems are things such as the prosaic annoyances and situations in a household, where digital technology has added many new things to remember (such as battery life and recharging and passwords) and to negotiate, such as how much computer time is healthy or wise for children, whether educationally (in terms of stalled book-reading habits, or conversely, less facility with computers), physically (in terms of foregone outdoor activity), socially (in terms of diverse forms of interaction, or even diminishing household conversation), and financially (in terms of endless "requirements" to upgrade).

Large problems, as just sketched, are recognizably about "digital divides." Disparities in use of digital communication technology linked to income, race, or ethnicity, education, and location were reported on for the first time as a "divide" in the U.S. Department of Commerce's *Falling Through the Net: A Survey of the 'Have Nots' in Rural and Urban America* (1995), and they continue to be represented as such in the ongoing measurement of digital populations and offline populations by government authorities, NGOs, and commercial organizations. The big problem issuing from such divides is seen as the diminished employability and capacity to participate in society of those "offline," creating left-behind groups who will not only be themselves locked out of 'the riches of the Information Age' (U.S. Department of Commerce 1995) but will also dilute the national and worldwide embrace of the spirit of the age—digital communication as progress. The assumptions at work here are that digital technology is the self-evident gateway to (more) socioeconomic equality, to civic involvement, to flourishing participatory democracy.

For some writers, the large and small problems posed by twenty-first century communication are made good by the welcome diversity on offer in a period of communicative abundance (Keane 2009), or by the change-making benefits of a cultural chaos engendered by proliferating communication channels (McNair 2006, p. 3). But perhaps this cedes too much to the *technical* affordances of media and communication technologies rather than paying attention to the actual lives of populations and how they are shaped, patterned, and governed. It is in these lives that these media and communication technologies have their purchase: in daily routines, decisions, and practices. We use the phrase "actual lives" purposefully here. It is not the abstract figure of "the user" that interests us. "The user" objectifies and reduces the social features and differences that characterize people into a reified ideal, in line with assumed technical profiles. By contrast, we want to put actual populations, how they are dealt with and what they do, at the heart of communication research; and to do so not naively, as in digital populism's "user power," where digital technology is envisaged as unleashing the latent power of "the people," but politically, where we grasp that populations and their member individuals have agency but are also, at the same time, *governed*.

To the extent this book is concerned with present problems it contributes to a genealogy of communication, technology, and power. This is both a history that collates accounts of how communication, with its media and technologies, has mattered in the past to specific populations around the world, and a history organized to draw our attention

to the situations in which particular populations find themselves now—the situations of their government—in the sense of the constraining and inciting pressures, conditions, and possibilities of those situations. An example is the situation of young people in "global cities" presented with the injunction in their schooling and their job seeking to make themselves desirable employees in digital and creative economies.

Our view is that the most useful way to approach communication media, as integral parts of these situations of government, is to do so historically. This in turn comes from our assumption of contingent agency; that people make their own social realities, although not in conditions of their choosing. This infuses the story of communication technologies and their use no less than any other area of life. In large part, this book is designed to gather examples that demonstrate this point, as opposed to the various determinisms that to some extent continue to characterize discussion of media and communication.

Categories of Description and Analysis

We have already mentioned some key terms in explaining the purpose of this book. These terms, and a few others, operate throughout this book as key categories for describing and analyzing communication, the people involved, and the arrangements shaping their existence. We aim not to provide an extensive theoretical excursion but rather to make clear our approach to communication and media, to politics and power, to social relationships, to economic activities, to technologies, and to cultures.

Communication

This book is centrally interested in "communication," which we understand to be the production, distribution, exchange, and uses of meanings, as well as of accompanying pleasures and pains. Communication helps to shape and constitute social relations, identities, and situations rather than to simply express or represent them. The argument here is that rather than, say, a national community existing first as "dumb" fact then expressing itself—for example, in a national cinema—certain kinds of film-making and viewing help generate a national identity; rather than a masculine identity existing innately, then being represented say in advertising and popular music, automobile ads and rap

lyrics help fashion a contemporary masculinity for individuals to take up, in whole or in negotiated parts. Our perspective on communication is further sharpened through a notion of rhetoric, specifically a non-Romantic approach to rhetoric. The qualifier "non-Romantic" signals we are avoiding the widespread conflation of rhetoric with persiflage or untruth, where it follows that the best way of handling the rhetoric used by politicians, managers, educators, salespeople, economists, activists, artists, builders—the list is endless—is to discard or distrust it as wrong or self-serving accounts. Instead, rhetoric is better understood more neutrally as 'the strategic use of language to achieve specifiable effects … [and] the successes and failures of those strategies' (Freadman 2009, pp. 75–76). If to "language" we add all the other components such as images, sounds, or gestures that people utilize to make meanings, then this short definition of rhetoric, which Freadman calls a 'theory of use' (p. 75), helpfully highlights the *uses* of language (and other materials), the outcomes, the strategies (and implicitly, the strategists) that communication entails. Although this definition might seem obvious, we think it is helpful to emphasize that communication is not at all a "thing" but immediately demands that we take into account what people are doing—their practices and uses of sense-making materials—to grasp communication: that is, the meanings produced cannot be abstracted from these people, their practices, and their uses. In this way, a commitment to a fully *social* understanding of communication is signaled.

This fully social sense of communication, as we are approaching it, focuses on the role of communication in people's social realities and social relationships; for example, how things as diverse as street signage, mobile telephony, and SKU codes help constitute the realities of twenty-first century urban living and relations with other city dwellers. As noted, it means grasping this role as forming the shapes of social existence, rather than merely representing what already exists. Further, it means understanding the materiality of communication, rather than seeing communication as resembling the channeling circuitry of ideas in people's heads, with the ideas having primary importance and the circuitry relegated to a secondary if necessary position. Dealing with the material dimensions of communication means addressing the following list of elements: media and communication technologies and institutions (e.g., print technology and the institution of literature, broadcast technology and the institution of news); texts and communicative artifacts of varied kinds (books, reports, Muzak,

photographs, websites, posters, performances, speeches, etc.); all the materials and practices of selection, presentation, disposing, and composing that these texts and artifacts entail; and their composers, audiences, and users (such as writers, photographers, singers; readers, viewers, listeners; and digital composers and audiences interweaving these occupations in employing computerized devices).

We treat the activity of these composers, audiences, and users as real production, as a making of sense, even when this is a re-making of senses and meanings that are often repeated, in culturally sedimented patterns (such as a news story). In other words, meaning—in whatever text, object, or artifact to which it is attributed—is fully, socially, a production, not a gem already in existence and simply waiting to be discovered, the gem of an "idea" transmitted from an originating author's mind and enfolded in a text. Meaning is not a gift of nature but a labor of people. This central element of production brings with it unpredictability and contingency; communication is a gamble. The gamble involved is the consequence of sense-making being the work of composers, audiences, and users equipped with sense-making resources which are diverse. In writing a letter, posting a blog, uploading a video of themselves, or reading and viewing any of these, sense-makers have differentiated capacities and differentiated purposes. At least some of these differentiations, and the diversity and contingency of communication, can be traced to the socially organized consequences of class, gender, "race," ethnicity, cultural affiliation, generation, sex, region, or district, and the divisions and differences these entail for people. Given the arrangements of the French education system in the mid-twentieth century, for example, French women were much less likely than men to be able to make sense of an issue such as school discipline as "political" rather than "moral"; that is, they were much less likely to have socially acquired the capacity of political literacy (Bourdieu 1979).[2]

Added to these socially and historically organized differences in sense-making capacities are the situation-specific differences in how these capacities are deployed by composers, audience members, or users on any given occasion, or attached to their varying purposes. Thus "communicating" to others, or even to oneself, is a risky business in terms of outcome—of whether those others will make sense of what is proposed and circulated in the way it was calculated to make sense. Our sense of "communication" in this book takes contingency as a given, and attends to shared meaning and understanding as the result of material practices for managing this risk (the patterns of meaning-making established, for

example, by visual and linguistic grammars, by genres, by narrative and characterological conventions, by formal codes of layout and arrangement, by techniques of commentary). Communication is, as a matter of course, messy, chancy, and marked by strategic failures as well as strategic successes—a far cry from what is often assumed and sometimes presented as a normative ideal of shared understanding between humans made possible by inventions and practices that make the transfer of information, messages, or meanings ever more "efficient." The twenty-first century version of such ideal, efficient, streamlined communication, reduced to the transfer of "information" between its senders and receivers, has been dubbed by one writer as 'double-click information' (Latour 2003, p. 146).

Media and Communication Technologies

Already mentioned as an element of communication are media and communication technologies. These technologies are relatively durable, historically organized and thus malleable ensembles of techniques and knowledge for doing things, including making and circulating meanings. Using this category, rather than simply "media," marks the inseparability of communication media such as books, newspapers, telegraph, film, television, radio, and mobile telephony from the technical devices, practices, uses, and knowledges that enable them. In noting this, it is important to take on board that what is being ushered into view is not *only* the technical devices, but also the practices, uses, and knowledges with which they are bound up. For one of the things at stake in the notion of communication technology is the distinction between a technical invention or communication device and a technology. Routinely, print, broadcast, telephonic, and digital technologies are reduced to the technical devices of the printing press, the television, the mobile phone, and the computer. Histories of media that center on such devices habitually eliminate or obscure the intrinsically social character of communication and, in addition, attribute to the devices their own apparent agency.[3] It is to this reduction and attribution we owe the myriad of unhelpful accounts of mobiles or television or the printing press "changing the world," that is, the singling out of technical devices as causative agents and the proliferation of simplifying explanations of change.

To avoid this, the cultural historian Raymond Williams three decades ago defined a communication technology by emphasizing its distinction from a technical invention and the techniques that enabled such inventions. Although a technical invention is 'a development of a particular

skill or the development or invention of one of its devices,' by contrast, a technology is 'first, the body of knowledge appropriate to the development of such skills and applications and second, a body of knowledge and conditions for the practical use and application of a range of devices' (1981, pp. 226–227). In this careful definition, a body of knowledge, skills, conditions of use and application—conditions that are social, political, economic, cultural—as well as those uses and applications themselves, with their variety and variability—are all added to the otherwise thin explanatory element of the technical invention or device. In our use of Williams' notion of communication technology we include rhetorics as amongst the 'body of knowledge': rhetorics are *inside* communication technologies, as we hinted at earlier regarding getting connected with broadband.

Williams' definition also accounts for the historical formation of technologies. Techniques or knowhow are organizationally and institutionally formed through practices of economic investment and labor. These techniques are mobilized in technical inventions, not all of which are taken further. Technical inventions are then designed, marketed, and advertised for use and sale, then applied—in ways not always envisaged by their engineers and designers, as per the well-known example of the texting application in mobile phones—and marketed to form technologies constantly and contingently subject to inventive adaptations and hybridization with other technologies. Grasping the historical formation of communication technologies is important because it enables the characteristic or routinized (dominant) features of a communication technology to be taken into account but without resorting to ahistorical conceptions of a medium's "nature." Such conceptions of, for example, the nature of television or the nature of the Internet, are another way to regularly overlook the uses and applications to which technical inventions are put, uses and applications that are always social, uses and applications by particular groups and individuals.

As already mentioned, media and communication technologies such as broadband have consequences for populations that reach to the minutiae of their days, as well as their possible places in new engines of economic growth for which they are incited and encouraged to equip themselves with the capacities to participate in digital and creative economies, persuaded along particular paths of conduct, effort, attention, labor, and aspirations. In this sense, these technologies are integral component parts of the government of these populations.

Government

"Government" names the formative shaping of the possible field of actions of individuals and groups—this is using the word in its older sense. Government—or governing—is a pervasive, productive and heterogeneous exercise of power (or, more precisely, of power relations) which attends to the work of governing as extending beyond the State and thus beyond elected governments directing the State, although by no means ignoring these elected bodies and their tasks. The more recent, now dominant use of the term "government" is conceptually narrower, and it is this now broadly liberal and common sense usage that encourages a more or less exclusive focus on the State and its armory of laws and agencies to control and coerce people's behavior through the authority to take away from the people within a particular territory their liberty, property, and in some cases, life. Battles against, and for, the power of government as the State, are familiar in the late twentieth–early twenty-first century period.

In the broad sense of government, by contrast, governing occurs in and across all organizations and institutions, operates at different levels, and on local, regional, national and global scales. Rather than being characterized only by the imposition of obedience and the control of unwanted conduct, it also involves a governmental power to persuade, train, and form those who are governed. Thus, to speak of populations being governed is to describe something beyond people coming under direct purview of the representatives of elected governments. This broader sense of government and governing requires a little more discernment to appreciate the different perspective it brings to our understanding of a whole array of things: political life, pressures, and possibilities; the social relations within which people live; economic activities and calculations; and cultural practices and patterns.

If governing is *pervasive*, it means that to understand how things are arranged in a particular society, and how they might be arranged differently, does not depend on locating some center of power (such as, traditionally, "the State"). Other institutions, for example, medicine, education, finance, television, and business, are as involved in the exercise of governmental power as the State, and it is the loose alliances among institutions and their actors that repay scrutiny rather than a simple pursuit of the source of sovereign power, that is, of who has the "right" to exercise power, a right traditionally attributed to the State.

Doctors' waiting rooms, televising private health channel demonstrations of low-fat recipe versions of traditional high-calorie desserts, are easy to overlook as sites of government if power is only recognized as happening in the offices of an elected government.

If governing, as an exercise of power, is *productive*, it means that governing engenders capacities, identities, and new social relations and situations. Far from simply forbidding or sanctioning actions, governing involves shaping within normative parameters the characteristics, the attributes, the moral capacities from which actions proceed. Abilities to read and write; capacities to log on, send email, and post a blog; attributes of "waiting" to spend income—of saving and thrift—or the different attribute of "waiting" to spend and investing for maximum gain[4]; the capacity to manage a household budget; the attribute of mental health, and the disposition to inspect oneself for signs of depression; this rough list names characteristics that attach and help give rise to identities such as the "productive industrial worker" or the "informed citizen" (literacy), the "connected community member" (net literacy), "savers" and "investors" (financial literacy), "responsible parents" (again, financial literacy in the household), and "resilient members of society" (mental health). In this way, populations are qualified in terms of the characteristics and aptitudes they acquire and deploy.

Such acquisition also entails particular kinds of social relations. Governing is involved in the formation of social relations, that is, where there were none before, as well as their maintenance or re-formation. Examples of *formation* are the social relations that characterize national communities, formed from the seventeenth to twentieth centuries, or in the late twentieth century, of the living-with-HIV-AIDS community; or in the same period in the West, and increasingly in the twenty-first century, of the new couplings between personal trainers and those aspiring to physical, psychical, career, and "lifestyle" change; or between a whole new class of affluent but sub-millionaire individuals and their investment advisers and "personal bankers."

If governing, as an exercise of power, is *heterogeneous*, it means that governing a population utilizes a variety of small and often overlooked mechanisms (exercises and formatted routines, persuasive examples or models, architectural design and repeated advice) as well as more visible public policy mechanisms (taxes and penalties), and also that it is guided

by all manner of different objectives. Mitchell Dean has captured the variety of these objectives in his list of some of the projects for "governing society" that have been deployed across the past century: 'revolutionary socialist doctrines of the dictatorship of the proletariat, the racial theory and practices developed from eugenics, the fanatics' dream found today in radical Islam and Christian fundamentalism, Keynesian macroeconomic politics or neoliberal monetarism, ideals of a welfare state or good governance, notions of a strong nation or ideals of a cosmopolitan democracy' (2007, p. 7). In other words, and at whatever scale, whether governing society wide or governing in an organization or governing the self, government takes no general or necessarily familiar form. Thus, "governing" is not something amenable to approval or disapproval in general terms; this will always be a matter of assessing the governing objectives in question and of the views and dispositions of the particular actors assessing these objectives.

Importantly, if government is about power relations rather than the simple imposition of rule by force, then it is about an exercise of power that maintains all those involved in social relations of power as meaningful actors. This kind of formative governmental power does not diminish the agency of those governed, but aims at shaping it and directing it to particular, various and variable, ends. It does so by taking pains to know those who it would govern: the exercise of governmental power always involves knowledge. Programs of governing are all built on particular knowledges *of* populations, and indeed are communicated *to* populations in ways that assume and indeed emphasize their freedom to act independently, to make choices. We assume that people, through all their different and acquired capacities and in their different circumstances and also quite contingently (that is, with no certainty of outcomes), *make* their worlds. The recent decline of newspapers was not an inevitability lying dormant in the World Wide Web, but an outcome of decisions and actions taken by managers, owners, shareholders, readers, and so on. In this way, people have agency, and identifying them as actors is a way of marking this. One of the important finer details of "government" as it has been outlined here is that it is an exercise of power that operates by maintaining and working *through* the people's agency, rather than by deleting it, as happens in arrangements of servitude, slavery, or serfdom. Histories of the present that are useful bring agency into focus. They refuse resorting

to 'spurious actors' (Hindess 1988, p. 104) or abstract, idealized causes (among which have commonly been proclaimed "human nature," "psychology," "modernity," "capitalism," "technology," "class," and "spirit of the age"). Further, they establish that what faces us in the present, even if dispiriting, can be approached as something open to review, struggle, and perhaps remaking, because it is not preordained, but is the work of other, differently inclined and arrayed, actors.

Governing is then understandable as action at a distance, with that distance allowing a space for negotiation by the governed. As the chronicler of governmental power has written, 'if [a man] can be induced to speak, when his ultimate recourse could have been to hold his tongue, preferring death, then he has been caused to behave in a certain way. His freedom has been subjected to power. He has been submitted to government' (Foucault 1981, p. 253), thus distinguishing governmental power from an immediate and coercive force or nonnegotiable "control." And this is why we always need to acknowledge the possibility of resistance. "Resistance" names the actions—calculated and organized, or more reactive, informal and occasional—which operate within the play of power relations and counter to the programs and policies of governing bodies. Historically, wherever there are relations of power there are forms of resistance, which may be alternative, oppositional, transformational, or futile. Consider the resistance to social media articulated through sites such as Ello, created in 2014 as an ad-free alternative to Facebook by people who resented the intrusion of paid advertisements into the site; or the Internet forum 4chan, which allows users to remain anonymous, to 'say and do virtually anything they want with only the most remote threat of accountability' (Dewey 2014); or the refusal by many to engage seriously with government campaigns to exercise choice about different elements of their superannuation. Using this category indicates that "government" is not something that is simply imposed on a population but rather a series of programs that entail, as already mentioned, action at a distance aimed at constituting the conduct and capacities of populations but always susceptible to their refusal, ignoring, or renegotiation of this governmental action. Resistance is by definition a possibility in governmental power working through individual agency. We are as interested in resistances as in the usually more documented or otherwise marked programs of governing bodies.

Overall, the category of government provides us with a means to name and attend to the relations of power coexistent with social relations between people, to think through these as mundane, routinely unnoticed, consequential, and dynamic (that is, generative of future realities), situation specific in how they can be evaluated, diverse in kind, and inescapable.

Populations

In this book we focus on populations. People are governed as members of populations, and we wish to align description and analysis with what actually happens to people. People are constituted as populations and shaped by virtue of action directed at those populations understood in different ways—as consumers, as audiences, as publics, as citizens, as peoples. A population is an aggregate of socially formed individuals, of individuals gathered into a grouping in some definite way, that is, by some governing body or other, which utilizes definite techniques of aggregation and means of making those who are aggregated visible to and knowable by the governing body. This grouping may be at the level of the nation, or of the city, or of a region or neighborhood—but it may also be at the level of an institution (for example, the population of patients in the institution of health and medicine) or of an organization (the population of employees at Google or Facebook).

Historically, governing bodies have focused on populations guided by objectives involving health, education, productivity, and security. A concern with national populations accompanied the formation of nation-states, hungry for knowledge of the fertility, the literacy, the working abilities of a nation's population. As the geographer Thrift puts it, 'the notion of population is caught up with the rise of states and their need to both circumscribe and enlarge their capacities through synoptic [comprehensive] facts' (2008, p. 94).[5] He is working here with the knowledge that "population" is not a natural accompaniment of the existence of human beings on the planet but a relatively recent notion and way of seeing and knowing human beings that dates from around the start of the seventeenth century in Germany.[6] Rather than the medieval view of persons as organic elements of indivisible groupings of various hierarchical kinds (orders, estates, *Stände*), fixed by natural law, that is, God's

law, the concept of population registered a new identity—of the individual, of isolated or divisible individuals—and a new mobility and variation in the ways in which these individuals could congregate. The backdrop here is that the rise of states occurred in the wake of centuries-long transitions from previous social formations of feudal dynasties and religious empires. What changed with the formation of national *populations* was that the members now grouped together had the status of individuals, no longer only souls, ministered to by clerical authorities, institutions, and organizations, nor of mere able bodies that could be mustered for dynastic armies. So to grasp this concept of population is to understand populations as made up of individuals, but also, and against the usual view of individuals, of this status being something that did not always exist for everyone (not even as how everyone *should* be understood but for the blinkers of pre-modern thinking). An individual was a status fashioned at a particular historical time, through various techniques that made daily ordinary lives—not just the lives of kings, queens, and their courtiers—visible and inscribed (reported on, documented, chronicled), and accorded to all members of a population.[7] The key point is that to be an individual is to be ascribed a social status, rather than to realize a wholly immanent quality always present in human beings. The individual is socially formed through practices of individualization and no less "an individual" for this.

Government, in the sense outlined here, takes as its object the state of populations, doing so through the detailed and pervasive concern of authorities with the lives, conduct, and qualities of "each and all," the small things about each individual and the accumulated body of all these individuals put together. This concern is first and foremost a practical one, utilizing techniques of individualization and aggregation (such as surveillance, data gathering, statistics) and knowledges (such as medicine, pedagogy, criminology, marketing) to shape people and the social relations among them. In the sense that both techniques and knowledge (the twin components of a technology) have been brought to bear on them, a population is a technologically wrought grouping of people or persons, made, as a population, the object of the further exercise of power, at a distance, although always through the patterned agency of those individuals making up the population. 'The population … is an artefact of definite systems of administration and investigation' (Hunter 1988, p. 5). And this is the crux of our wishing to bring these joint working concepts of government and population—the government of populations—to take a fresh look at media and communication technologies.[8] Describing the

operation and use of these technologies on the terrain of population and their member individuals aligns with the empirical circumstances of people *as they are intrinsically the object and target of the exercise of power*. Among other things, it sidesteps the perhaps nice, but mistaken, idea that everyone is (by default) an individual, from the outset, *and then* susceptible, in eroding or limiting ways, to the effects of power. Rather, the practices of individualization and of the exercise of power (for example, persuading someone to speak) are both formative and present from the outset, that is, are the milieu in which an individual comes to be. This concept can be specified a bit further.

In histories of communication media it is routine to talk about publics, audiences, citizens, "the people." It is less common to foreground populations. We do not mean simple use of the term, as, for example, in Poe's *A History of Communications Media and Society from the Evolution of Speech to the Internet* (2011), in which his general theory of media, promising to identify for the first time what is truly new about the Internet, includes considerable attention to historical population numbers and their relation to technological change. In Poe's contention (that different media technologies make different demands and provide different gratifications that, among other things, affect population growth) there is no sense of population as an historically recent notion and a quite particular way of seeing and knowing human beings, a knowing that is integrally connected with exercising power, with the consequences of that power, and with resistance to it. It is this second dimension of population we want to bring to our consideration of communication media, arguing that it may help us avoid short-circuiting how we understand the power associated with them: why they matter. Such short-circuiting is likely to occur when publics, audiences, citizens, or "the people" are treated as the ground zero of description and analysis. Because these collective identities are not naturally occurring but historically achieved; they are the particular qualifications and attributes of a population. For example, "the people," all originary myths of democracy to the contrary, is not a raw fact of the political and cultural landscape. Rather, it is an artifact of the routine addressing of a particular population as "the people," enabling and inciting it to acquire a populist literacy for understanding and governing themselves.[9] The people is a population governed along particular lines. Much the same can be said about "the public" with its connotations of being a conscious, rational entity. When these notions are appealed to—to explain or ground the role of journalism, or broadcasting, or the Internet—they ignore this prior governmental history.

This said, the historical formation or production of collective identities and capacities is something that writers on media may indeed bring into view, without the explicit lens of "population" and "government." Leslie Johnson's (1988) work on radio, for instance, provides just such perspectives on the making of Australians as radio listeners and domestic audiences. Our aim in arguing for the value of a "government of populations" approach is not to insist on terminology but to set out a heuristic way of grasping the fully historical, social, and political dimensions of media, as integral and as formative. This view is consonant with what other writers have done in this regard, for example, Ouellette and Hay (2008) regarding reality television and citizenship; Hay (2011) probing the relation between population, US populism, and a 'media revolution'; Odih (2010) discussing advertising as a governmental rationality; Lee (2010) on Singapore media; and Nolan's (2008) suggestive recalibration of the relations between journalism and politics.

The political theorist Partha Chaterjee has usefully set out the distinctive orientation lent by the category of population: 'citizens inhabit the domain of theory, populations the domain of policy' (2004, p. 34). Distinguishing his own work on the governed in India from the dominant focus on citizens found in political theory, he continues:

> Unlike the concept of citizen, the concept of population is wholly descriptive and empirical; it does not carry a normative burden. Populations are identifiable, classifiable, and describable by empirical or behavioural criteria and are amenable to statistical techniques such as censuses and sample surveys. Unlike the concept of citizen which carries the ethical connotation of participation in the sovereignty of the state, the concept of population makes available to government functionaries a set of rationally manipulable instruments for reaching large sections of the inhabitants of a country as the targets of their 'policies' – economic policy, administrative policy, law, and even political mobilization. (2004, p. 34)

Chaterjee is focused here on the level of the national population and uses "policy" as a touchstone for attending to the practical programs bearing on people's lives. His point about removing the 'normative burden' or assumption from the concepts available to study these matters is a useful one. For example, the 'ethical connotation of participation' attached to "citizen" pinpoints the difficulty regarding people who are more disposed to withdraw from than participate in public affairs and

who may remain invisible to analysis if "citizens" is the only available identificatory category. Focusing on "populations" aligns description and analysis with a working concept used by authorities of diverse sorts in their actual work of governing: it is a step back from theorizing and gets closer to what actually has happened and does happen, allowing that this always involves conceptual work, discursive tools, and mental schema. It also reminds us that any *normative* view of these matters of the exercise of power and how media are bound up in it needs to be explicitly provided, rather than left to habit and unexamined assumptions. Chaterjee's main concern is with society-wide or national populations, but populations are also formed as objects of government on local scales (think of the populations in the Australian city of Melbourne's urban fringe and bushfire zones, the target of "stay or go" communication campaigns after the tragic loss of life in the 2009 bushfires; Chaterjee writes also about the population of West Bengal), on regional scales (think of populations in the Asian Pacific faced with rising sea levels and campaigns around climate change), international scales (here think of medical programs addressed to populations living with HIV-AIDS, or of populations of climate scientists), organizational scales (think of the population of Yahoo employees in relation to the 2013 rethink of the company's "work from home" policies by the CEO), and in other spaces (online, populations using Facebook, or QQ). On all these scales, making a population visible and knowable, in terms of their attributes and their conduct—around threat of fire, around potential displacement by encroaching seas, around their sexual activity and their healthcare, around their work location and routines, and so on—is something that can thereby allow intervention, which involves not only or centrally coercion or force but persuasion for them to monitor and alter, to maintain or change, their own activity. Here, again, the concept of rhetoric is useful.

Rhetoric

Rhetoric is the strategic use of linguistic and other materials to persuade particular audiences to some aimed-for social outcome. We investigate media in terms of rhetoric as part of an approach to media as embedded within the government of populations. Focusing on rhetoric, or rather on particular rhetorics, helps us describe one key element of the action at a distance that government entails.

Rhetorics, aimed by their composer at producing social outcomes of some kind involving their audiences, share with the dynamic, productive aspect of governmental power that they both attempt *to engender* new states of affairs, capacities, or relations.

Another way of putting this is to say that rhetoric is not representational (that is, to be understood as statements representing, or misleadingly representing, what already exists) but is performative. Rhetorics "perform"—or help bring about (should they persuade their audiences)—the state of affairs they claim to present and offer to audiences. That is, rhetorics propose or offer arguments to their audiences about how the world is. For example, the rhetoric of the Cloud proposes the fantasy of security and participation (Hu 2015) and plays a role in bringing people to use, invest in, and come to rely on cloud technology.

It should be clear that this understanding of rhetoric departs from its more established and restricted sense as a 'system of rigid categories' (Leith and Meyerson 1989, p. xii); and that the focus is more on the domain of argumentation than that of poetics. A rhetoric is a formulated, styled and circulated argument. To describe the operation of rhetoric is to '[lay] bare the interaction context that the speaker or writer has constructed in the text' (Alasuutari 1995, p. 94) and to attend to the particular audiences for whom, and the particular occasions on which, this argumentation is played out. With these various social relations in view, describing rhetorics requires attentiveness to what happens outside and beyond the text, as well as the compositional work within it.

In other words, the particular rhetorics in play in a situation are the communication techniques and materials deployed on that particular occasion to make a particular case and to effect an outcome, to persuade a specific audience *to* a particular conduct or disposition. Government, in the broad, is made culturally possible through intellectual technologies, such as journalism, public relations, statistics, or marketing; rhetoric, that is, communication techniques, is the textual form of those intellectual technologies. To understand government, therefore, necessarily entails attention to governing rhetorics.

History

This book contributes to histories of the present. We are interested in multiplying the ways we can understand, and thus act in, our present circumstances, and how they have come to be. This stance assumes

a particular understanding of history. Although history is what has happened in the past, access to this always involves an active work of making sense in the present. What counts as history is always constituted from a particular position in the present regarding the matter at stake—for example, the formation of the Internet. This work necessarily entails the possibility of plural histories and means that histories are the field of argument and debate over criteria of evidence, the plausibility of claims, and the framework of assumptions employed. In this book, a key assumption is that contingency—rather than an unfolding inevitability or necessary evolution—infuses events.

Our aim is to add to histories of the present, or to what can be more precisely named, genealogies. Genealogies register the contingent and provisional ways in which current circumstances have come to prevail. Genealogies are also motivated by aspects of the present that have been shown as problematic, puzzling, or needing attention. Our opening sketch of the different ways people are able to be "connected" in the twenty-first century, or not able to be, and what this might mean for their position in relation with others, and for what they are able to do, introduces some present issues "needing attention." Opportunity to use broadband is simply one issue about which to ask: how are different populations positioned, what does it mean for their lives, and in what ways has communication of various dimensions been implicated in this state of affairs? Later chapters of the book pursue these questions in relation to the digital present. First, we establish a number of history lessons in Chapter 2 that explicate our view of communication technologies and populations, around particular instances of print, of telegraphy, and of broadcast media, and which suggest how digital changes are best understood as current layerings on, or differentiated repetitions of, sometimes purposeful departures from much longer histories of uses of communication technologies.

Notes

1. Others are doing similar work: see Isin and Ruppert (2015), Dean (2013), Amin and Thrift (2013), and Bennett and Joyce (2010).
2. See also the ESRC-funded research by Curran et al. on gender gaps in political knowledge from a ten-nation comparative study, reported in Pollack (2013).

3. Working against such reductions and device-centric accounts are scholarly histories such as Goggin's treatment of mobiles as media culture (2006) and Marvin (1989).
4. "Waiting" is a particular capacity established in Marshall's neo-classical reworking of the labour theory of value: "the growth of wealth involves in general a deliberate waiting for a pleasure which a person has (rightly or wrongly) the power of commanding in the immediate present" (Marshall in Robinson and Eatwell 1973, p. 38). Waiting, in other words, is tantamount to capital, or perhaps to capital and the capitalist disposition that ensures its further accumulation.
5. See also Minson (1985, p. 105) and Mattelart (1996, pp. 27–28).
6. It might seem odd to call something apparently universal like "population" new, but it is undoubtedly a recent invention. Pasquino (1978, p. 50) identifies it thus: 'Isolated persons, individuals. This is what constitutes a population, that abstract concept … Populations: another relatively recent word, invented by Obrecht in Germany [at the start of the seventeenth century], consecrated – at least, in France – only in the eighteenth century, thanks to the State of prosperity. Population and individuals, where previously, in the old social structure, there were only groups, *Stände*, orders or estates inviolable – at least by right – in their eternal hierarchy.'
7. Foucault describes the shift as the 'reversal of the political axis of individualization' (1977, p. 192).
8. See Hansen's argument (2012) about the overdue nature of this, in his discussion of how a focus on Deleuze's work on the 'dividual' effectively interrupted a meeting between the 'atmospheric media' of the twenty-first century and Foucault's attention to populations.
9. In this literacy, a unitary and virtuous people is pitted against a group that has usurped the people's god-given authority or right to power.

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CHAPTER 2

History Lessons: Then and Now

We opened this book with some of the matters occupying people's lives in a time of broadband communication technology. But if broadband seems to us now to take the government of populations into pathbreaking digital dimensions, it is worth remembering that, to some degree, we have been here before. Another digital technology, the telegraph, was the focus of technical inventiveness and problem solving, economic ambitions, political negotiations, and a wide variety of social and cultural uses and consequences in the nineteenth century, which just as relentlessly patterned and embedded populations in relations of power as the currently remarkable phenomenon of broadband.[1]

Digital is not quite so new as we like to think. The historian of new media Carolyn Marvin (1989, p. 3) reminds us of this by describing computers as simply the telegraph with a prodigious memory. Saying this is not an attempt to wash away the particularity of computerized and Internet-enabled communication technology, but to get us to see its "newness" in connection with the persistent and to some degree familiar work, negotiation, and day-to-day tussle around how any communication technology is brought into people's lives and the social and other relations they comprise, and what changes are thereby fashioned. These are the history lessons that help us understand the actual significance of what is often unhelpfully dramatized, singularized, and overblown as a revolution—in our times, a revolution going by the name of broadband, or a few years earlier, the Internet. In this chapter of history

P. Dearman et al., *Media and the Government of Populations*,
Palgrave Studies in the History of the Media,
https://doi.org/10.1057/978-1-137-34773-2_2

lessons we also talk about other claimed communication revolutions, consider what might qualify the changes involved to be plausibly called "revolutionary," and most importantly, how these changes and technologies are part of different ways of governing the diverse and varied populations using or targeted by others using these means of communication. If the note of caution around use of the term "communication revolution" signals a disposition toward debunking twenty-first century hyperbole, we should make it clear we are not interested in simply cutting our perspectives on digital communication technologies down to size, but in informing our view of them by instating the close historical connection between communication technologies and the governing of populations.

In doing this, we pick up the definition in Chapter 1 of what is a "communication technology" and exemplify the crucial sense of a technology as always fully social. Following these closely related threads, consideration of a variety of brief "history lessons" provides us with the necessary backdrop for a focus in later chapters on the digital present. But in this chapter too, we move around in time and space, aiming for neither a chronological unfolding nor a singular narrative focus. Rather, we announce a variety of historical or more recent themes, focusing on what they can teach us about the links between communication and governing.

Building an Overland Telegraph

Mound-springs and white porcelain insulators, made by the Berlin Imperial Pottery. These are two of the visual markers, specific to a particular episode in the building of a particular telegraph line, that usher into view the activity of and the relations between the governing and the governed, the strategizing and calculating, and the adapting and resisting groups of people who were differently caught up in the building of telegraph technology.

The particular episode we have in mind is the wiring of the continent of Australia in the nineteenth century. These cultural artifacts, porcelain insulators and mound-springs (the characteristic cones built up from carbonates deposited out of groundwater mixed with windblown and waterborne sediments, yielding artesian water in an arid land), were two of the material stakes in the relations between indigenous people and white men. The indigenous people belonged to the different nations caring for country,[2] and the white explorers, engineers and laborers were mapping and connecting this same terrain by poles and wire. These artifacts

were the *things* around which a politics,[3] a negotiation of power relations, formed in the multiple occasions of these two groups coming together, initially peacefully, later not. These groups were involved in the building of the Overland Telegraph and so in turn the "opening up" of the interior of Australia from the 1850s through the 1870s.

For indigenous populations, the mound-springs were an important component of an expansive trading network, providing food and water en route to other places, a way to conduct a nomadic traversal of the land. "Discovered" and used by white explorers and engineers, they became 'strategic stepping stones' through otherwise impassable territory (Harris 2002, p. 9), and part of a case to win the British Australia Telegraphy Company's agreement to land their undersea cable at Port Darwin, on the northern shores of the continent, rather than in the eastern colonies.[4] The network of mound-springs was a cultural technology of indigenous groups, people for whom space is collective, that is, territorial, but named and navigated with respect to "a people" rather than an institutionalized sovereignty or ownership. With the building of the Overland Telegraph this network was layered over by a European population of colonizers with another purpose, legally sanctioned and economically rationalized. As repeater stations were built to strengthen the signal across the telegraph network they became oases of white settlement, locations for the delivery of supplies and services, and in turn spawned further development in mining and pastoral industries.

The accelerated contact between white colonizers and indigenous people was part of an eventual alienation of the latter from their land and culture (Shepherd 1996). But the nature of the relations between the two populations, and even the clear settling out of roles of governing and governed, was not given at the outset. In the initial construction phase of the Overland Telegraph, the white porcelain insulators, for example, were objects of disputed use between the different populations, markers of indigenous resistance to the new white-men activities and part of indigenous adaptation of this new technology, with Aborigines using their spears on the insulators 'to claim new cutting shards' (Moyal 1984, p. 54). The response by Todd, the electrical engineer overseeing the telegraph's construction, was to order his men to leave broken insulators and coils of wire (adapted by indigenous people for fishhooks) at the base of poles that were being regularly attacked, so that at least the indigenous locals were not electrocuted in the process. This strategy of peaceful governing included supplying locals with food rations.

But in 1874, things changed. An indigenous attack on the Barrow Creek repeater station and the murder of two telegraph workers, perhaps occasioned by the station being built on sacred land,[5] resulted in a punitive response and the deaths of many indigenous people. 'This large-scale slaughter became the method of dealing with attacks on European property and lives' (Shepherd 1996, p. 44). Spilling out from and as part of the building of a new way of communicating, of wiring up a nation and of crossing borders, the consequences for both black and white populations were complex, contingent, stark, and pathsetting.

For other populations, construction and use of the Overland Telegraph brought different kinds of consequences. Government administrators, newspaper editors and proprietors, wealthy market investors, miners and pastoralists—overrepresented as early users of the telegraphic network because of the cost of access[6]—could trade information with much greater immediacy. Closer collaboration on defense matters, next-day publication of British news, and opportunity-taking on market prices: use of the telegraph transformed space–time relations for these groups of the powerful and wealthy. Alongside accumulation and top-down administration, the next-day publication of British news and information enabled the formation of British bourgeois tastes and practices, with 'white men and women … [able to] gather outside the telegraph office to hear the results of the English derby' (Clark 1978, p. 221). And although marked by class as well as color, for the broad populations of the colonial states the telegraph's radical revision of time and space relations provided a means for constituting between them at first local colonial and, later, national cultural relations. Telegraphy enabled the transmission of time signals across a dispersed network—literally creating 'standard time' through sending a signal 'throughout each Colony at one o'clock every day' (Moyal 1984, p. 32). The telegraphic clock enabled trains to run 'on time' (Davison 1993, p. 52). It allowed a new sense of simultaneity, with every message stamped with the date and time of dispatch. Newspapers began to cater to a newly formed demand for immediacy in their markets and readerships, and later to address and reconstitute local markets and readerships as a part of a larger, eventually national 'imagined community' (Anderson 1991).[7] Readers were able, for example, to read up-to-date notes on the weather for distant locations, thanks to the fact that staff in the dispersed network of telegraph repeater stations began collecting meteorological information (Moyal 1984, pp. 32–33). And surveyors were now able to set their

chronometers to time signals taken from standardized city clocks, via the telegraph network, enabling more precise metrological definition of state boundaries (Davison 1993, p. 53). Colonial populations were more precisely located, clocked, resourced with useful information, and bound together with a sense of belonging to a bounded time and place.

But none of these developments issued simply from the technical invention of the telegraph as a signaling device. Entailed in the technology of the Overland Telegraph were Raymond Williams' bodies of knowledge, skills, the uses and applications themselves, as well as the conditions of use and application: the political lobbying and international and intercolony negotiation over landing points of the undersea cable from London, the exigencies of the overland route, the mutable relations between white and black, the financial calculations and persuasions around private or public investment, the technical problems and solutions, the questions of pricing and socially differentiated access, the varied uses and uptake by different organizations and groups. A sprawling, tangled mass of technical, economic, political, social and cultural details, practices, actors and events. Noting these messy and multiplied dimensions—however briefly—makes it harder to mistake the telegraph as a technology (qua technical device) that simply *has effects on* the various populations of the nineteenth-century colonial states in Australia. It asks us to consider these populations as political, cultural, and economic actors, and the "thing politics" in which they engaged for their various, disparate purposes as significant as any sheer technical affordances. One instance of this is the capacities for policy formation that were generated through the work of ministerial conferences convened between the 1850s and 1890s to negotiate jurisdictional matters between the colonies concerning the telegraph. Nearly half the 85 intercolonial conferences held during this period were to discuss technological matters, and as many as 25 addressed 'post, telegraph, and cable matters, with others on meteorology, surveying, statistics, electricity, and allied areas' (Livingston 1997, p. 6). Livingston tells us that it was at these conferences that colonial administrators negotiated, for example, the cost of maintaining the network, and of sending messages. But most pertinent is Livingston's observation that the conferences 'institutionalized the mixture of cooperation and rivalry that characterized intercolonial diplomacy' (1997, p. 3), and in turn 'fostered a practical federal ethos,' a 'technological federalism' (1997, p. 6), which by the mid-1890s anticipated and accelerated the political and constitutional federation of Australia finally achieved in 1901.

In other words, in an important way telegraphic technology—in the fullest sense of that term—was constitutive of an administrative apparatus in "Australia,"[8] entailing the mundane work of policy making and bureaucratic training, and requisite to the governing of colonial populations and the making up of a national population. As an episode and a history lesson, it is a shift toward grasping the technological form that government takes: how the material practices, techniques, and knowledge involved in this communication technology, the conditions and uses as well as the rhetorics bound up in it, are inseparable from and inform the shaping and governing of different populations by specific groups, and the various aspirations and consequences and resistances involved.

Telegraph stories have been told before.[9] The history lesson here depends on foregoing the orthodox account of a young nation ("Australia") impelled by heroic exploration, colonial pluck, and granted a technical fix for a wide brown land (variously empty or threatening), separated from the civilized world.[10] By pulling a somewhat elaborated version into view, we can register how the embedding of the telegraph in Australia was *actually* formative—a literal although complex and contingent making up of Australia through the shaping of the new habits, social relations, capacities, and identities of the populations living on the continent: black and white, rural pastoral and city-based business, administrative and civil populations.

Another Digital Technology

We wanted to begin by thinking about these historical populations and the significance of this first digital technology in their making and governing because the present-day, much-vexed assembling of an Australian National Broadband Network (NBN) treads some of this same ground: the rivalrous plans of governments and business groups, the challenge of complex geographic and physical circumstances, the radical revisioning of time–space relations in terms of speed, modernity, progress, innovation, productivity, creativity, economic competitiveness, and ease of communication. Telegraphy worked as one means for constituting national cultural relations (and constituting them along particular 'racial' and class lines); now the maintenance or reforming of those relations, and all the norms and dispositions entailed in them, hangs as a potentiality around Australia's NBN. To take just one example, those configuring Australian broadband have the opportunity to think through the particular cultural

and economic circumstances in which indigenous Australians living in outback outstations will—or will not—be able and persuaded to use the infrastructure provided, and how on this may hinge their capacity to participate in and benefit from a wide range of activities in a rich country (Rennie et al. 2013, pp. 591–592). Today, in countries such as South Korea and Singapore, the re-forming of national populations, their capabilities and aspirations, through bandwidth and its uses is well in place. In Australia, by contrast, protracted political, commercial, and technical debates have predominated. Although the populist technological rhetoric of speed, modernity, and progress may be employed and recognizable across many different countries and even across different incarnations of digital communication technology (first telegraphy and now broadband Internet),[11] the political work of persuading organizational populations and national voting populations to *particular* technical solutions for broadband infrastructure, *particular* financing arrangements, *particular* operational and regulatory regimes, private or public sector involvement, and so on, has its national peculiarities and contingencies. Thus, in Australia, while the benefits of broadband—speed, innovation, productivity, creativity, connectedness—have been framed within internationally familiar narratives of neoliberal individual aspiration and economic competitiveness, party-political debates over exactly how to get these benefits have ricocheted between a social democratic, "nation-building" vision of 98% of households with optical fiber connection and best solution for the remaining 2% in rural and regional Australia (the Labor Party policy introduced in 2007); and a more parsimonious vision from the Coalition parties (elected to government in 2013) of either wireless or fiber to the node (rather than to the household/premises), a vision far less harnessed to the country's history of universal service obligation in telecommunications.

The various technical features of broadband may eventually reach near universality: the rhetorics and what they mean for infrastructure and for policy outcomes (and futures in e-health, e-government, e-education, for instance) are more variable. And it is the two together—the technical features and the rhetorics—that produce geopolitically and culturally specific norms of connectedness, of integrated communication use, of take-up of e-services, for populations to accept, resist, or with which to otherwise struggle. One of our concerns in this chapter is to establish that rhetorics to do with communication technologies are inside, not outside, those technologies.

A Revolution?

Is broadband, and was telegraphy, a "communication revolution"? This particular and very familiar way of considering communication might hardly seem worth mentioning, although our previous point about rhetorics probably indicates all too clearly that this is not what we are arguing. To put it another way, what history lesson can we draw about the scale and import of the social, political, economic, and cultural changes associated with telegraphy and broadband? Is the notion of a revolution appropriate, and how do we judge?

The question is motivated by the power of the inscription "communication revolution" to persuade about what agency is responsible for changes affecting populations. By the late twentieth century at least, that the world was in the midst of a "communication revolution" was taken as a given by influential political and business actors. It was in this vein in 1990 that Rupert Murdoch introduced a panel discussion from the U.S. Capitol on 'The Implications of the Communications Revolution.' Part of an International Council Conference forum called 'Building the Institutions of Freedom,' and sponsored by the U.S. Information Agency, the high-level panel was concerned with 'the media and information explosion' and the new 'public diplomacy' being linked to decisive events in international politics (particularly the challenges to USSR hegemony that preceded its breakup). Murdoch set the assumptions about the link between media and fundamental change at the outset, quoting from an interview given a few months earlier by the Polish dissident and trade-union activist, Lech Walesa:

> The higher the technology the higher the freedom. Technology enforces certain solutions. Satellite dishes, computers, videos, international telephone lines force pluralism and freedom on a society. They won't be able to destroy all our television sets. People cannot do without telephones. Technological history cannot be turned back. That's why I'm so certain about the victory [against communism]. (C-Span 1990, pp. 4.05–4.40)[12]

This is a classic attribution of social and political effect to communication technology as self-evident cause, replete with 'revolution's' connotations of 'bringing about a wholly new social order' and 'progress' (Williams 1983b, p. 273).[13] Murdoch, with the extensive resources of persuasion

afforded by News Ltd, has continued to help cascade the self-evidence of the communication revolution, for example, in his 2009 speech to the World Media summit in Beijing, where he described 'the information revolution' in a digitalizing China (Murdoch 2009).

The phrase "communication revolution" is arguably the talisman of the current period, a so-called digital age. ("So-called" because there are real problems with this kind of epochalist terminology and how it tidies up and out of sight the complexities of complex, multiple, interweaving histories and presents.)[14] This is a period in which futurists and futurologists are busy, and "ages" and "eras" with sharp contours are more visually and narratively compelling than descriptions that contend in the messy and mundane melanges of overlapping, coexisting, and contesting technologies.[15]

Meanwhile, how do we best comprehend the consequences and contribution of communication technologies? Communication, it seems, sits quietly in the background, its uses every day contributing to the governing of people and their worlds, until a particular invention or technique is picked out and heralded as changing everything—causing a revolution in people's affairs. What is the threshold for this recognition?

The introduction of one earlier communication technology has been comprehensively considered in terms of the extent of its significance. Print was the first widely hailed communication revolution. The invention of the printing press is routinely considered to have ushered in a modern, ascendant West. How does this story go, and what are its complications and lessons?

Print and How We Think About It

As a technology—that is, a body of knowledge, conditions, and uses beyond the technical invention of the press itself (movable type on wooden block or metal, enabling the mechanical reproduction and duplication of writing, in ink on paper)—print was being formed, in the West at least, at roughly the same time as the novel phenomena of government and populations were discernible (as a new way of exercising power in relation to a new kind of collectivity of persons) (Pasquino 1978; Foucault 1979; Minson 1985; Dean and Hindess 1998). "Governing populations" entailed materially imagining and enabling the ordering of whole societies and was, in contrast to the authority of the Holy Roman

Empire in the medieval period, organized as a secular government or governmentality. That is, the objectives of government were earthly rather than other worldly, and bound up in the temporal resources of populations for rulers rather than in the future salvation of ruled subjects. Religion did not go away, but the "ends" of secular government were newly desirable earthly ones such as health and fertility, productivity, and security.[16] Populations and the individuals that comprised them were incited to develop new capacities, habits, and dispositions that would contribute to their health, productivity, and security. What it meant to be human changed.

How was print involved in such changes? (We are talking here of sixteenth-century Europe: we'll mention the wider geography of print later.) For a start, the changes indicated did not just start with print, as if we can separate out "print" from the powerful social forces of the mid-sixteenth century, the Reformation, and the 'centralizing tendencies of new "national" states and Absolutist monarchies' (Hirst and Woolley 1982, p. 39). Nor can we overlook that the consequences of the uses of print are linked to the development and transformation of an earlier scribal culture.[17] So, we make a detour to this scribal culture, which is not, in reality, a detour, because the development of communication technologies is not a straight line composed of inspiration or "discovery," that is, putting the idea or discovery into practice and resulting in an effect on the world. What we need to jump into are a multiplicity of entanglements from which something called "the revolution of print" has often been made the simplified, clear lesson.

First, Scribal Books

Sitting in a Benedictine monastery, a monk keeps the accounts of all the activity within the order: what has been grown and produced, what has been traded, how much and for what, the transfer of rights and liabilities, all the incomings and outgoings. He visualizes goods and transactions by setting out words and numbers in a clear, repeatable order on a page in a ledger. This handwritten book is very much a tool with which to think and see. It provides a material means to "see" a cost, to imagine it, and moreover put it in relation to a credit. The book is a tool "practised" by the monk, that is, it is written and read repeatedly and purposefully as a regular routine of surveying the activity in the monastery. The ledger, used in this way, provides a method for calculating activity in relation to

a particular agenda. It puts the monk in a powerful relation to the rest of the order, as he produces information about a multiplicity of transactions and thus knowledge of what is going on in the farthest corners of the monastery. Here is Paolo Quattrone's more detailed picture:

> [T]he Benedictine father in charge of the *oeconomia* of the Monastery is called *Padre cellerario*. He is not only the one who knows how to deal with the *dispensa* (i.e. the *cella*, the pantry) but also the one who understands how to create these *celles* [cells on the page, in which knowledge can be placed], and dispose entries into them in a meaningful manner that is useful to the multifaceted and changing activities of the Monastery. What these schemata, these images, these *figures* do is more than represent the conventional way of recording a transaction. Analysis allowed the accountant (or the General of the Jesuit Order) to define the space and time of the accountable, and was the precondition for a subsequent synopsis generated by many combinations and aggregations of cost, revenue, and profit centres. It created visibility for those actions which were performed in the most remote areas of the Society [of Jesuits] and allowed acting at a distance … [and] a sense of control over remote areas – a control which could concern an individual as much as it concerns the order as a whole. (2009, pp. 97–99)

The practicing of books made possible this production of visibility. It allowed a knowing and ordering of diverse activity and actors. It helped provide a solution to governing all the members of the order, or all those dwelling in the monastery. It was a practice being used in Venice by the late fifteenth century.

The visual inscription involved—'a well ordered space on the page of a book' (Quattrone 2009, p. 109), or double-entry bookkeeping as it came to be called—has been studied in histories of the accounting profession and the particularity of its way of seeing (Gleeson-White 2011; Thrift 1998). The significance of practicing these ledgers, of "doing the books" (whether handwritten, printed, or much later on electronic screens), is the exercise of power that this practice enables. The books are devices allowing one to see at a distance all activity within an organization. Later, the practices of a relentless documenting and making visible of such individualizing observation, replete with characterizations, classifications, and analytical arrangements, would be taken up as a new political technology dispersed throughout all manner of social institutions and organizations and operating at the level of the 'everyday life of men,' or what has been called 'the panopticisms of every day' (Foucault 1977, pp. 205, 223).

But before this migration beyond religious organizations and the yoking of such practices to wider and different purposes,[18] the monk doing the books serves very well to establish the role of a communication practice embodied in the scribal materials and sense-making used to govern a circumscribed, organizational population.

Our current forms of routine governing have long histories. The great accounting firms or rating agencies operating in the late twentieth and early twenty-first centuries, producing credit ratings for national, regional, and local economies, as well as individuals and firms, 'do the books' to exercise just such 'control over remote areas.' As in earlier settings, the analytical knowledge their accountants produce with their electronic ledgers, and the rating (AAA, A, BBB, etc.) in which they inscribe this knowledge, are used to discipline the activities of populations and the policies and stances of politicians ruling them.[19]

The notion of books to be practiced relates more widely to a discipline of reading and writing that was recommended and evident in sixteenth-century Europe. Books of providence literature and the keeping of diaries were encouraged as part of an ethos of spiritual reflection, monitoring, and improvement. Following the trail of these books to be practiced helps us understand more about the arrangements of power involved and how they were renovated through this period. One important example was Saint Ignatius Loyola's *Spiritual Exercises*. Written by the head of the Jesuit order formed in 1539, the *Exercises* (1541) provided detailed instructions for the exercitant and a strict set of analytical categories with which to daily interrogate himself on his sins, recording these in a system of precisely ordered markings and annotations. It gave prescriptions for how to 'dig … into the self … to find God and to make the self accountable to this superordered entity' (Quattrone 2004, pp. 659–660). In this way an individual was governed and guided, through the formation and strengthening of their interior capacity to reflect, decide, and commit to God over Satan.

Use of the *Spiritual Exercises* was at the heart of the formation, by the Society of Jesus, of members who were especially disciplined: whereas other religious orders required vows of chastity, poverty, and obedience, the Jesuits could take a fourth vow of 'unconditional and prompt obedience to the Pope' (Quattrone 2004, p. 654). This fourth vow hints at the wider significance of the Society of Jesus and its practices.[20] Requiring this strenuous spiritual regime, the agenda of the Society of Jesus merged with that of the Council of Trent (1545–1563), a body convened to deal with seismic threats to the authority of the Church and

the Church's centrality in society. Spurred by the need to definitively rule on doctrine in the face of Protestant heresies, the Council of Trent had, at the same time, to address the long-standing problem of manifold abuses by the clergy (e.g., priests granting indulgences or forgiveness of sins in return for temporal benefits, and the sexual abuse of women in the confessional): how were the clergy to be properly trained? One potent answer to this question was to be found in the Jesuit practice of individualized scrutiny using the *Spiritual Exercises*' clarifying categorization of thought, feeling, and action into a matrix of good and evil. Practicing this book, the vulgate version of which was chosen by the Pope to be printed in 1548, provided the faithful with a means 'to conquer oneself and regulate one's life without determining oneself through any tendency that is disordered' (Loyola 1914).

As well as a solution for training clergy, this device for enabling individual faithful to govern themselves in relation to Church doctrine has a further significance, set out in Quattrone's insightful account. The Council of Trent established Catholic reform marked by absolutism, that is, an insistence on the Pope as 'the only true interpreter of the Bible and in the clergy and its institutions the only medium between individuals and God' (Quattrone 2004, p. 651), with the Papacy '"provid[ing] *the prototype of the secular sovereign state*, a single society under a sovereign head"' (Jones 1995, p. 78 in Quattrone 2004, p. 653; emphasis added). Here is Quattrone again on the significance of the Council of Trent. This gathering of Church authorities laid '[t]he bases for the emergence of modern bureaucracies and hierarchies (be they ecclesiastic or secular) … although not all the necessary conditions were present yet.' This groundwork was done in part through reference to the emblematic nature of the Jesuits' organization: '[w]ith its emphasis on pedagogical, missionary, and economic activities hierarchically organised and controlled, the Society of Jesus was the most representative case of those ideas and institutions which emerged in the "Age of Reforms" (and beyond)—an age characterised by the intertwining of pre-modern *reformatio* with modern *renovatio*' (Quattrone 2004, p. 653).

For us, exploring what is meant by print being hailed as revolutionary, this account places the practicing of the *Spiritual Exercises* specifically, and more widely the mechanism of the diary, at the heart of an organization representing these prototypes of modern bureaucratic arrangements. The communicative practice of the members of the Society of Jesus, relating their conduct, thoughts, and feelings to the will of God through reading and inscribing their daily state, fostered the kind of self-discipline

necessary for the Society's operation and objectives, and also its contribution to the particular character of the Church's influential reform and renovation; it fostered the capacity of individual selves to subordinate themselves to a single point of authority.

In other words—and here is our central point—a communication technology and the self enabled by its use was woven right into the social, political, and economic dimensions of the Catholic Counter-Reformation. In another culture, in a later century, print communication technology was also intimately bound up with another major change and challenge to religious authority. From the nineteenth century, the spread of printing in Muslim societies desacralized the word, 'in particular the word of God in the Qur'an and the Names of God' (Schleifer, cited in Roper 2007, p. 262), contributing over time to 'both uniformity of belief and a sense of personal responsibility and individual understanding of scripture' (Roper, p. 262).[21]

But to return to the context of the Catholic Counter-Reformation, more than just *its* rearrangements concerning lines of authority were at work in this period. The challenge of Protestantism to the Catholic Church through Luther's doctrinal reform rested on the argument that recovery from original sin lay only through the individual's reading of the Bible, thus sidelining the role of the Catholic pope and that of the clergy, at least relative to its previous centrality. Protestantism too was about government of the self, although it was a different configuration of self-government. A formation of individual conscience was the objective, still within the Church, but in this case it was a reformed Church, '[d]eprived of the sacramental certitude of salvation' (Hunter 1989, p. 220). Protestant worldly asceticism—or spiritual discipline and restraint without withdrawal from the secular world—offered a replacement of a kind for the comfort of Catholic salvation, and also 'a reason to read and write' conscience literature (Davis 1981, cited in Hunter 1989, p. 221). Because here too, in Protestant ethical techniques of self-monitoring and self-control or what amounts to a 'consciencization' of the individual (Hirst and Woolley 1982, pp. 136–137),[22] the practicing of books was integral (as diary-keeping, and as reading providence literature, conduct books, and spiritual autobiographies). It amounted to a type of 'ethico-literary practice' (Hunter 1989, p. 221). And this practice was amplified in its reach through printed books coming into general use by the end of the fifteenth century and dominating hand-copied texts by the end of the sixteenth century.

An ethico-literary practice was important for the formation of the capacity for individuals to self-govern. This capacity, at the same time, is wound into the development of modern bureaucracies and organizational hierarchies. That is, we are not talking of individuals going their own way, but of coming to govern their own conduct within the specified parameters provided by the institutions and organizations which patterned their lives. Perhaps "modern" begs too many questions to sensibly answer here (Latour 1993); but our attention is on a new administration of people's lives, and of assiduously attending to the role in this of a communication practice and technology—a use of written books, and the spread of this use through the accelerated ability to produce and distribute printed copies of select kinds of books.

One writer who has worked most thoroughly to connect the significance of print communication practices and uses to institutional practices of government is Bruno Latour. He has done this by focusing on paperwork, as he calls it (1990, p. 44), and how the 'optical consistency' it produces brings together traces of many different places and times (p. 31). Gathering of these inscribed traces gives to the person seeing them accumulated on the one surface the key to 'how to dominate on a large scale' (p. 35). As with the monk doing the accounts of all the activity in the monastery, power is made possible at a distance, without those exercising it needing to be "on the spot." For Latour, the printing press adds to paperwork the qualities of a stabilizing or an immutability of inscriptions, a fixity to what is written or drawn, as well as an exponential mobilization of these inscriptions.[23] Recognizing the *mobilization* of inscriptions attends to the crucial factor about textual materials that is regularly overlooked: their social production and social deployment. This mobilization is vividly captured in the example used by Latour of the French explorer La Perouse, travelling *out* to the Pacific for Louis XVI to ascertain geographic matters, and his bringing *back* a notebook. In the notebook has been inscribed, in pencil, a copy of the map of an island (Sakhalin), which the Chinese who La Perouse meets on the island draw for him in the sand. And once brought back to the center of calculation at Versailles, the notebook inscription is what enables La Perouse to persuade others to future positions and actions: 'to determine who was right and wrong about whether Sakhalin was an island [and not a peninsula], who will own this and that part of the world, and along which routes the next ships should sail' (1990, p. 25).[24] The deployment of the immutable mobile of the map, in other words, will enable the domination of populations far from France.

We are moving between the two themes of the practice of books and self-government, and the paperwork enabling a wider dominance or governing of populations, in order to bring into view the different facets of this new administration of people's lives. Both themes involve the exercise of power in and over people's lives and how at a certain time, and intimately linked to particular communication technologies, this began to be configured in new ways. The Council of Trent's impetus as regards the formation of modern bureaucracies has been mentioned: Latour's attention to paperwork augments the Council's argument about hierarchy and control by pinpointing the material means of the working of a bureau. '[T]he "bureau" … explains, because of its structure, why some power is given to an average mind just by looking at files: domains which are far apart become literally inches apart; domains which are convoluted and hidden become flat; thousands of occurrences can be looked at synoptically' (Latour 1990, p. 54). The setting up or consolidation of the bureau is the shift, which will only gather speed, from power embodied in the person of the king to the power wielded by 'insignificant people' (p. 60), able to 'consider millions as if they were in the palms of their hands' (p. 55).

Conscience and Costs

Let us dive deeper into one of these themes. The practice of books is something that enables both the governing of others at a distance (the *Padre cellerario* in the monastery, the accountant in the organization) and the governing of one's self through the close and regular inspection of one's actions and thoughts (the *Spiritual Exercises*, the reading of conscience literature). Governing conduct—of self and others—is undertaken in the service of many and varied purposes. Historically, two of these purposes have included an overlapping of the practices and ends of spiritual accounting and financial accounting. We can glimpse this in the views of Daniel Defoe, best known to us now as writer of one of those books of providence literature, *Robinson Crusoe* (1719), but also an energetic contributor to popular debates over the role of credit:

> A tradesman's book, like a Christian's conscience, should always be kept clean and clear … and he that is not careful with both will give but a sad account of himself either to God or man. (Defoe in de Goede 2005, p. 36)

For Defoe, accounting is 'a moral technology that will not only reveal the truth of the tradesman's circumstance but that will also guarantee the cleanliness of his conscience' (de Goede 2005, p. 36). This snippet from de Goede's valuable genealogy of finance speaks of the thorny issue of credit and debt and of how finance has been culturally arranged in ways bound up with morality and religion. de Goede uses the example to establish finance's connection to notions of virtue and faith, as well as fortune, and Defoe's words spotlight the work of controlling one's self in relation to one's finances through the mechanism of the individual conscience and the paperwork involved. The guiding of personal conduct around money and the attainment of spiritual progress are viewed as coincident (although Defoe's interlocutors in contemporary debates around paper money and credit took other positions). For us, this argument or rhetoric, as internal to a moral technology, helping to govern the conduct of English populations in their financial affairs in eighteenth-century England, needs to be understood not as abstract ideas, but as an argument whose force rests in its reference to the established practical uses of print materials and texts by people tending, simultaneously, to their money position and their moral position.

Lest this pairing of the ethical and the financial seem an historical oddity, consider the current practice of ethical investment, in which just this intersection of individual conscience, inspection, diligence of scrutiny of investment destinations, and arguably a coincidence of financial returns and signs of grace, are in play. Here again is a keeping of the accounts that enables not only the governing of others (for example, by superannuation fund managers in their investment decisions regarding one's funds, and of the managers of organizations in industries targeted for investment) but the building of an ethical relation to self. Consider, for example, how the attention of individuals is drawn to the practice of ethical investment. Publicity for ethical investment products routinely employs two paired forms of address, one to a person's conscience and the other to their prudence or financial self-interest.[25] Although most accounts of ethical investment present it as a more or less straightforward intuitive expression of personal values from which people then can organize their financial activity, considered through our historical lens we can see it as a formation and shaping of individuals as ethical investors *within* the specialized technology of ethical investment—for ethical investment is a technology.

It comprises a whole range of elements: devices (questionnaires, ethical investor profiles, proprietary software, screens to rule in or out "good" or "bad" industries), purpose-built stock indices, definitions, underlying knowledges (such as modern portfolio theory, the prudent investor rule, religious doctrines, environmentalism, social justice, research into specific companies), lists of ethical issues, a range of individual and organizational actors, and communicative elements (e.g., advertisements, fund manager websites, how-to YouTube videos, forms of address to readers and viewers, the presentation of the "problem" that ethical investment solves [Mackenzie 1997, pp. 116–133], sundry other techniques making up an information and promotional culture of ethical investment, as well as the communicative dimensions of the elements already mentioned—screens, questionnaires, knowledges).

Grasping ethical investment as a technology replete with media and communicative elements shifts the dominant view of the ethical investor as a naturally occurring type—the fully formed ethical individual simply choosing this kind of action. Instead, we can understand that this kind of agency forms under certain conditions, that it requires cultivation. The long historical lesson of the practices, routines, and print culture artefacts integral to conscientization is the importance of the role of communication in the making of ethical investors. The agency exercised by such investors takes the form of a vigilant negotiation of the distance between their identified ethics (or "values") and the practices of financial investment. And that negotiation is in part incited by, for example, company websites that speak of a careful, thoughtful application of the ethical investor's values and choices. 'As investors … we know that we can make conscious choices about how our money works in the world' (First Affirmative 2015a). Readers are addressed on such sites as potentially one of the 'many thoughtful people choos[ing] not to profit from behavior in others that they find objectionable in themselves' (First Affirmative 2015b). This values-led care and scrutiny in investing money, an ethico-financial practice, acts as a marker of distinction for its practitioners in ways comparable to ethico-literary practices of earlier times.

Of course the ethical investor is one element of whole populations in rich countries who have been positioned within a *broader* financial technology that has been dominant from the last decades of the twentieth century and geared to liberalizing and promoting financial activity more generally. Such populations have been incited to reform themselves from the risk-averse "savers" of the WWII generations to the risk-embracing self-managing "investors" of the 1980s counter-Keynesian finance dogma.[26]

An ethico-financial practice (of scrutinizing fund managers, scrutinizing one's portfolio, scrutinizing the daily news for signs of a company's moral standing and its alignment with one's values) is seen as an available means by some groups of individuals for taking control and "making a difference." The difference is meant to be a social or cultural benefit to others, or at least 'doing no evil'; it is also a performance of the investor's ethical relation to self. But regardless of the rhetoric, the ethical investment movement is not propelled by free-standing individuals simply moved by their conscience. Ethical investors are involved in self-governing, guiding their calculations and decisions by the interior capacity of their conscience and the cultural practices that maintain and shape it, but this self-government does not issue from an unconstrained freedom of the individual. It is accomplished within a wider governing of populations through the apparatus of a financial technology and, similar to the conscientization of the faithful centuries earlier, the conscience in play is one aligned to an agenda that has a life and provenance outside the individual ethical investor.

Print and Its Consequences

We started considering print communication technology by noting that the heralding of "the revolution of print" is a simplification of a host of political, religious, and cultural entanglements. This is not to gainsay the correctness of attributing to the uses of the printing press, introduced to Europe in the fifteenth century, momentous and far-reaching consequences deserving of the term "revolutionary." It does however insist on precision in what we mean by "revolution," in what is entailed in any "revolution," and to caution against winnowing out a technical invention from its uses and their multiple conditions. So what were these far-reaching consequences?

The use of the printing press resulted in the increased dissemination of written material throughout Europe, made possible by the technical affordance of a mechanical press and moving type, but just as importantly spurred by a demand for Bibles and first readers, enabling the drive for mass literacy produced by the Reformation. Alongside surging production and dissemination of written material in what had been a predominantly oral culture with a premium on the preservation of scribal texts and records rather than their easy dispersal, mechanical reproduction had other consequences. Handwritten manuscripts and their copying were prone to scribal drift,[27] but the use of movable type stabilized texts.

And stabilization of written material, in turn, 'made possible the very idea of a proper or "official" language use' (Hirst and Woolley 1982, p. 39), helped to standardize language use within new national borders, and assisted a shift from Latin to vernacular languages. All three developments were favored by political and religious powers of the time in line with their centralizing agendas. As Hirst and Woolley stress in their concise account, printing did not automatically or solely initiate these changes but aided these agendas in ways difficult to envisage without the printed page.

As well as assisting standardization, the stabilization of texts, together with the greater availability of texts and their dispersal to more places, enabled comparison between works, thus providing the grounds for the formation of a capacity for critical thought. The importance of this over time for scientific advances and for challenges to church doctrine, for example, was enormous. A treatise, an account, a description made at a certain time and place by a particular cleric, merchant, politician, or writer could be copied without mutation (i.e., "immutably"), and *that* knowledge generated by *those* writers circulated to many other scholars elsewhere. To adapt Latour's observation on this point, the scientists, clerics, merchants, and princes of the sixteenth century were not suddenly critical of earlier knowledge because they had new minds but because they were able to look at hitherto unfamiliar accumulations of printed materials that brought together 'numerous places and times' (1990, p. 34). The critical capacity that could be developed as a consequence of this was something unfamiliar in a medieval tradition of knowledge. In that earlier set of arrangements, dominated by the rarity of manuscripts, the stock of knowledge was marked by a dominance of and dependence on memorization of the words of authorities, with the priority on preservation of what was known, not its contestation.

In addition, stabilization allowed 'the assignation of limits' to a text, a condition for establishing a relation of ownership between a particular person and a text (Hirst and Woolley 1982, p. 41). The medieval sense of "author" as just one among many makers of a book—scribes, compilers, commentators—did not allow for such an exclusive relation. Print, by enabling this individualization of relations to knowledge, was an important pre-condition for the phenomenon of authorship with which we are familiar today. This phenomenon has been extraordinarily significant culturally and economically; it has been a central means of organizing the production, distribution, and consumption of cultural goods, and it has provided a set of norms for people in European cultures to employ

to understand and fashion themselves *as individuals*. Individuals means persons understood as being equipped with the capacity for originality and for independent thought, with these qualities understood as coming from the interior depths of the person. Thrift refers to the strength of such self-understandings in describing contemporary cognitive science's growing knowledge of the contrary actuality of imitation and suggestibility:

> for Western cultures it can be a painful realization to understand how little of our thinking and emotions can in any way be ascribed as 'ours'; it is often very hard for Westerners to accept that broad imitative tendencies apply to themselves … because the preponderance of apparently 'external' influences threatens the prevailing model of an agent as being in conscious control of themselves. (2008, p. 237)

But again, if the figure of the author has operated as just such an influential model, the formation of authors as proprietors of the texts they wrote, and of those texts as expressive of those authors as individuals, was not simply predestined by the introduction of the printing press. Rather, in a long formation of authorship, the printing press occupies just one place among a complex of other elements. Saunders, writing about the early modern English copyright in which authorship emerges in that country, names this as a 'legal-cultural set,' 'a fluid yet problem-oriented mix of legal institutions and statuses, techniques of reasoning, literate abilities, Lockean theory, investments, book-trade practices, an expanding print communications technology, the growing governmental sphere' (1992, p. 32). Among the book-trade practices helping to comprise this legal-cultural set, for instance, was the use by printers of frontispieces to publicize their books, with the established technique of the name of the printing house or perhaps of the patron of a work being displaced, over time, with the name of the writer (become author, or *originator*). The earlier dominant practice of publishing miscellaneous volumes with many voices and disparate texts shifted over time to the presentation of a unified body of work: 'the printed book renders more common the practice of collecting works by the same author in a single volume' (Chartier 2007, p. 401).

Although it is not attributable simply to the printing press, we are nevertheless charting the accretion of features and developments associated with print communication that made possible the modern conception and reality of the author. This modern conception, as mentioned, is of there

being a special relation between writer and text. It was established and consolidated through the circulation of the arguments of the eighteenth-century German and English Romantics, not schools of thinkers inclined to acknowledge in any way the historical and material conditions of authorship as a socially attributed, legally secured, and print-enabled status. In this modern or Romantic view, an author is, first and foremost, an individual who stands independent of others, who is gifted with the capacity for original thought, who has an expressive and singular relation to the texts they "create," and who, as a result of all these qualities, possesses a moral authority on social, political, and cultural matters.

This ascription of moral authority continues in our present world. It was evident, for example, in France in early 2015 (and in close proximity to the terrorist attack on *Charlie Hebdo*), when the opinions and prognostications of the authors Michel Houellebecq and Éric Zemmour, both with recent books dealing with the fears of French non-Muslims about Muslims in France, were widely publicized and heard. French media reported on the socialist French President's intention to read Houellebecq's novel *Submission*; the leader of the National Front's commentary on *Submission*'s futuristic imagining of French politics; and Zemmour's *The French Suicide* reaching No. 1 best-seller status (Donadio 2015). Whether accepted or contested, the moral positions described or performed in these newstories ("moral" because they are positions held on the basis of authors' culturally attributed relation to truth, rather than any technical expertise, say in geopolitical analysis or psephology about the state of the French polity) were given media attention, thus helping to circulate arguments and dispositions available for people to use to formulate their individual interests and views regarding Muslims in France. In this way, the cultural status of the author and, in practical terms, the names of specific authors, help to cascade inscriptions—such as "Islamization"—and form constituencies of opinion ready to understand their worlds in particular ways. This is one of the ways the figure of the author is significant in the governing of a population.

More broadly, an exploration of print as part of the genealogy of authorship helps us trace one important line of development of a new conception of personal identity organized around the person-as-proprietor. Print provides a 'practical basis' for this conception (Hirst and Woolley 1982, p. 42). Authors operate as exemplars of a particular way of being a person; 'the author is … an extreme case of the value placed on the modern, Western construction of the person as a

unique individual' (Williamson 1989, p. 16). The figure of the modern Romantic author and the rhetoric of authorship inscribe the norm of unique individuality, and the habit of seeing social conditions and institutions not as underpinning but as impediments and obstacles to the expression of this individuality in the world.

If this seemingly self-securing interiority, this notion of person as an autonomous subject, also had other lines of formation,[28] we have focused on authorship as an historically novel way of understanding personhood because it is an important part of how it was relayed to populations on a large scale. In the study of literature embedded in the school curricula, in the patterns of publicity produced for and by the cultural industries of publishing and other art forms, and in the allied practices of cultural commentary on literature, art, film, music and so on through various media—in all these ways a familiarity with, and practice in making sense through, the notion of "the individual" was brought to students in their formal schooling and to wider reading and listening populations. Being so embedded and dispersed, the figure of the author played a part in the widespread systematization of conduct for literate populations—one of those far-reaching consequences that makes it reasonable to describe print as "revolutionary."

Gathering Up the Threads

The point of this circuitous discussion of instances of print culture has been to identify elements of its significance in terms of the uses made of print by, initially, literate populations in European countries from the sixteenth century, and the consequences of these uses for those populations as well as others. Crucially, our focus has been on not just an instrumental use of a new tool (the faithful reading printed Bibles) but on how the new practices organized around print helped shape, pattern, and engender populations with new qualities and capacities and habits. The discussion has made no attempt at any semblance of comprehensive discussion of the printing press and print culture. It *has* been concerned to pick out elements that demonstrate the inseparability of the consequences or significance of print from a diverse array of practices and institutions. Thus, we have brought to the fore authorship as a cultural, legal. and social status, as well as digressed through print's augmentation of the 'practicing of books' in scribal culture to make it a more widely dispersed ethico-literary form of conduct.

A note on the extent and different forms taken by this dispersion of ethico-literary practices is appropriate here. A central element of modern literary education (in formation from the late eighteenth to the early twentieth century) is the self-cultivation taught to and undertaken by students using literary exemplars (Hunter 1989). The techniques learnt for this exercise are the appreciation of literary characters ("How admirable or otherwise is Lady Macbeth's ambition for her husband?") and the discipline of reflecting on personal experience using the norms taken from the fictional worlds of the characters. Such a practice echoes the 'ethical interrogation and stylization' Hunter identifies in the much earlier reading and writing techniques (diary-keeping, spiritual autobiography, providence literature) through which Protestant populations, encouraged by the worldly asceticism of the reformist church, 'worked their selves into an appropriately ethical shape' (1989, p. 221). With the later formation of Literature as a field of study within the institution of popular schooling, such ethical stylization or self-formation proceeded on a much larger scale, operating 'as a discipline in the government of populations' (Hunter 1988, p. 5).

English-speaking populations today would know this study of Literature as the "English" they took through their school years. As part of a popular education curriculum it was instituted first in India (Viswathanam 1989, p. 3). Why here, rather than in Britain? Regarding the Indian side of this puzzle, Viswathanam tells us that in early nineteenth-century India, 'unending volumes of colonial correspondence indicate … the curriculum engaged official discussion at a level of intensity matching the deliberations about military matters' (1989, p. xvii). On the one hand, the indigenous Indian education system was found wanting (it 'suppressed personal growth' in the subjects of the colony) (1989, p. xv). At the same time, the avenue of popular education offered a workable answer to the many administrative problems posed by a subject population to their British rulers, problems thrown up by the 'disparate social groups' of the Indian colony and their 'contending desires, aims, and interests' (1989, p. vx). If the Indian education system was found wanting, but also envisaged as a valuable arm of government, the study of English literature undertaken with the techniques noted here would provide the 'necessary corrective' of 'inculcat[ing] reflexivity and individuality' (1989, p. xv).[29] As Viswanatham points out, it was a personality development that engendered standardization according to the normative parameters of Western aesthetic principles (1989, p. 6), rather than attributes of uniqueness as promoted in Romantic rhetoric.

Alongside our focus on the ethico-literary formation of self, our other focus, on authorship as a cultural, legal, and social status, has traced its role in establishing property-in-the-word, enabled by the stabilizing tendency of printed texts, and also sketched how culturally it provided a powerful model of personal identity. In the governing of economic life and the activity of writers, printers, booksellers, and readers, the legal existence bestowed on authors through the development of copyright from the eighteenth century has also been crucial. Operating variably in different legal traditions, copyright and the proprietary author became central to regimes of intellectual property, replacing earlier arrangements based on the license (provided by an officer of the state or church) and the register (kept communally by a town or city's printers and booksellers) (Johns 2010, pp. 10–11). Knowledge became a thing that could be authored and owned and also stolen. The consequences of the changed arrangement and understanding of knowledge from this time are new practices such as piracy and plagiary,[30] as well as new criteria for being a good reader in changed circumstances for establishing the "authority" of what is known (Johns 2010, pp. 57–70). Today, copyright as a property right associated with the creativity of authors is part of ongoing battles over the shaping of digital economies.

So our concerted interest in this chapter has been how print contributed to a new way of governing, organized through the formation of individual selves. *The individual* thus patterned and regulated is an identity and a status new in the seventeenth century and is a corollary of *the population*, also a new social grouping, as a target of government operating as a new formative (rather than solely punitive) exercise of power.

The establishment of printing shops helped to disseminate new and disparate forms of knowledge, promoting views that assisted the breakdown of feudal Catholic hierarchies. But print communication technology was also part and parcel of establishing new mechanisms of power through the reshaping of the human actors involved in the exercise of relations of power. The forming of populations and the individualized members that composed them was part of widespread socioeconomic and political transformations in which people were gradually reshaped from feudal and religious subjects caught up in dynastic, cross-territorial relations to political citizens capable of some self-government within territorially bounded nation-states. On these grounds, print technology was "revolutionary," not on the basis of intrinsic properties of the technical invention, but because of the scale of transformations it assisted.[31]

Print Communication Technology and Political Technology

If print communication technology was part and parcel of establishing new configurations and mechanisms of power from the seventeenth century, then part of the effort needed to understand this is working with a suitably historical sense of power. Michel Foucault has written of this as a new political technology,[32] and one in which the exercise of power is not 'added on from the outside' (1977, p. 206). Thus, we have focused on those aspects of print culture that speak most clearly of the reshaping of the human actors involved—to grasp how their routines with and reading of newly disseminated and available literature, their reading of new arguments and knowledge about religion and science and trade, did not simply lift them into a Renaissance world through the power of new ideas, as if they were liberated by new truths from the strictures and constraints of medieval institutions and feudalism,[33] but that these writing and reading routines were part of reshaping their very selves and the details of their daily lives *within* a newly forming political technology. Detailed attention to individual lives in all their minutiae was central to this technology. It combined 'individualizing observation, with characterization and classification, with the analytical arrangement of space' (1977, p. 203), the latter attending to *where* in relation to other bodies and persons an individual is located, *where* they are situated within the places of an institution (such as wards and beds within a hospital, or rows and classrooms within a school), and *where* along a scale of events or aptitudes associated with that institution they are placed. The purpose of this detailed attention was to invest these observed and classified individuals with attributes of health, or of literacy and numeracy, or to equip them with military skills through army drills, or imbue them with manufacturing efficiency through the routines of factory work.

This political technology—Foucault described it as the *program* of Bentham's panopticon (1977, p. 203)[34]—makes people newly visible as individuals and indeed carefully fabricates (p. 215) them as individuals, as members of observed, characterized, classified, analyzed populations. Our earlier attention to members of the faithful fashioning their selves and making and patterning their consciences, and thus their conduct, through assiduous spiritual exercises in reading and writing, is a species of this fabricating work of power—one embarked on in this case by the

smaller population of early literate groups in the European churches. The connection between practices of book and print culture and this political technology is more than incidental: the observing and examining of individuals that marks panopticism is married with 'a complex *documentary* organization,' used to produce a 'permanent account of individuals' behaviour' (emphasis added, p. 214). (And other communication technologies are also involved: for example, the use of photography for identification pictures of individuals in all kinds of organizations for administrative and legal purposes [Tagg 1988].) We meet up here with Latour's description of the power of the bureau, of the decisive advantage of the optical consistency of inscriptions produced in varied situations, tracing their crucial features, and then assembled together in files such that actionable knowledge of far-flung domains is available to those who work in the bureaux. The example given by Foucault of bureaucratic attention to everyday lives, drawing on Demia's early eighteenth-century rules for schools in Lyon, shows its purchase on individuals.

> The Christian School must not simply train docile children; it must also make it possible to supervise the parents, to gain information as to their way of life, their resources, their piety, their morals. The school tends to constitute minute social observatories that penetrate even to the adults and exercise regular supervision over them: the bad behaviour of the child, or his absence, is a legitimate pretext … for one to go and question the neighbours, especially if there is any reason to believe that the family will not tell the truth; one can then go and question the parents themselves, to find out whether they know their catechism and the prayers, whether they are determined to root out the vices of their children, how many beds there are in the house and what the sleeping arrangements are; the visit may end with the giving of alms, the present of a religious picture, or the provision of additional beds. (Demia, pp. 39–40 quoted in Foucault 1977, p. 211)

The action of these 'minute observatories' is to produce a host of answers and observations—simplified, classified, arranged in relation to each other—ready to be inscribed in documents and kept in ordered files.

In Australia, and no doubt elsewhere as well,[35] this historical vignette of investigating school attendance with an eye to the disposal of a whole household's circumstances brings to mind the problematization of

contemporary populations and the state of the children within them. One such population is the indigenous Aborigines living in northern Australia. In 2007, this group was subject to the Northern Territory Emergency Response, commonly known as "The Intervention," launched by the Australian Federal Government and using military and medical personnel to protect Aboriginal children from sexual abuse. This original purpose (driven by the Howard Government's handling of the report *Little Children Are Sacred*)[36] burgeoned into a much broader policing of parental conduct in remote communities, encompassing parental commitment to children's school attendance and parents' use of their welfare payments to support this. A subsequent policy of "quarantining" payments to this group (that is, making welfare cheques only usable for grocery purchases at approved outlets) assumed that remote indigenous parents required such technical financial compulsion to become responsible for their children's welfare. In this case, the Indigenous Observatory website in the Australian Government's Institute for Health and Welfare provides a source of statistics on indigenous matters. The multitude of file-keeping and the synoptic overview which gives rise to these reported statistics, then put to the service of governing this particular problematized population, does not itself dictate the nature of the policies that are formulated and implemented. But it makes a problematizing and targeted intervention possible.

If the shift to the concerns of the bureau and, eventually, the bureaucrat sound different to the earlier picture of self-governing faithful, apparently alone with their conscience, the differences are only relative. All the individuals concerned—the governing, the visibly problematized and governed, and the evidently freely self-governing—are encompassed within this political technology. Certainly as a 'new' political technology it is initially employed in Europe 'to fix useless or disturbed populations' (Foucault 1977, p. 210), and only later, at least in widespread ways, for 'making useful individuals' (p. 211) capable of self-government. Regarding this development of the technology for governing populations, Foucault writes of a threshold being reached in the eighteenth century for the dispersal and deployment of these individualizing techniques across whole, increasingly national, populations. But the array of techniques of self-formation and self-government do not appear out of nowhere: rather, they migrate from earlier uses and locations, especially in the churches, such as the bookkeeping and conscientization described here. The spread of this form of governing is contingent and haphazard

rather than, well, bureaucratic in the clichéd sense of an inexorable, single-purposed machine; and the history of this spread is not something we set out to rehearse here.[37] The techniques and knowledges used, tried in one location, country, or institution, might be taken up in another—and with a different local end in mind. The Christian School's interest in the sleeping arrangements in the homes of their pupils is driven by a religious morality focused on trespasses of church-sanctioned sexual activity: in another place or time the sleeping arrangements of children might be the interest of health officials driven by medical knowledge of the damage done to the vitality of the population through masturbation.[38] This governing of populations has some recognizable features encountered again and again (individualizing practices, normalizing parameters of conduct, persuasive rhetorics disciplining the sense-making of conscientized individuals) but the purposes or ends to which particular groups put these governing practices vary widely.

If panopticism is a technology of individuals, it is important not to confuse reference to "the individual" with a theoretical abstraction or a universal figure. Individuals are members of specific populations, always embodied and embedded in relations of class, of gender, of sexuality, of locale, of generation, of ethnicity. The governed and the self-governing and the governing find themselves bound up in the governing efforts of others, in ways that are always specific and various. For example, members of indigenous Australian populations, themselves diverse in class and gender and region, are heavily marked in Australian situations by culture and ethnicity, and routinely classified as parts of problem populations, as already noted. Individuals from these kinds of populations primarily have inscriptions 'exacted' from them (Latour 1990, p. 60), whereas for others being part of this technology of power and communication involves them getting to look at, reshuffle, and summarize the traces of the individuals comprising problematized populations, the inscriptions exacted from them kept in files that are 'never closed' (Foucault 1977, p. 227). These file-keeping, "governing" individuals get to govern, in these instances, because they work in 'centers of calculation' (Latour 1990, p. 59).[39]

Variations and distinctions among members of populations are similarly found in those who have been either persuaded to enter or compulsorily joined to the globally operating finance technology that reached dominance at the end of the twentieth century. Our earlier discussion of ethical investors considered those individuals well positioned by class

and generation to engage in a self-governing practice in the world of investment. Those who reap the benefits this practice confers, in terms of both ethical status and financial returns, are, in Australia at least, predominantly middle-aged and middle-income professionals with tertiary qualifications (Pérez-Gladish et al. 2012). And, importantly, these self-governing individuals are working within the normative parameters of finance institutions and their particular rationality (for example, acting always within the calculation of economic self-interest, so with foresight and attention to margin costs). The parameters of this finance rationality are as much at work in guiding the ethical investors as they are in the logic of quarantining welfare payments for individuals judged not yet capable of governing themselves.[40]

Overall, the lesson we have laid out here through our discussion of movable type, of broader print culture, and of its connections as well as breaks with scribal culture, is that the communication technology of print and the political technology of individuals are inseparable, and are joined not simply from the outside. That is, the lesson is about more than communication serving an instrumental purpose for politics, and politics having a self-evident need to communicate demands, instructions, or negotiating points. Although these perceptions are quite reasonable, they do not require the kind of elaboration we pursued! Instead, the inseparability we are suggesting is that the political technology of individuals is bound up implacably with a communication technology of subjectivity. To tease this out further, a political technology of subjection—the subjection of populations and their members to the norms and purposes of governing authorities that becomes widespread from the seventeenth and eighteenth centuries in Europe, with officials in various institutions interested in fostering the resource of populations that are fertile and healthy, skilled and productive, literate and numerate, capable of 'destructive force' for national security (Foucault 1977, p. 219)—is bound up implacably with a communication technology of subjectivity. This communication technology of subjectivity is a patterned use of sense-making techniques and materials organized in terms of an individualized and apparently originating center of thought and expression, *one* influential model of which is the author (the individual given a modern relation to knowledge as proprietor of the word), formed also through ethico-literary practices of conscientization, and part of 'circuits of communication' that allow 'an accumulation and centralization of knowledge' (1977, p. 217), such as found in the file-keeping bureau.

The Communicable, the Governable, and "the People"

Much more mundanely—or less technically expressed—this inseparability of government and print culture, of political and communication technology, is apparent in the beginnings of white settlement in Australia. It is there in the inclusion in 1788 of a portable wooden and iron printing press in the manifest of one of the three shoreships that made up the First Fleet bringing an English Governor to the colony of New South Wales: in between '1 Dozen Tin Saucepans' and '3 Dozen Flat Irons' sits '1 Printing Press' and 'Type Fonts for DO' (Fellowship of First Fleeters n.d.). Along with all the material goods needed to make self-supporting a colony composed of convicts, children of convicts, marines, and families, a reverend and his wife, and sundry others, it was apparently self-evident that ruling a motley population required a printing press—despite the item having no immediate prospect of use. It would be eight years before a convict with the necessary knowhow could employ the press. When this eventuated, in 1795, it was put to the service of disseminating government orders, by displaying them or having them read aloud in public places (Putnis 2010, p. 156). From 1803 the press was used to produce the *Sydney Gazette* and the *New South Wales Advertiser*. The Museum of Australian Democracy presents this as 'promoting public debate and awareness … of crucial issues in the history of Australian democracy' (Museum, n.d.). A less lofty assessment would run along the lines noted by Elizabeth Eisenstein (1979), Benedict Anderson (1991), and Colin Mercer (1992), identifying a relation between the print cultural form of the newspaper and the making of new social relations of nation-ness between people, relations less reliant on local face-to-face loyalties and linked instead to bounded geographic territories and the dispersed populations residing within them. These new social relations were at the same time new social identities. What newspapers paid attention to, the daily life of "ordinary people" as well as the formal notices and actions of figures of authority, made them similar to the kind of observatory enfolded in the new political technology described here. Mercer is our best guide here, describing the newspaper as a:

> regularised mode of communication and the varied techniques for its consumption which would shift the imperatives of conduct formation, advice on exemplary modes of governance, civility and 'manners' from the private, individualized genres of conduct manuals, Governours, books of

> etiquette and other devices of conscience – and conduct – formation in the post-Renaissance period into the more strategic … domain of … [t]he people … addressed and narrated via an increasingly popular mode of writing on the customs, manners and petty pleasures of the nation. (Mercer 1992, pp. 37–38)

In our consideration of the formation of subjects to be governed and to self-govern, this is a shift from the fabrication of individual identities and conduct, to the fabrication of the collective identity of *the people* and its dispositions and habits, peoples specific to the nations being formed from the eighteenth century on. (The two are not at odds: the notion of "the ordinary man" or "the everyday person" is the inseparable partner of "the people." "The people," or "folk," are made up of "ordinary individuals" or ordinary citizens, in their public dimension as part of a nation-state.)

Mercer, and Anderson, are quite clear that the newspaper (and the novel as well, in its eighteenth- and nineteenth-century forms) do not picture or represent nations and their corollary "the people," but that they help to bring these entities into mundane existence. The newspaper as reading matter accomplishes this by engaging 'distinctive procedures by which people are held together within a delimited space' (Mercer 1986, p. 190). These comprised forms of composition (stories built around typical or 'representative' social institutions; readers placed by 'calendrical coincidence' or the device of 'meanwhile' in the same, secular, date-stamped narrative time occupied at once by writer, character, and fellow readers) (Anderson 1991, pp. 33, 25), and occasions of reading (e.g., the 'mass ceremony' of perusing the daily paper, replicated simultaneously by millions of others) (1991, p. 35).

And, of course, the changing and variable preoccupations of particular newspapers, associated with particular times and events, "hold together" persons into "a people" (a unity in diversity) of different qualities. For example, both the *New York Times* and *France-soir*, covering the March Against Terror of 11 January 2015 held in response to the terrorist attack on French satirical magazine *Charlie Hebdo*, offered to bind their respective readers into a people vehemently upholding freedom of political expression and rejecting violence. Mercer's study of Australian newspapers in 1988, the year of that country's (white) bicentennial celebrations, notes how they addressed and held together the Australian people as informal and down-to-earth (in a 'public figuration

of ordinariness') (1986, p. 42), and with indigenous and non-white members accommodated, tellingly, as part of the 'rich diversity of life' (p. 30). The larger point is that, with whatever particularities, newspapers' forms of address to populations within a bounded territory 'constitute a people as a specific and delimited political entity' (Mercer 1986, p. 189)—that unified entity we acknowledge by using the definite article in routine references to "the people."

Forming a population as "the people" is one means of governing that population. Inscribing liberal norms of free speech, or norms of whiteness, as the day-to-day common-sense of populations who understand themselves as "the French people" or "the Australian people"—but also those who come to feel themselves as estranged from those unities—draws the dispositions and the conduct of those populations down predictable, calculable paths. Again, the communicable and the governable coincide.

Not that the newspaper and novel alone were engaged in shaping populations into a national, self-governing people. It is more that these paper-based, printed commodities could be used to bring together and inscribe elements of a popular culture. Turning back to the first formation of national peoples, popular culture was being "discovered" in late eighteenth century Germany, Spain, Sweden, and other countries as a way of mobilizing opposition to France and its Napoleonic domination of Europe. Thus, the Genevan philosopher Jean-Jacques Rousseau's advice to Polish patriots intent on winning self-government for Polish populations under Russian rule:

> [b]y what means, then, move the hearts of men and make the fatherland and its laws loved? Shall I dare to say? By children's games, by institutions that seem idle to the eyes of superficial men, but which form cherished habitudes and invincible attachments… If you fashion yourselves so that a Pole can never become a Russian, I tell you that Russia shall never subjugate Poland. (Rousseau, *Considérations sur le gouvernement de la Pologne* in Roche 1974, pp. 138–139)

No ambitious scheme of military defense or constitutional reform but rather games, nursery rhymes, and folksongs are what Rousseau offers as supremely valuable in the maintenance or forging of national sovereignty.[41] "The people" who will be able to govern itself will be brought into being through the most elementary and modest cultural forms of communication.

Noting his practical advice on how a people is *made* shines a different light than is customary on Rousseau, the author who is more widely regarded as the champion of "the people" and as giving it voice.[42] This is the shift, an important one, from seeing "the people" in the more usual terms of an existential fact and therefore a continuity throughout Western civilization, to understanding this political entity as invented by Romantic intellectuals in the eighteenth century.[43] Rousseau and others pitted a Romantic discourse celebrating the natural, the naïve, and the spontaneous against the Enlightenment preference of the French philosophes for invention, abstract thought, and refined arts. The result was the constitution of the "common people" as something separated from an "elite" (Burke 1979, p. 270), which could then be said to be "discovered" by European intellectuals as part of a project of Romantic critique of Enlightenment classicism, for example, in the work of Herder and the brothers Grimm on poetry, folksongs, and folktales; of Chateaubriand and Arnim on popular religion; in the accounts of travellers such as the Italian priest Fortis, and Boswell and Johnson; and of the historians Geijer, Palacky, and Michelet. "The people" was presented as spontaneous, untutored, natural, undifferentiated, unified, simple, mysterious, instinctive, and rooted in the tradition and soil of its region.

Real problems exist with the empirical evidence for this invented agent,[44] but this mattered little for its effective deployment in the political struggles securing the form of the modern nation-state. "The people" for which Rousseau claimed to speak was part of the practical rhetorical means by which Romantic intellectuals could build support for the reorganization of power relations and the institution of new forms of sovereignty, as well as catalyze a recognition process among populations in which actual national peoples were forged. Rousseau's particular importance is the way his influential writings constituted "the people" romantically—as eternal, undifferentiated, synonymous with the peasantry, bearing the qualities of simplicity or common sense, spontaneity, authenticity, and the moral virtue of honest rural toil, and counterpointed to an elite of some sort—but also drew on the already circulating currency of the concept in treatises on government and law, where it refers to the whole population, not a primitive and virtuous pocket within it (Marsiglio, *The Defender of the Peace*, p. 1324, in Ebenstein 1969, p. 274). Thus, the circulation of Rousseau's writings put into play an unstable, ambivalent concept of "the people" that at once carries all the Romantic connotations of a natural, organic, and archaic essence, *and* stretches to cover the totality of a

population; at once divides "the people" from the center of power or the state, *and* makes its name inclusive of all; at once erects a qualitative definition, *and* establishes the basis of a quantitative, majoritarian definition. But our argument is that the people was not just a theoretical figure, but rather a form of address inscribed in newspapers and other print and cultural forms of the time, a daily means of building a collective identity and having people recognize that they are part of it.

Our emphasis here has been on the formation of populations as members of "a people," with newspapers as a form of communication central to this. This pinpointing of one important consequence of the usage of print communication technology, bound up with the formation of nation-states, comes toward the end of our longer account in this chapter of changes that were in train over several centuries, with the shift from a predominantly oral and minority manuscript culture to print culture. We focused on Western, European histories. If we turn our attention to China, our account is necessarily complicated, in ways that help reemphasize our earlier points about the haphazard nature of change and development of new social identities and forms of governing them.

"Complicated," because the movable-type printing press that Eurocentric scholars have so overwhelmingly attributed to Johann Gutenberg in 1439, and thus to "the West," had already been invented in China in the eleventh century (Chow 2007, p. 187).[45] Xylography, or printing by wood block, even further pre-dates its European introduction, starting in China in the eighth century. From this beginning and as part of a mainly religious and commercial printing industry, print culture expanded in the Song period (960–1279) with the Chinese Government's approval of the print production of the Confucian classics used in the examination system, the means of entry into what was an expanding learned bureaucracy (Brokaw 2005, p. 23). A boom late in the Ming dynasty (1368–1644) saw printed books 'widely enough available that they supplanted what had been the dominant culture of book manuscripts – that is, hand-copied texts' (Chow 2007, p. 24).

In other words, and in terms of technological and economic achievement, China's history was not that of a backward country, as routinely viewed from Western perspectives. The importance of printing in this regard is precisely because of the premium put on "the Gutenberg revolution" to explain the scientific and industrial revolutions in the West. Chow disrupts this narrative of Western advance over a China supposedly mired in traditional or feudal ways by noting the overlooked

use of xylography in the West, continued long after the introduction of Gutenberg's press. He also demonstrates the sound economic reasons (such as the quality of paper in China relative to Western paper) for Chinese printers' preference for wood block printing (with better quality paper, the force to impart ink onto paper, made possible by the more expensive metal press, was simply not needed) (Chow 2007, p. 176). So what were decisive in China's printing industry were rational economic decisions (just as in the West), around the materials available, rather than, as has conventionally been supposed, traditional aesthetic concerns and the large number of Chinese language characters—these seen as holding back progress in China. For Chow, reinventing the story of "Gutenberg" is not only about redressing the ignorance of Chinese book history but of calling into question 'that movable-type printing was the only technology capable of bringing about revolutionary change in Europe' (p. 170). In this, he strengthens the point that abstracting technical inventions from their more complex circumstances of use—the wider communication technology—leads to erroneous understandings of change.

Avoiding this kind of technological determinism is important. Combined with the unfortunate 'been here, done that …' habit of Western imperialist explanation (Hindess 2008)—the kind that confirms the West's special place in history by placing non-Western countries in the past—technological determinism has aided and abetted the influential idea that 'history is a story of progress, and progress has happened in the West … because Western civilization discovered the sciences and invented technology' (Leith and Myerson 1989, p. 192). The resulting view of China's relative backwardness—the flip side of the view of progress as the province of the West—dominated the twentieth century. It was the target of Joseph Needham's seven-volume work, *Science and Civilization in China*.[46] More recently it was also, obviously if implicitly, the target of the Opening Ceremony of the 2008 Beijing Olympics with its gargantuan worldwide television audience. The *New York Times* saw that spectacle as much about China reassuring the world ('Do not worry. We mean no harm') (Yardley 2008) as impressing it. But an equally plausible view is that the dramatic choreographed display of a giant LED scroll depicting first the invention of paper-making and Chinese painting, and then opening to reveal waves of movable type, was a resounding Chinese reply to the deeply inscribed argument that progress and enlightenment is a Western monopoly (Leith and Myerson 1989, p. 194).

National self-presentation at Olympic ceremonies is routine, and for the host country we can understand it as part of the cultural work of maintaining and revising its particular social relations of nation-ness, just as Mercer argued about newspapers. What stood out in 2008 was the clarity of the Chinese reworking of dominant Western notions of China, with the inscription of the continuity between early *Chinese* invention of print and the bedazzling *digital* prowess and creativity of the LED scroll. The occasion was a highly visible demonstration of the part that rhetoric and the forming of constituencies of knowledge and opinion around technology have in the governing of populations—how populations are viewed and view each other. In the Olympic Opening Ceremony, perhaps, was something like the rhetorical inscription of the Chinese century,[47] or at least of the economic rise of China and its world technological leadership.

But our interest in print communication technology is from the perspective of its role in the government of populations. We have considered this in the historical formation of a new political technology in Europe, what of this connection in China?

Dutton, talking about "policing" in China—policing being another historical term for the broad, formative techniques of governing—notes similarities with the European history of government,[48] but also significant differences. In China, the traditional concept of family, rather than population and individuals, became the model of government and for 'making the people visible and organizing them in a centralized fashion for the benefit of the state' (Dutton 1992, p. 25). Dutton shows how the values of Confucianism, although they provide a 'largely introspective ethical regime,' are nevertheless transposed to form a style of government *not* 'turning on self-mastery … but one which demanded the detailed specification, classification, and surveillance of family and community [thereby] establishing difference between various social agents [so] that one could determine the appropriate ethical response' (p. 350). In other words, techniques of individuation and the formation of ethical subjects *are* part of Chinese regimes of government, but unlike in the West, these subjects are constructed on a 'collective terrain' (p. 351) generated by a household registration system, rather than constructed around a universalistic notion of self or interiority.

As far as the role of print goes, print culture aided the circulation of Confucian values important within Chinese technologies of governing. Brokaw notes how the print-related publishing boom of the late Ming 'allowed for the publication of the popular educational works – vernacular explanations of the Four Books, household encyclopedia, morality books, and so forth – … as a means of introducing Confucian values and ideas to the common people' (Brokaw 2005, p. 26). But there was no resultant widespread formation of the conscientized individual and the capacity for self-government of the kind we have traced through the "practicing of books" in Europe. What mattered, as Dutton argues, was the particular 'social transposition' of Confucian values (p. 350) into social circumstances and techniques of wielding power that were specific to China, rather than the technical fact of multiplying access to those values through the use of print.

Considering print in China provides us with a demonstration of how change cannot be reduced to the invention or use of a technology. It also tells us that how we think about change, in terms of the development of governmentality, is not simply another teleological version of a modernity that was always going to come into being. Such an evolutionary view is hard to resist: in fact, it is routinely proffered as an alternative to problematic notions of revolution. But if anything, there is more of a problem with naturalistic, evolutionary views of change than with notions of revolution. It gives us the idea that what has happened was always going to happen, in an inevitable unfolding history denuded of any human agency. For example, we mentioned Foucault's talk of a "threshold" for the political technology of individuals. This concept identified the eighteenth century as the period when previously existing but scattered techniques of power had been sufficiently gathered together, or reached usage in sufficient institutions, for their identification as a recognizable technology. It was not a threshold, however, in the sense of a moment being crossed in an evolutionary development. Rather, it was a moment in the haphazard or contingent spread of techniques and knowledges involved in this new government of populations: not what *had* to happen, but just what *did* happen.[49] If communication practices and technologies play their part or generate their consequences for how people are governed, they do so within an array of circumstances that are contingent and which differ widely from place to place.

The Ends of Print Culture

Thus, it is useful to end our consideration of print culture and its history lessons by remembering that the government of populations, and the role of print technology within that, varies widely. To identify a political technology of government is not to imply that the outcomes of a pervasive government targeted on populations and their member individuals derive, more or less uniformly, from a general model of power. The ends and purposes of governing are many and diverse. The role of print in the exercise of governmental power, working through the surveilled and documented individual, conscientized or otherwise ethically positioned and guided, is similarly resistant to a singular assessment. In eighteenth-century Europe, an established print culture enabled the 'republic of letters' or forum of public reason, in which a disaffected intelligentsia contributed to mounting public opinion against religious and monarchical absolutism (Burchell 2003). But such progressive and "modernizing" outcomes for these populations were a long way from the uses and consequences of print, initially at least, for colonial populations. The example of India has already been mentioned.

In New Zealand too, the print literacy that saw 46 Maori chiefs signing the Treaty of Waitangi in 1840, thereby establishing the basis of British sovereignty over the country, needs to be considered as something more than an enabling capacity allowing the indigenous population to participate meaningfully in colonial rule. The energetic efforts by white missionaries to propagate Maori literacy, developing a written alphabet, mission schools, and the printing of biblical texts in Maori vernacular, may have had as their purpose the personal salvation of the indigenous population, and achieved apparently spectacular success in rates of reading and writing, but what kind of assent was the chiefs' "signing" of the Treaty? As McKenzie has seriously questioned, considering that Maori literacy replaced what had been an entirely oral culture only 25 years earlier, could what the Maori-language version of the Treaty meant to the Maori chiefs be commensurate with the sense made of the English language version by the British proponents of the Treaty? That is, could the shifts from indigenous oral culture to manuscript to print culture *really* have been cemented, in only 25 years, for the Maori population and their ways of making sense? If so, it would have entailed all the following: 'the reduction of speech to alphabetic forms, an ability to read and write them, a readiness to shift from memory to written

record, to accept a signature as a sign of full comprehension and legal commitment [and] to surrender the relativities of time place and person in an oral culture to the presumed fixities of the written or printed word' (McKenzie 1985, p. 10).

But as well as all manner of 'printed forms of colonial knowledge,' central to the 'webs of empire' (Ballantyne 2007, p. 346), there are also examples of the use of newspapers and magazines and other printed material by anti-colonial nationalists, using print literacy and access to publishing opportunities for building a sense of nation-ness and national peoples. 'Printing, within the framework of colonial empires, is an essential tool used for the purposes of administration, Christianization, and acculturation. But it is also the object of specific appropriations and uses by which a tool employed by colonizers to insure their dominance was turned against them.' (Chartier 2007, p. 403). *The Bulletin* in Australia (Lawson 1983) is one such example of newspapers and publications that built resistance to colonial government. Popular forms of address, the formation of nation-ness, and a national people would provide a basis for political campaigns for self-rule, turning the imperial importation of popular education and spread of print literacy into a challenge to imperial power.

This point, about the different outcomes for populations with which print culture has been associated, may seem obvious but does require making. Accounts of print that have tried to bring to the fore its role in widespread social and political change, have tended to place it as a key part of a generally unproblematic transformation from a feudal world, in which politics was synonymous with the power of the Church and monarchies, to a modern world of nations and citizens equipped with new secular capacities serving nation-state interests. This picture oversimplifies the transformations involved. It assumes the possibility of a general assessment of the benefits or otherwise of print, which is problematic whether it is part of the important work of Elizabeth Eisenstein (1979) and its view of the printing press as a generally progressive and positive 'agent of change,'[50] or whether it is part of the widely influential argument to which Eisenstein was indirectly answering—Marshall McLuhan's dystopic theological account of "typographical man" as the deterministic effect of printing and harbinger of an individualism, nationalism, and modernity destructive of an idealized Catholic community. From the point of view of the different, and also internally differentiated,

populations caught up in the changed practices, changed routines, new possibilities and new challenges associated with print technology and print culture, there is no single reckoning to be made, be it positive or negative. The importation of print to imperial colonies, into which we have merely dipped a toe, indicates this.

We have not sought to find a general meaning for human societies in the formation and use of print communication technology, either their progression toward individualism seen as a step further in human evolution, or their regrettable falling away from an earlier sense of community. What we have noted is that shifts from scribal to print culture amount to shifts in what it meant to be human. It is no accident that literacy comes gradually to be a marker of a civilized, and superior, person, and was used accordingly to problematize and discipline illiterate populations. Uses of scribal and print media formed and re-formed habits and conducts, shaped ethical relations to self and social and cultural relations with others, as well as shaping and making routine new kinds of political affiliation, and developing new kinds of economic relations and practices.

Finally, our few excursions into contemporary examples indicate that the role of print in the governing of populations is not simply historical. Although the digitalization of newspapers, magazines, and books has been routinely heralded as the death of print cultural forms, print communication technology is not disappearing. Print remains ubiquitous, in some ways integrated with new media, in some ways competing with and overlapping them. But digital communication technology and electronic text does introduce 'fundamental mutations,' replacing 'printed fixed texts … with open, mobile, and malleable texts' (Chartier 2007, p. 406). Reminding us again of the difficulty of isolating the European printing press as the fulcrum of revolutionary change, argues that the key shift made by digital communication technologies is not away from print, but away from the codex revolution, or more specifically, from the 'textual inventions' that made up the codex revolution—'index, tables, cross-references, numbering, and pagination' (p. 408). These inventions occurred between the second and fourth centuries, with the replacement of scrolls and tablets with the first 'books,' or codex, made up of numbers of sheets of paper or vellum stacked and bound together. Such material changes set new conditions for the uses, manipulations, and practices for producing and circulating knowledge, and in the case of

scribal and print material culture, with some of the connections we have noted here. In Chapters 3 and 4, we consider the material changes, uses, entanglements, and consequences of the material changes entailed in digital communication technology. But on the way to talking more concertedly about digital communication, we take one or two further history lessons, this time from broadcast communication technology.

Broadcasting

Why broadcasting?[51] Because it provides a kind of thread into current digital communication environments, as we shall see. We do not overlook the importance of broadcast technologies in their own right, as part of shaping and forming populations throughout a twentieth century marked by appeals to "mass audiences" and to new identities such as "teenagers." Broadcast radio and television quietly continue, in our current century, to help govern lives, people's time, bodies, social spaces, pleasures, and decisions, although people's engagement with these media has often shifted, now, from analogue to digital platforms. The ubiquity of reality television across all manner of topics, for example, tells us something of how a broadcast entertainment genre has helped circulate new norms to populations in many if not most countries: norms of business aspirations and career performance (*Dragon's Den, The Apprentice, Shark Tank*), entrepreneurial spirit (*Survivor, Idols*), investment in home ownership and renovation (*The Block, Selling New York, Flip This House, Fixer Upper*), appearance (*The Biggest Loser, Queer Eye*), romance (*The Farmer's Wife, The Bachelor*), personal relationships (*Big Brother, Temptation Island*), in an ever-growing list (Nolan 2014; Hay 2010; Andrejevic 2004). Across this range of work, household, economic, social and intimate activities, reality television shows have engaged populations in ways that remake their relations to their selves, inciting their inspection of the lives and attributes of those persons on screen—people "just like themselves"—and thus also driving inspection of their own circumstances. In these entertaining ways, large populations have been provided with new vocabularies, norms, and rationalities with which to formulate their own interests, ambitions, and desires, perhaps acting on these to direct their daily routines and practices according to the new norms of body shape, career success, romance, family life, and business achievement—or perhaps noticing how much their lives and those of others depart from those norms.

Domestic television's power in this regard comes from its established cultural centrality in the late twentieth and early twenty-first century. Borrowing from a number of media to produce its own peculiar blend of aesthetic features, television was most directly the inheritor of classic Hollywood cinema's regime of "universal intelligibility," in which output was calculated and organized to be comprehensible (if not liked) by each and every member of a nation, without any special knowledge. It is this inheritance, among other things, that cemented broadcast television's 'centrality in everyday life' (Ellis 1982, p. 227), making it a potent contributor to regimes of what was normal in the identities, dispositions, and conduct of a national population—as well as what was not. Playing this normalizing role, television has operated as an adjunct to a series of other institutions (education, professional, and industrial training, households and families) in which the intelligibility of events is produced and in which attitudes and conducts are formed and policed.

In television's centrality to social life there are commonalities between its workings and those of the eighteenth-century cultural technologies central to the formation of the nation-state and of national peoples. As noted here, following Mercer and Anderson, the dailiness and popular cultural interests of the newspaper operated as a means for materially imagining nation-ness, addressing readers as citizens of a known territorially bound country or region, one full of other individually unknown but nevertheless imaginable citizens similar to themselves, related through their familiarity with popular mores and institutions. Of course, such daily, repeated, and ephemeral construction of nation-ness did not happen in a vacuum. At the same time as newspapers hailed readers to a particular perspective on daily events, other historical inventions such as the moral science of statistics were also providing a knowledge and set of techniques 'for conceiving the nation as a whole' (Tribe 1978, p. 86). But while statistics or "political arithmetic" was used by the ruling few, the daily newspaper put the ability to conceive of the nation in the hands of all literate individuals. In other words, those being counted and categorized as the resources of the nation in one technology were, in another, being positioned to willingly and daily partake of their constituted unity.

In the latter half of the twentieth century, while large numbers still turned to newspapers as a source of news, widely read, this print communication form was joined and to an extent supplanted by that of television. This shift from print to screen-based media is even more the case

in this century. As daily ceremony, but also by virtue of its distinctive aesthetic practices, broadcast television became a prime formative condition for that "community in anonymity" in which individuals find their "Britishness," or their "Singaporean-ness," their status as "ordinary Singaporeans" or "everyday Americans" and their membership of their own national people. Radio had played a similar role from earlier in the twentieth century. People's understanding of themselves in terms of national belonging no doubt provided a basis for perhaps one of the most obvious instances of broadcasting power—the uses of radio to mobilize populations along national lines in the many instances of radio propaganda in times of war or ongoing geopolitical rivalry.

However, the repeated use of broadcast media for propaganda purposes (not all in wartime by any means), the calculations and efforts involved in mobilizing populations through a flow of repetitive and reductive statements, sounds, and images, toward different states of doubt, fear, hatred, patriotism, and so on, does not exhaust how broadcasting contributes to the government of populations.

Mobile Privatization

Revisiting the dual themes of our investigation of print communication technology—of government through the formation of national peoples, equipped with a solidarity of civic ordinariness, authenticity, and virtue; as well as through the formation of individuals, governing their lives through the marshalling of inner resources and acquired capacities in relation to institutional norms—we need not only to consider broadcast communication technology as continuing to inscribe nation-ness, or forms of ethnic or religious community, but also to describe its role in the government of individuals.[52]

In this, we can draw on the policies, practices, and relations involved in what Raymond Williams, our earlier guide to the social significance of communication technologies, termed "mobile privatization," an individualized and privatizing orientation. If the shaping of persons as conscientized individuals was a particular historical achievement, mobile privatization is yet another specific shaping of people as individuals. Mobile privatization is defined by Williams as that state in which 'people are increasingly living as private small-family units, or … as private and deliberately self-enclosed individuals, while at the same time there is quite unprecedented mobility' (Williams 1983a, p. 188). This mobility

is provided through technologies as diverse as the car, broadcasting, and the Internet. Mobile privatization describes a lengthy, but seemingly accelerating, shift in people's social geography—the very spaces in which we live our lives, and the ways in which we occupy them.

The concept of mobile privatization captures how an individualized and privatizing orientation has come to dominate in people's lives. It marks out what is often presented as the natural state of affairs for human beings in contemporary liberal democracies (a sense of themselves as individuals defined by a core, private being, distinct from and set against collective, public existence) as, instead, a definite historical outcome or achieved state, and one imbued with desirable senses of freedom and power through its layering with mobility. This private, individual, positive-because-mobile, space and point of view on the world has been brought about not so much through an ideology of individualism in the sense of an inculcation of a particular set of ideas, but through the pervasive and mundane patternings of people's activities and dispositions through a range of technologies. These patterns are perhaps harder to challenge or counter, if one is so minded, than an ideology.

The point of raising this in relation to broadcasting is that Williams initially coined the term mobile privatization—'an ugly phrase for an unprecedented condition' (1983a, p. 188)—in the mid-1970s, while working on television as a technology and a cultural form. He described broadcasting (both radio and television) as part of the mobile privatization characterizing industrialized societies because it answered to the need for 'new kinds of contact,' 'news from "outside," from otherwise inaccessible sources' (1974, p. 27). This need arose from the increasing prioritization of the private sphere of family and home, the construction of the private domain as an 'idealized refuge … with a higher moral value than the public realm' (Sennett 1977, p. 20). This refuge, with its separation from the public world, then requires a connection to things beyond it, a mobility provided by radio and television, as well as the car. With each of these technologies the private space is not left behind, but made mobile—whether in 'private transport' or in the characteristic broadcast mode of address to the *private* citizen in a domestic setting, inviting attention to public affairs and entertainments (Ellis 1982). The private world and the individual identity are made the defining perspective on otherwise public spaces. Mobile privatization is a useful way of thinking about what became an established twentieth-century tendency in the organization of media usage—a tendency that has

only been extended and intensified with new media such as the Internet, Web 2.0, and the accompanying personalization of online experiences and, arguably, consequent dominance of the individualized, privatized interests of media users as commoditized consumers (Freedman 2012).

The connection between people's media usage and a more broadly inscribed shaping of their dispositions and conduct becomes clearer in Williams' discussion of the wider application of the concept of mobile privatization:

> I developed the image of modern car traffic to describe this now dominant set of social relations in the old industrial societies. Looked at from right outside, the traffic flows and their regulation are clearly a social order of a determined kind, yet what is experienced inside them – in the conditioned atmosphere and internal music of this windowed shell – is movement, choice of direction, the pursuit of self-determined private purposes. All the other shells are moving, in comparable ways but for their own different private ends. They are not so much other people, in any full sense, but other units which signal and are signaled to, so that private mobilities can proceed safely and relatively unhindered. And if all this is seen from outside as in deep ways determined, or in some sweeping glance as dehumanised, *that is not at all how it feels like inside the shell, with people you want to be with, going where you want to go*… The international market in every kind of commodity receives its deep assent from this system of mobile-privatised social relations. From the shell, whether house or car or employment, *the only relevant calculations are the terms of continuing or improving its own conditions.* (1983a, p. 189, emphasis added)

Although Williams refers here to the "image" of modern car traffic, the actual set of social relations he calls mobile privatization is not to be confused with a metaphor, engaging but epiphenomenal. What is at stake, and brought into being by particular technologies—with the full resonance of the social knowledge and conditions of invention, development, and application Williams gives that term—is the organization of a material disposition, the formation of a socioeconomic literacy with which to make sense of one's own situation and to formulate one's interests. It is a way of making sense that distances oneself from, rather than joins oneself to, others' interests, in the pursuit of making an expansive career path through one's life. This is the sense in which Williams characterizes this 'identity,' 'much of it … centred on the home itself,' as:

> not a retreating privatization, or a deprived kind, because what it especially confers is an unexampled mobility. You may live in a shell of this kind in which you and your relatives, your lovers, your friends, your children – this small-unit entity is the only really significant social entity. It is not living in a cut-off way, not in a shell that is just stuck. It is a shell which you can take with you, which you can fly with to places that previous generations could never imagine visiting … You're given this sense that is offered as a primary identity, as your real life. And most people underwrite it as their real life, against which those big things, in whatever colour of politics they appear to come, are interpreted as mere generalities, mere abstractions, as at best rather boring interferences with this real life and at worst destructive interventions in it … [I]t has given people genuine kinds of freedom of choice and mobility which their ancestors would have given very much for. (1989, p. 171)

This private, expansive, *real* identity Williams describes is important to grasp. It accounts for a central element in the contemporary formation of populations as individuals. It is particularly significant in the premium put in Western liberal societies on individual freedom, but also in the westernizing segments of populations in those countries that have not been historically organized around liberalism's priorities (Ong 2007). Williams' late twentieth-century insistence on the "genuineness" of the freedom of choice and mobility involved, and how it is regarded in positive terms by people able to choose and move, is much like Thompson's more recent view that, despite growing levels of disaffection with the promises of a financialized version of liberalism, '[p]eople will not give up the idea (and practice) of "choice" … they like to have this level of control over their lives' (2011, p. 484).

So this private, expansive disposition and the norms and social relations it entails are solidly and widely embedded, the achievement of decades of patterning. The version of individual identity involved is made explicit in the Microsoft advertising campaign of the mid-1990s, around the start of the World Wide Web, which asked TV viewers 'Where do you want to go today'? This campaign conveniently crystallized the mode of address supporting mobile privatization. Presented as abolishing place and distance, the new digital communication technology centered around the personal computer was offered as an uber-tool for the self-actualization of the individual's creative identity, in business, in education, in leisure. The mobility on offer "technologized," if you like, the form of address that

had long been made a staple of broadcasting, adding the promise of the Web's global reach (and the incitement to purchase a personal computer) to an address to broadcast audiences as individual consumers provided with transportative experiences of events and domains outside the home. To understand why this matters and what it changes, we want to detail the historical production of this privatizing form of address which at the same time enables your gaze to roam the world.

Johnson helps us do this, describing the development of what was considered "popular" in early Australian radio. Drawing on the letters of radio listeners in the late 1920s and 1930s, which typically 'spoke of their position or existence outside the world of radio … [and identifying] themselves first and foremost by their membership of a class – the class of working people' (1988, p. 144), Johnson probes how the 'publicity language' that was being adopted by radio programmers, a 'rhetoric about taste and consumer choice' (p. 145), contrasted with listeners' own 'primary identification' (p. 144). For the programmers,

> what was popular was… a question of the massed vote of individual egos… the convergence or intersection of private, individual concerns and orientations. The concept of the popular thus represented the common interests or cultural preferences of the majority as accidental or spontaneous, rather than as a possible sign of shared material conditions, common experiences of the social world. (1988, p. 145)

In Johnson's account, such conceptualizing—and addressing—of radio audiences 'contributed to the vitiation of this language of class' (p. 145). Class had been 'an important mode of political and personal identification' (pp. 144–145), but through the middle decades of the past century radio helped shift this, and audiences' experience of being addressed as part of a social grouping ("Australians," "the nation," even "battlers," or some other imagined community) was transformed into—and *really experienced* as—an accidental intersection of private identities. At the same time, the 'intimate, human mode of address or performance' of radio (Johnson 1988, p. 72) was self-consciously developed.

The domestically situated listener, listening into a world outside, and spoken to in a manner that "recognized" their individual status, their existence as first and foremost an individual, may seem to us a "natural" part of radio. But Johnson details the work of calculating and adopting the techniques involved in *making* radio what we understand as "radio."

This work also included the training of listeners: for example, dissuading people away from the active habits of the radio "ham" or skilled operator of technical equipment and into the "passive" routines of consuming material from the world "outside" being transmitted into the privacy of their home.

In the case of television, once again an assembled institutional regime rather than an automatic effect of the technical invention was involved in putting into place the mode of address that would form viewers along the particular lines of privatized individuation rather than class-based solidarity. All the following considerations and elements were involved: the domestic location of television sets in households (at least in the middle of the twentieth century, although neither inevitably at its beginning nor solely at its end); associated programming and production assumptions about a familial viewing audience (themes of family and the familiar), and a "busy" domestic viewing situation replete with multiple interruptions, in turn requiring narrative forms (series and serial forms) based on repetition and short internally coherent units of sound and image (the segment) to offset audience distraction; an initially low-quality image track which also prescribed a reliance on sound; a rhetoric of liveness and immediacy, accompanying the dailiness of broadcasting. Ellis describes these as the components of the dominant regime of British TV from the 1960s to the 1980s (1982, pp. 111–126). His account meshes with Williams' discussion of mobile privatization in explicating how television producers offer to audiences the viewing position of what Ellis names the 'normal citizen' (1982, pp. 166–170), individuals anchored in, recognizing themselves as citizens and part of, the nation, and as 'normal,' grounded in the private sphere of household and family.

The normality of the normal or "ordinary" citizen derives from the relentless positioning of the viewer as secure and isolated in the "private," "inside" world of relatively harmonious personal and familial identity, separate from the "public," "outside" world of work, conflict, and politics that the genres of the period routinely presented as extraordinary, threatening, and abnormal. It is to the world "inside," that is sometimes painted as dull and predictable but always presented as the space in which "ordinary" individuals rightly confirm or discover their identity, exercise their power, secure their safety and the *real* meaning of their lives—or at least legitimately try to do these things—that television's series and serials and scheduling practices unfailingly returned their viewers. These "insides" are the news desk or the current affairs set, the family home

or similarly organized workspace of the situation comedy and the soap opera, the safe haven and personal camaraderie of the squad room. More than any particular storylines, it was the pattern of repetitions involved in these narrative forms that produced the 'pattern of the normal or the everyday' against which particular incidents could be presented as 'intrusions, upsets or worries' (Ellis 1982, p. 158), at the same time producing a sense of "us" (inhabiting the normal and everyday) versus "them" (who fall or place themselves outside this domain). And this normal and everyday was tirelessly associated with the private space of the home, the family or its metaphorical equivalent (for example, the "family" that presents the news). That the "normal citizen" is marked out as an individual "citizen" fits with television's reliance on the figure of the nation and the consensual and generalized interpretations it demands. To be a citizen, an individual member of a national community, 'constitutes the TV viewer as someone powerless to do anything about the events portrayed other than sympathise or become angry' (Ellis 1982, p. 170), that is, unable to make other than general moral judgments.

Ellis' description of broadcasting is a consciously historical rather than universalizing one. Television now and in different countries is not British television of the 1960s to 1980s. Still, many of its distinctive elements, including the mode of address, persist. The "privatization" of disposition, understanding, experience, and social relations to which it contributes has been part of ushering in new ways of making sense of and arranging populations in the twentieth century. Next, we try to sketch how this has mattered.

A Socioeconomic Literacy

With this aim, we bring together the consequences of mobile privatization as a routine aspect of broadcast media use with the domain of public policy. Public policy, in societies in which elections and what is counted as public opinion are important to the decision making of authorities, requires some level of electoral endorsement or public acceptance, however lukewarm or qualified. This pulls into view the literacies, or ways of making sense of policies and situations, that populations have available to them. These literacies are at least *one* element of the policy scenarios that are fought out by politicians, lobby groups, employer associations and unions, experts of various kinds, public relations, advertising and journalism professionals, as well as non-accredited commentators, electors,

and residents. Our focus is on how the repeated experience of mobile privatization has shaped the socioeconomic literacy of broad populations, and thus been integral to how people have been conducted along and stitched into, still as self-governing citizens, the policy paths that help make up our complex worlds.

One of these policy domains is the area of changing employment policy in the late twentieth century, chosen because of its fairly evident impact on people's lives. Radical changes to employment policy were a central part of the late 1980s and 1990s period of economic "reform" that characterized Anglophone countries especially. In Australia, for example, government labor markets were replaced with private incentive-based job providers, an established industrial relations regime was overhauled to liberalize the hire and fire practices of businesses so as to provide flexibility for employers to downsize, casualize, or outsource their employment requirement as part of their need to compete in newly "open" global competitive markets, the unemployed and underemployed were made responsible for their inability to find work through work-based welfare or "work for the dole" arrangements, and accompanying cultural narratives of "dole-bludgers" proliferated. It can be argued that these policies manifestly failed against a range of objectives: failed to provide people with the key historically established condition for full citizenship, waged labour; failed to enable nation-states to develop the full productive potential of their resources; failed to organize national budgets with a tax revenue base adequate to fund the infrastructure needed in modern and civilized societies. Yet these policy directions were, by and large, not overturned but persisted with. What persuaded politicians, policy advisers, and employers to these directions, and enabled these actors to persuade majorities of citizens in Australia and in other countries, away from the established Keynesian objectives, presented here as the criteria for success or, in this case, failure?

One answer is that people fail to realize what is in their "real" interests, and that this is what happened in the late twentieth century. This view assumes in the case of employment policy that we can speak for people's real interests lying with a more humane, less exploitative and divided society (i.e., where it is not only employers shoring up profitability in global competitive markets, and select groups of workers, who are able to prosper). Putting aside the issue of who speaks for "real interests," and on what basis, this answer has little validity, if "validity" means providing people with reasons they use to guide their actions, such as voting on election days (Hindess 1989).

Clearing away the chimera of a master knowledge—in which "real interests" could be known—the particular socioeconomic literacy we have linked to mobile privatization as constitutive of people's conduct comes into view. This literacy—the kind of sense-making of social and economic circumstances in which private activity and private benefit are the only things that can sensibly be counted; in which bureaucracies can only sensibly be held in contempt; and in which, as Williams puts it, people conclude that '[m]ainly what is wrong … is what all those other shells are doing' (1983a, p. 189)—*has* indeed provided large numbers of people with valid grounds for accepting a privatizing agenda of economic "reform" and for rejecting policies that treat unemployment as a fully social problem and see those who suffer it as citizens just like them. The literacy provided by mobile privatization shapes the agency of large populations, such that they formulate their interests, the bases for future decisions and actions, along the lines of self-interestedness, private spaces of living, working, and feeling; the things that have been made real to people rather than, by and large, social relations in common, or the sense of occupying, together with strangers, a public world. The authenticity and priority of private lives and spaces has been made real by broadcasting institutions and their routines in the same deeply ingrained, visceral way that broadcast radio helped habituate populations to the discipline and imposed routines of industrial labor through scheduling policies that measured time just as it was measured in the factory and other workplaces.

None of this is to say that people do not also have other available literacies or frameworks within which to formulate different kinds of interests, those that go against the tide of privatized concerns and produce counter-conducts to prevailing policy directions. Although our efforts have gone into describing how this complex shaping of broadcast audiences operates, there is no functional inevitability about its outcomes. But neither, given the ubiquity and centrality of broadcast technology for national populations through the twentieth century, should its patterning of people's social relations and capacities be ignored or underestimated.

There is also the matter of how this patterning is assessed. Our example of how the socioeconomic literacy of populations schooled by mobile privatization has assisted neoliberal privatizing policy agendas clearly questions these directions. Williams was also critical, noting that the price of the conditions underpinning mobile privatization—'[f]ull employment,

easy cheap credit, easy cheap petrol'—had never been accounted for, and also that these conditions were deteriorating (1989, pp. 171–172). For example, the demise of full employment has brought a fracturing of the previously "freely chosen" mobility and privatization and a different aspect to both. Most unemployed and underemployed people cannot materially sustain the private space of home and of personal identity in the expansive mode Williams described. Mobility may more often now be the forced mobility of leaving one's established locality and networks to travel to areas of greater employment opportunity, or mandatory attachment to the mobile phone to make oneself continuously available for casual job offers. The extension of the private character of the "shell" of employment in new workplace arrangements has dissolved alliances and solidarities, leaving many individual workers vulnerable rather than free in their personal autonomy. And the mobility of the home office—the ability to take your work with you, anywhere, via the communication technologies of telephony and computer networks—has arguably enabled intensified work demands on workers as much as flexible freely chosen convenience (Gregg 2011). Or, at least, choice and mobility and privatization have borne on people in different ways.

Another way of describing and analyzing the transformation worked by mobile privatization is as a shift in the style of government of social institutions and the activity and people within them, now widely known as the shift from liberal to neo-liberal 'rationalities and technologies of government' (Rose 1993, p. 295). In these technologies we see the intensification described here, the emphasis on and calculation around the private individual—through their 'autonomization' (Rose 1993, p. 296). When the range of privatizations is considered as part of a neo-liberal style of government of populations, it becomes clear that the private "shell" and identity is not a private matter. To put it another way, such an analysis foregrounds the obsolescence of the liberal public–private distinction. The notion of mobile privatization breaks down this bourgeois division, with the private home now the site of increasing amounts of paid work, with information technologies eroding the privacy of patterns of household consumption, and a policing of household health and welfare obligations. However lonely the private shell may feel for some, it is connected through the technologies of telephony, broadcasting, and the personal computer to a range of other organizational policies and calculations, including those of advertisers, marketing firms, gambling agencies, banks, entertainment providers, educational providers,

and government authorities. We are not home alone, but always already imbricated in wider social relations of power and knowledge—through both the representational mobility of "news from outside" provided by broadcast media and the logistical mobility of telecommunications that allow us to "go anywhere"—to shop, work, bank, gamble, learn, from home.

Using the description of mobile privatization to identify a particular, twentieth-century shaping of social relations and an associated literacy is one way of considering how broadcasting has contributed to the shaping of populations and to new, neoliberal forms of governmentality. But there is a different way of assessing broadcasting's contribution to people's lives. Scannell, for instance, writes of broadcasting's democratizing role, arguing that it 'brought into being a culture in common to whole populations and a shared public life of a quite new kind' (1989, p. 138). It does this, he says, through both its specially devised studio programmes and its relaying of national occasions (sporting, political, social, and cultural events and so on), and produces a public good and a 'public life' that which was 'routinely accessed and produced' on behalf of 'the new kind of *general* public' (1989, p. 137) of the mid-twentieth century. By this he means that radio and later television made public events available to all, rather than the particular publics with the time or resources to access them, and in so doing 'equalized' public life as never before (p. 140). Equally, he insists, radio and television 'brought into the public domain the experiences and pleasures of the majority' (p. 141) in ways not hitherto seen.

Scannell is defending notions of public service and public service broadcasting at a time when the neoliberal policy directions earlier noted were eroding and threatening both and the universalism they enabled. He is writing of Britain, tracing the shifts away from a 'class-divided society' within the new twentieth-century context of mass democracy, and how broadcasting was used 'to … [claim and assert] … the entitlement of all to have opinions, to have them heard and to hear those of others' (p. 144). Similar to Johnson describing the work of early Australian radio broadcasters, Scannell considers not only the matter of content but the work of developing a new mode of address: 'Broadcasting could not treat its audience as a crowd. It had to learn to speak to them as individuals… chim[ing] in with the day-to-day life and routines of the population' (pp. 149–150). Here is another take on the touchstones of class identity, individual identity, and privatization and democracy. This is a mass democracy based around notions of "the ordinary person" and a "general public."

Perhaps mobile privatization and democratization are not essentially different accounts. The characteristic broadcast mode of address to individuals links them. "Democracy" may be configured in precisely the liberalizing and privatizing terms indicated by mobile privatization. Indeed, exactly what kind of political assessment is conferred by a notion of "democratization" is one that will occupy us as we discuss the government of networked digital populations in the following chapters, and especially in Chapter 5.

Neither Williams nor Scannell is talking about an idealized broadcasting institution or imagining they are describing the technology in itself; both are treating the socially organized broadcasting institutions, of particular countries, in historical terms. The lessons we can draw from their descriptions are historical ones. Both are concerned with new forms of social relations—those of a "mass" or "general" public, in one account, appropriate to the institutions and developments of mass democracy of the middle of the twentieth century—and those of mobile-privatized social relations, in the other account, appropriate to the institutions of industrial societies and consumer capitalism of the same period. These developments were important transformations of the relations within which individual members of populations lived their lives. They enabled the mobilization of populations along particular lines: around electoral decisions concerning democratic questions of the recognition of human rights and of the need for the public accountability of all kinds of authorities; and along lines of mass consumption of popular culture, and newly marketed and increasingly commoditized lifestyles.

Conclusion

Given these significant mobilizations of populations, does it help us to consider broadcasting, too, as a communication revolution? Murdoch's 1990 sense of this term to describe a 'media and information explosion' certainly emphasized the influence of satellite television, for example. But our aim is not to reach a ruling on the appropriate classification, or not, of "a communication revolution" as an objective measurement of significance. The history lesson we hope to have drawn through the examples and discussion in this chapter is that rather than a focus on communication technologies as producing spectacular change or on these technologies as having an instrumental purpose for specific political struggles, they can be understood as having a broader, formative role in the character and capacities of the populations engaged with them. Broadcast media has been a part of this, helping to form new, intensified relations to people's private lives.

Part of this has been a sense of freedom and mobility. That the theme and experience of mobility—how such a pervasive phenomenon through the explosion in use of smart phones, iPads, and wearable devices—significantly predates these digital media speaks to the lesson that it is not simply or even mainly to the technical invention that we should look for their social, political, economic, and cultural consequences. Not that the mobility of mobile phones and portable networked devices is the same as the mobility associated with broadcasting, but just as the history of print communication technology does not stop in some mythical "past," the broadcast technologies of first radio and then television set in place, rework, or consolidate cultural forms, social relations, and patterns that currently infuse digital communication environments.

It is to these environments we now turn.

Notes

1. As Zhou Yongming puts it, 'Socially speaking, in retrospect, the impact that telegraphy had on Western societies was so profound that it cannot be dwarfed by the Internet' (2006, p. 5).
2. These were the indigenous nations of, for example, the Warlpiri, Arrernte, Antakarinja, Kokatha, Yolgnu—the names taken from tribal or language groups.
3. Latour recasts politics in terms of the *things* and associated negotiations between people that politics involves (2005). Among the things in play in telegraph-black-white politics in Australia were the telegraph wire used to make fishhooks and the iron foot-plates of the telegraph poles which were 'dug up, broken, and made with much ingenuity, into tomahawks' (Todd quoted in Moyal 1984, p. 54).
4. 'Without the mound springs, telegraphic communication would not have been established as readily. With relatively minor deviations, the route of the Overland Telegraph followed the line of [John McDouall] Stuart's travel' (Harris 2002, p. 9).
5. A concept substantially alien to the cultural knowledge of the white settlers.
6. 'It cost [in 1872] almost £9, or more than twice a week's wages for a skilled man, to send a message of twenty words from England to Australia' (Davison 1993, p. 59).
7. See Putnis (2010) on the changing value of news and the intricacies of living in colonial time in Australia.
8. Not a nation until Federation in 1901, there is a long-standing and thoroughly inscribed sense of Australia as an incipient "nation" in the nineteenth and even the eighteenth century. See Portus (1948, p. 40).

9. Here and in other nations: see Choudhury (2010), Mattelart (2000), Standage (1999), and Winseck and Pike (2007).
10. Such an account is no convenient "straw-person." The Guide to the Teaching of Australian History in Year 9 and 10 (Australian Government 2007) focused on 'events' strung out in a linear narrative of national development, with '1872: Telegraph line from Europe to Adelaide completed' an identified 'milestone.' Prime Minister Howard favoured this model to rectify declining educational standards through a 'restoration of narrative' over 'a fragmented stew of themes and issues' (Howard 2006).
11. A populist technological rhetoric because of its simplifying, dualistic vision of a world indubitably and more or less effortlessly enhanced by the technical device at stake, set against a lesser world, lacking that same device.
12. Tiffin (2014, note 159) cites this panel in mentioning Murdoch's policy sympathies with those of the US Federal Communications Commission regulator Mark Fowler, also on the panel.
13. In scholarly work using the term (e.g., Mansell 2002; McChesney 2007; Castells 2009), its technological determinist connotations are more likely to be questioned and hedged, if not replaced, with a social determinist argument, as in Castells' section 'A Communication Revolution?' (2009).
14. While Castells sees fit to question 'a communication revolution,' he does so in a chapter confidently titled 'Communication in the Digital Age' (2009).
15. The kind of overlaps, coexistence, and contests clearly in view in Lobato and Thomas (2015), for example.
16. Secular government contrasts with the earlier European period where "politics" was almost entirely coincident with the institution of the Church (Ullman 1975).
17. See Hirst and Woolley's illuminating discussion of writing as a technology contributing to social relations and human capacities, and of the specificities of 'oral language dominated written language' (1982, p. 35).
18. Regarding those more expansive purposes Foucault cites Bentham, the envisager of the program of the panopticon, attributing to it the solution to England's Poor-Laws: '*Morals reformed – health preserved – industry invigorated – instruction diffused – public burthens lightened*' (Bentham, p. 39, cited Foucault 1977, p. 207).
19. Fitch ratings agency downgraded Greece's credit rating in late 2009 to the lowest in the Eurozone (from A– to BBB+). Subsequently, rival agencies Standard & Poor's and Moody's also downgraded the value of Greek debt and the consequent soaring borrowing costs of the Greek Government set the agenda early in 2010 for Prime Minister Papandreou to adopt austerity measures for the country.
20. Foucault makes a similar point about the significance of the 'model colleges of the Jesuits' (1977, pp. 209–210).

21. Roper describes ongoing debate about whether or not print assisted in the development of an 'autonomous modernity' in Muslim societies such as Egypt (2007, p. 267).
22. The term suggests a way of patterning conduct though 'reference to a systematicity in the *will* of the agent,' that is, locating patterns of conduct *in* the subject, rather than through cultural obligations and practices.
23. Together these qualities, which Latour notes from Eisenstein's (1979) work, combine in his notable concept of immutable mobiles (1990, pp. 26–35).
24. On the paper technology of the notebook, which 'collects people,' see Heesen (2005, p. 582).
25. Examples are the double entendre slogans used by Social Funds (2009), 'do well, while doing good,' or fund manager Australian Ethical's advertisement announcing fifteen years of outperformance, 'Did Good? Did **Really** Good!', '**pure**investment**performance**' (Australian Ethical 2009).
26. See Langley (2008, pp. 95–112) on the formation of investors, for example, in the injunctions and forms of address in pension fund brochures; see Bryan (2004) on superannuation's framing in a neoliberal individualist agenda.
27. That is, 'the accumulating non-standardized errors and variations of scribes' (Hirst and Woolley 1982, p. 38).
28. In the Christian interrogation of the soul, as we have seen, and in Enlightenment philosophy's recognition of consciousness and the later extension of this through psychoanalysis' recovering of the unconscious.
29. As for Britain, in the 1820s, the classical curriculum still reigned because of English church–state relations and the entrenched role of the church in disseminating 'value, tradition, and authority' (Viswathanam 1989, p. 7).
30. See also Frow (2005) on the changing status of copying and the copy.
31. The preeminent scholar in the field, Eisenstein (1979, p. 33) argues for 'viewing the advent of printing as inaugurating a new cultural era in the history of Western man' while having a page earlier approvingly noted the 'fragment[ing of] our concept of "printing" as an invention' and '"the printing press" … as a convenient abstraction' (p. 32). The scholar who has most inventively taken up Eisenstein's work, Latour, presses even harder on this dual point about the scale of the transformation assisted by printing and yet those changes being not down to the printing press per se: '*Anything* that will accelerate the mobility of the traces that a location may obtain about another place, or *anything* that will allow these traces to move without transformation from one place to another, will be favored: geometry, projection, perspective, bookkeeping, paper making, aqua forte, coinage, new ships (Law 1986). The privilege of the printing press comes from its ability to help many innovations to act at once, but it is only one innovation among the many that help to answer this simplest of all questions: how to dominate on a large scale?' (Latour 1990, p. 35).

32. A technology comprising the techniques and knowledges, assembled in relatively durable patterns, to exercise and negotiate relations of power between people, and not only on formal political occasions such as elections.
33. See Sassen (2006) on medieval towns, burghers as significant political actors, and the role of urban law, as an argument against there being any simple opposition between medieval and Renaissance politics.
34. While the panopticon or central surveillant tower is what is best known about Bentham's envisaged innovation in prison architecture, Foucault instead emphasizes the techniques involved in panopticism, 'a very real technology, that of individuals' (1977, p. 225). This emphasis helps avoid a common use of the panoptic metaphor, for example, in surveillance studies or cultural studies, which misses or underplays the individual as produced by the techniques for individuating persons.
35. See Munro (2004) on proposals for a national system for tracking children's welfare in the UK.
36. And the report itself's original purpose was quite different again—envisioning actors and actions flowing from the community fora feeding into the report: 'the coming together of different people to help tackle the problem of child sexual abuse: mothers, children, grandmothers at a safe place, fathers and grandfathers at a safe place, and in the middle a resource centre with a mentor/counsellor/educator and family members and other support people' (Northern Territory Government 2007).
37. But see, among others, Donzelot (1979) on government of family life, Foucault (1978) and Hunter et al. (1993) on government of instituted sexualities, Dutton (1992) on governing households in China, Rose (1990) on governing through psychology and governing workplaces.
38. See Foucault (1978) on the war on onanism.
39. Latour lists those who worked in such centers in the eighteenth century, to govern others, as 'cartographers, merchants, engineers, jurists, and civil servants' (1990, p. 60).
40. In the case of the latter, the norm of economic self-interested calculation is in play but either resisted by indigenous welfare beneficiaries or not able to be met because of various conditions bearing on those individuals: it is no less at work in their assessment and management.
41. Rousseau's claim is elaborated in Burke (1979, p. 12): 'Folksongs could evoke a sense of solidarity in a dispersed population which lacked traditional national institutions.'
42. Through the contribution of his theory of the General Will to the solidarity of the French Revolution as the harbinger of modern democracy: 'the voice of the people is in fact the voice of God' (Rousseau 1973, p. 122).
43. A genealogy of "the people" shows that in Christian scholastic discourse it is disarticulated from the conception of omnipotent Roman natural law, and instead related to human law, enabling "the people" as the location of

sovereignty to be argued in the medieval period. Thus "the people" can be understood as a piecemeal construction in these discursive formations, and not as an object gradually revealing itself, a natural force waiting to properly or fully animate politics and social life. See Greenfield (1991, pp. 80–105).

44. See Burke (1981, pp. 217–218) on primitivism, purism, and communalism.
45. Chow establishes that movable-type printing press 'did not become the dominant method of printing there, but neither was it abandoned or forgotten' (2007, p. 187) and that '[p]rinters developed clay, tin, and copper types in China in the eleventh through the thirteenth centuries and in Korea in the thirteenth and fourteenth centuries' (2007, p. 173).
46. See also Hobson (2004).
47. However, see Pan (2013) on "the Chinese century" as a US rather than Chinese rhetoric, a later emphasis in or specification of the 1980s phrase "the Asian Century."
48. And in this regard notes the impact of Western penal regimes on China (Dutton 1992, pp. 97–145).
49. A useful distinction formulated in Hunter on genealogy (1991).
50. Although it would be unfair to leave the impression that Eisenstein is insensitive to the 'remarkable diversity' of procedures entailed in print culture (1979, p. 12), as she emphasizes in her critique of McLuhan. But Eisenstein does argue for a revolutionary model of change, and discontinuity in the shift from script to print.
51. Arguably broadcast television was the dominant cultural medium of the late twentieth century, superseding the cinema's earlier claim to this status, radio's before it, and the press' prior to that.
52. For Ellis (1982) the two come together as 'the normal citizen,' a powerful form of address: individuals anchored in, recognizing themselves as citizens and part of the nation and as 'normal,' grounded in the private sphere of household and family.

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CHAPTER 3

Governing Digitally Networked Populations

In Chapter 1, we outlined the rationale for this book as developing an attention to communication media that brings into view the full array of social relations within which they are situated. This means attending to the lives and circumstances of people using and affected by networked digital communication technologies, the large and small problems and considerations that accompany them. In this chapter and the next we discuss these people and circumstances as digitally networked populations and how they are governed. As indicated in Chapter 1, a focus on populations means attention to the describable, multiple, empirical characteristics and conduct of a multitude of people and to the various policies and programs used by organizations and agencies to know and target that multitude so as to govern, direct, and look after or tend them. It will help to further spell out this notion of population and how it brings into view the way we are governed within contemporary environments where digital communication technologies bulk large. We do this in the next section. But first we want to carve out how exactly we "see" or envisage these inhabitants of digital networked environments, and distinguish this from another, familiar view. And even before we do that, we need to pause on the title of our chapter.

P. Dearman et al., *Media and the Government of Populations*,
Palgrave Studies in the History of the Media,
https://doi.org/10.1057/978-1-137-34773-2_3

Digitally Networked Populations: Who Are They, Where Are They?

In the here and now, people go about their lives not thinking of themselves as populations.[1] Other immediacies and urgencies, pleasures, and demands drive their uses of communication technologies. Is it really accurate, or useful, to consider them as "digitally networked populations"? Of course this title works for us because our aim is to bring together a populational perspective with description of media and communication technologies. But our question—who are they, where are they?—is not so much about the designation "populations." It is a concern about attempting this tight and clean lassooing of people as populations who are "digitally networked." What might this identification leave out of the picture we are trying to establish?

A "population" is an analytical artifact, a key element in governing conduct, but its value, its technological efficacy if you like (i.e., that it *is good for governing*), is also about its empirical closeness to actual lives. So are actual lives lived in such a way as to justify qualifying contemporary populations as "digitally networked"? Might not this definition instate or assume an overly exclusive focus on digital networks? Or award these networks a priority that goes beyond their practical ubiquity (ubiquity at least for some populations, where infrastructure and economic and cultural factors all *allow* ready access and use)—that is, where as well as being in use for many things much of the time, digital networks are prioritized as, in effect, providing the defining feature, the epochal spirit of the here and now?

In truth, people's communication practices and environments are less totalized, more leaky and diverse than to be adequately described by epochal thinking. The on-the-ground relations between digital communication technologies and earlier communication technologies resist the sharp breaks inscribed by revolutionary rhetoric, or even the inevitabilism of evolutionary rhetoric. (We are thinking of the kind of rhetoric encapsulated by "We're all digital now," or "Slowly but surely we'll all be digital soon.") New media do not *only*, perhaps not even mainly, replace older communication technologies but overlap with, complement, and contest with them. Simply put, yes, many people in many places are now using mobile telephony for many communication purposes that have them networked to others, both human and nonhuman[2]; but

they remain also engaged in face-to-face exchanges and hailed by street billboards and addressed by text instructions or promotional material printed on their grocery items. Some are still watching television, some listen to radio during their car travel, some will attend cinemas, some will even be playing newly acquired vinyl recordings to capture the audio qualities of texture and warmth (Aguilar 2014). In other words, we cannot and do not want to overlook the banal point that people's media environments are made up of layers of old and new communication technologies—all the devices, the practices, the habits and routines that these technologies entail.

This is not meant to sound like a backward-looking digital apostasy. Our interest in this chapter is, decidedly, in the here and now, the period in which we are writing and in which this book is being (digitally) published. But we are loathe to therefore overlook the reality of diversely communicating populations. Or, to put it another way, of populations whose relations to digital communication technologies are quite diverse. Yes, we are interested in the generation of digital natives in countries and regions with reliable, affordable, fast broadband. But populations, both online and offline, are not made up of only these people. Their habits and practices are not at one with those of indigenous and remote populations in Australia, or of elderly people in any number of different regions faced for the first time with having to access government services online. Will this change, as "the world progresses" and the habits of well-resourced digital natives (whose use of older communication technologies, even face-to-face exchanges, are very attenuated, relative to other social groups) become the model for how all other populations communicate and live their lives? We should be wary of running with this picture of an inevitable evolution to digital exclusivity in people's communication environment (Das and Beckett 2009). This is not a matter of returning to a pre-digital world, but of forgoing technologically driven futurology for the messier and more differentiated reality of changing media usage. At present, for example, a rising tide of allied professionals are exhorting people to take breaks from their digital devices to enhance their productivity, creativity, and mental, physical, and spiritual well-being.[3] The simple point here is that there is no *inevitable* line of development or "progress" and that all media and communication environments are mixed ones. The affordances of communication technologies are not determinative.

Forgoing digital exclusivity, then, we could say we are interested in people *when they are online, or engaged in digital networked activity*, and use that as our definition of, our boundary for, a "digitally networked population." The sticking point here is, where are they when they are online? They are in a digitally built, bounded, and enabled space; but they are also and inescapably in a kitchen, in a cafe, on a tram, in an office, on a treadmill, at a sportsground, in a clinic, and all these stationary, or moving, places are in some particular geographic locale reached (or not so much) by digital infrastructure of various kinds. These people, and their digital activity as 'doing subjects,'[4] in their digital space or spaces, are embedded in these other places, which have the character of the particular institutions (such as domestic, transport, work, health and leisure, and medical) and their specific constituent organizations. So here the picture becomes more complicated, and this is where the issue arises of what we call these populations, of where we draw the boundaries, where we *locate* them. Who are these populations and where are they? As well as embedded geographically and institutionally, they are also embodied, which means they occupy those geographic–institutional sites in particular ways, as gendered humans, as classed beings, as people caught up in the relations between different sexualities, and ethnicities, and generations, perhaps of religions. And not only are *they* embodied, but so too are these populations and their digital activity embodied through the decidedly physical aspects of the digital hardware, software, cabling, telecommunication signal towers, space satellites, data centers, etc., with all their attendant requirements for rare earth minerals and copious energy flows,[5] as well as resulting e-waste and overspill pollution.

To bring even some of these factors into view in an actual situation, imagine a population made up of the families of alcohol and other drug users. As a population, they are classified by and brought into view as such, by various social work, medical, and community-based organizations: some of the latter are Smart Recovery, Al-Anon, and Family Drug Support. We shall place them in the locale in which we are writing this book—Melbourne, Australia. Some of this population, those taking a volunteer role to help others, a subpopulation, attend a weekend event to exchange information and experiences. Some fly in from other cities and towns. Toward the end of the event, the suggestion is made to set up a Facebook group for distributing information and having conversations. Issues come up. How would they start it up; who had the knowhow to get it going? What would they use it for, and who would "buy in" and

who wouldn't? Would people read it, in the context of their otherwise busy days? Does everyone have sufficient knowledge of and engagement with Facebook to justify the input into this as a means of communication? How would it augment and how might it elbow out other forms of discussion and would everyone feel the same about that? Would it matter?

It does not take long to work out. If they were to go ahead with setting up a Facebook site for the group, it is not the digital application of Facebook, or some other kind of digital network, that would define this particular population, but the complex amalgam of social conditions and situations and pressures and histories, as well as economic, cultural, emotional and political ones, that its members live, and which are inextricably connected to any of the activities that may (or may not) be engaged in through a social media site set up for the population. Here is a picture of a dense mesh of entanglements, differentiated for the different bodies involved, but all meeting up, in our little example, to the extent that this particular population is engaged in considering how an Internet application may help them organize themselves, conduct their conversations and information exchange, help each other, and get something done.

Starting from this end of the narrative, of a population contemplating *starting* a Facebook group, these points seem obvious, even uninteresting. Yet they are the same kind of points that have been routinely "forgotten" in consideration of the role of social media in political activism around the Arab Spring, for example. Isin and Ruppert (2015, p. 40), citing Fuchs' detailed work, establish this forgetting and how it enabled the proliferation of either myopic and technologically determinist or of media-blind accounts of political events in the Middle East in 2011. (Either the world had witnessed "Twitter revolutions," or the will of the political activists would have triumphed through some other means, quite interchangeable with Twitter or other social media.)

If it is obvious that digital networked activity is fully social—because this is the point being made here—it is nevertheless (or perhaps, *therefore*) the place we need to start. Our brief discussion serves to highlight, as we work to answer our question "where are they?," that the spaces and places inhabited by digitally networked populations are fully social and are many, complex, and shot through with different characteristics. They certainly cannot be simply accounted for as "digital." These spaces and places are where the members of these populations live, engage in diverse activities, and find themselves in social relations of diverse kinds—with

other people, practices, conventions, norms, and things. *Some of these will involve digital networks.* Not all these social relations will involve digital networks, but perhaps or probably an increasing number will.

It is no accident that this question of "where are they?" is the same problem with which Isin and Ruppert grapple as they set out to describe what is involved in being digital citizens (2015, pp. 27–43). They have to address the question of location because of the widespread myth established in the late twentieth century of the "death of distance" (Cairncross 1997), with its proposition that digital technologies abolished time and space and effected "globalization." Relatedly, telco advertising campaigns exalted the "democratizing" power of the Web to erase social differences of class, gender, disability, and so on.[6] Isin and Ruppert set up a less mythological, less generalizing, more empirically based and socially aware approach to digital communication technology and its uses. They couch their effort in terms of what is at stake in their use of the term "cyberspace," widely inscribed in talking about digital communication technology and therefore, as they argue, difficult to sidestep, but which instated another problematic connotation of an essentially digital, virtual world set against a real one.

In this book, we are happy to talk of populations as online when they are engaged in digitally networked activity and to see being online as embedded and embodied activity, just as listening to broadcast radio coverage of a cricket game or writing in a notepad happens somewhere and involves someone (and much else besides). The complexity of any of these communicative activities is that they incorporate the use of devices (radiowave receivers, notepad and pencil, laptop and wireless router), a physical gymnastics (turning on, tuning, and positioning for reception; activating a training in the purposeful use of the opposable thumb to manipulate a writing implement; positioning body and eyeline to screen, typing, or dictating into an optimally placed microphone), *and* a whole gamut of conceptual and perceptual sense-making practices and routines engaged in by the people and things communicating which form, maintain, or re-form personas, identities, and relations/connections at a distance: for example, relations between the writer, the present time of writing in the notepad, and the future time of planned activity being jotted down as well as the future self who will undertake it; between the radio listener, the listening space of the living room and the playing field, cricketers, commentators, and crowd in a distant city; between the employee in their domestic study nook, the present minutiae of their decisions for tweaking of a professional digital profile and their future self

viewed and appraised by unknown publics. We have been here before. Textually mediated ways of making sense and communicating were discussed in Chapter 2 in relation to print communication technologies such as the novel and the newspaper. They played a role in forming the historically new social relations of nation-ness, amongst the dispersed members of territorially bounded populations, who were anonymous to each other but now able to share, through their material imaginings or sense-making, and associated routines such as a daily newspaper habit, horizontal relations of formal equality with each other, and a sense of occupying the same "nation" and the institutions that typified it. The extensity of digital communication technologies means that nation-ness does not bulk as large in the social relations maintained or formed by digital networked activity, although neither is it absent. But the difference in the kind of social relations formed through use of digital communication technologies is not an absolute break with how use of earlier communication technologies were formative in that they also connected up different times and places and were part of the shaping of identities.

This is not to say that there are not distinctive features that require exploration about digital communication technologies—we have just mentioned one of these as the 'extensity' of digitally networked activity (Isin and Ruppert 2015), something for which our history lesson of the first digital technology, the telegraph, prepares us. To discuss these features, how they are being configured within new practices and routines, and how they fit into contemporary forms of governing populations, is one of the purposes of this chapter. However, our Introduction emphasizes one of the central history lessons of Chapter 2, that of distinguishing the significance of a communication technology from its central device. While online activity is for many populations today part of how they are governed (from the point of view of both the governed and the governing), what is involved is not just a matter of being plugged into a device. And if online activity entails occupying digital spaces, this is not a matter of being untethered from the plethora of other spaces and places that populations also occupy and conduct their activity from and within. All this places a significant caveat on the liberatory myths that have surrounded one of the main digital applications, the Internet. Tales of freedom probably do not help us much in understanding the political and social consequences of digital communication technologies (DCTs), but neither do dystopic visions of entrapment in digital worlds cutting us off from the "real" space of our human experience; this is not the value we are attributing to offline activity.

It may be that one of the lines of description or history lessons already considered—that of mobile privatization—provides a more useful account of uses of digital communication technologies. The cultural and social phenomenon of mobile privatization attends to the shifting orientations of public and private stances or viewpoints offered and taken up within a diversity of spaces and places, at the same time as it emphasizes the mobile, connective aspect of digital media and their uses. Its pertinence is clear for media explicitly designated as mobile and enabling the traversing and moving through of spaces and places. It is not original to link it to discussion of digital communication technology, but our purpose is to work with it concertedly in a populational approach.

As for *who* digitally networked populations are, to conclude our answer to the question with which we have framed this introduction, they are populations who *happen to be* digitally networked. The fact that they are digitally networked does not tell us all we need to know about them, although it tells us something to which we wish to attend as we consider how communication technologies are involved in those populations being governed, and what form this takes, now. Their digital networked activity and that of those governing them, always embedded in arrangements, relations, and spaces that extend beyond the software and hardware that comprises digital will therefore be our focus, but not because it is somehow separate from or more determinative of their lives and government than other things about them.

We consider how embedded digital networked activity in three main areas—work, health, and education—is involved in the governing of specific populations; knowledge workers, patients and practitioners, and teachers, educationalists, students, and parents.

Envisaging the Inhabitants of Digital Networked Environments

Having proposed how we will approach digital activity and the populations engaged in it, let us now take a different tack by examining one, perhaps more familiar, picture of the inhabitants of digital networked environments. This is a picture of people who as individuals are freely embracing online technology and its innovative means of communicating, busy expressing themselves, sharing ideas and collaborating with other individuals, who are curious, learning, meeting up with others, and to a significant extent unencumbered with their offline personas or the strictures of older forms of communication.[7]

Such a picture is central to one of the governing rhetorics about digital networked technologies. This rhetoric is one of online communities, of new gatherings of individuals in the virtual world of cyberspace. While it has a considerable history (for example, Rheingold's [1993] work on 'the virtual community'), this rhetoric flourished anew in relation to Web 2.0.[8] In digital periodization, Web 2.0 names the advent of social media marked by user-generated content, interoperability, and ease of use (think wikis and YouTube); and precedes Web 3.0, or the semantic web, with its capacity for targeted personalization, as well as the currently forming Internet of Things. Web 2.0 rhetoric continues as a persistent residue, at the very least, into these successive generations of digital applications. In considering it we are engaging with the recent history of the Internet: not the very latest incarnation of this relentlessly updating environment, but one with continuing resonance for what we find there today.

A pertinent example of this rhetoric is Leadbetter's (2008b) book *We-Think: Mass innovation, not mass production*. It circulated also as a YouTube video which neatly encapsulated Leadbetter's argument, something of a manifesto for a new kind of online collectivity making up a new kind of world.[9] This world is one with a quite different set of characteristics from those of an earlier set of social, cultural, and economic arrangements.

"We." *We Think* signals the first of these characteristics in its title. It announces from the outset that it is about *community*. Rather than an aggregated mass of individuals oriented by the old Cartesian motto "I think therefore I am," this is a collectivity made up of reasoning, conversing, communing individuals: 'The motto for the generation growing up with the web is … We think therefore we are' (Leadbetter 2008a). The second characteristic is the motivation underpinning people's online activity. People think together, are drawn to these communities, 'not to get rich,' but 'to socialise and get recognition for the work they do': 'In the past you were what you owned … Now you are what you share…' (Leadbetter 2008a). In this way, Web 2.0 is the birth of a new communitarianism. If ownership of property and individual interest is not actually left behind, it is put in the shade, shifted from center stage. In Leadbetter's words, 'The We Think generation are living out the hopes of the 1960s radicals for the creation of a harmonious, post scarcity society that is free, decentralized and yet apparently egalitarian, a world in which …"each individual could act in his or her own interest and at the same time produce a unified social sphere, in which we were 'all one'"' (Leadbetter 2008b).

We Think provides us with a description of digitally networked individuals being creative, through millions of conversations, producing mass innovation ('millions of people creating games, worlds, knowledge, information, software …'), and supported by communities looking 'more like … a birds nest … where everyone leaves their piece' rather than corralled in 'old groaning corporations' directed from the top down (Leadbetter 2008a). The norms to which members of such communities adhere are those of connectedness, of creativity understood as dispersed or networked (rather than originating in the powers of a special individual), and of democracy understood as voice or expression—everyone having a voice through digital technology. It is a view, from 2008, of a future of creative economies and digital societies. For Leadbetter, it is a future ensured by digital natives, 'the generation growing up with the web,' and while it may pose questions to solve ('How do we protect what is private?' 'Are we always safe sharing?' 'How do we earn a living when everyone is freely sharing their ideas…?') (Leadbetter 2008a), it is *good*, a future to be welcomed. The vision is of a new form of self-organizing sociability.

This world would seem to have come about. (How can we doubt the truth of this rhetoric?) One decade later, there are more people than ever before online, using social media, connected, and contributing to cycles of what are counted as innovation. Put to one side for now the question of whether the problems and dangers Leadbetter acknowledged around intellectual property and livelihoods, privacy and safety have also eventuated.[10] There is a sense of an unstoppable vision of a world to come, and a prediction fulfilled because of the scale of popular involvement. And the vision of a self-organizing sociability suggests that the technology—or at least the technology as the durable *ideas* of the academics and hippies who spawned the Web (Leadbetter partakes of the familiar account)[11]—is somehow enough on its own to have people go online, turn their backs on I think and plunge into We think, its voluntary collectivity and its sharing impulse.

This sense of a *self-organizing* community, with people no longer directed in hierarchical chains of command but participating in a world 'where everyone leaves their piece' (*We Think*), is at one with a wider argument for the recognition of networks, or more specifically, of 'technical network complexity' as 'a universally influential effect' (Thompson 2004, p. 414). This argument speaks of a new networked world and network form, defining the age. It proposes a formation that arises from "within," and which supersedes hierarchical organizational forms,

imposed from outside—that is, supersedes the operation of old bureaucracies. The Internet both emblematizes this network form and enables its spread and global dominance, disrupting earlier modes of organization. Peer to peer, horizontally linked and equally positioned nodes, connections running from individual to individual, one-to-one communication; the descriptions run together and signify, all in all, a replacement of broadcast models of one-to-many centralized transmission with its associated gatekeepers, lines of authority, and bureaucratic mentality. In the network, therefore, is found room for individuals, for equality and liberation from earlier constraints on the creative capacity for individuals to … do their work, play, learn, get involved, and express themselves. Here is a collectivity that, for all its sharing and communitarian instincts, has a libertarian notion of the individual as its core. Individuals have organized themselves into this collaborative collectivity. Individuals have recognized their natural home in the communities of the Internet. This is the rhetoric: it's all nice and, well, exciting.[12]

In turn, this rhetoric is of a piece with a wider rhetoric of community, a way of thinking and speaking that became prominent in the latter part of the twentieth century and is not confined to online environments. In discussing this, Miller and Rose (2008, p. 90) point to moral communities, lifestyle communities, and communities of commitment. They describe this flowering as a governing through community. A community, in this historical incarnation,[13] is a grouping that is freely joined, impelled by the individual's own interests, and in contradistinction to the membership of a "society" that is experienced as an entity in which one simply finds oneself with nonnegotiable obligations. Unlike the argued sacrifice of individual autonomy in the collectivity of "society," the spontaneous, self-generating nature of the affiliations involved in the collectivity of "community" support rather than suppress or erode individual autonomy. One is free to join the community one wishes, whereas one is obliged to be part of society. As in the self-organizing complex network, the energy and activity involved come, allegedly, from within.

As we said earlier, rhetorics are important to how populations are governed through communication technologies. The rhetoric of speed, progress, and modernity, we argued, is inside, not outside, broadband technology. So our attention to the rhetoric of online community is geared to how such rhetoric is part of the way populations are *got to go* online, readied with particular dispositions about what they will do there. Because, despite the claim about this community being self-organizing,

the formation (and maintenance and reformation) of networks and communities involve various kinds of work, energy, and interventions that are not simply internal or 'endogenous' (Thompson 2004, p. 414). The provision of infrastructure (as well as all the policy work involved) is one obvious case in point. Another is the whole body of communication work by advocates, publicists, 'manipulators of symbols, narratives and identifications' (Miller and Rose 2008, p. 92), which makes people aware of and invites membership to a community that, paradoxically, has required nothing other than the energies of its members to form.

Pointing to the paradox, we are indicating how the rhetoric of online community provides an insufficient description of online populations. Rather than a description, this rhetoric is better seen as an element of much larger governmental "projects" of loosely aligned actors either purposefully or incidentally recruiting populations to particular kinds of activity ("get online," "create," "connect," "share"). A tract such as Leadbetter's is not then a simple description of interoperable, interactive, and networked digital applications and those who use them; and in fact *We Think* does not hide its promotion of its vision—*The Daily Telegraph* described the book as 'A love letter to the Web's emergent culture of sharing.' [14] However, to call it part of a governmental project might still sound too heavy handed, unless we are clear about the kind of governing we have in mind.

Population Again

Here, a reminder of our history lessons from the previous chapter, and the way in which a new and widespread political technology enlarged the field of the political,[15] helps us refocus what we mean by a governmental project. Involving a set of goals, steps, and actions toward some envisaged end, a project may issue from and be steered and contributed to by more, or less, organized and resourced and authorized actors, and greater, or fewer, numbers of these; and actors who are more, or less, tightly linked and coherent in their ambitions. We mentioned in Chapter 1 Dean's examples of large-scale projects around the ideals of a welfare state, or the racial theory and practices developed from eugenics; another would be the international project to move from carbon-based to renewable energy. Even more important than those shaping and steering a project (of some sort) to govern others, is that the target of a project, the conception of the "others" to be governed to a particular end, is a population.

The historian Foucault says a population is 'an absolutely new political personage,' noticeable and notable in all manner of calculations from the eighteenth century (2007, p. 67). The two things about populations that change how politics and the exercise of power operates are that, first, the individuated beings who comprise a population are living beings—that is, embodied beings who, for example, labor and produce, are fertile and healthy, or ill and nonreproductive. They are living beings with "natural" or immanent features to be known and worked on; this means they are quite different from legal subjects who either obey or refuse the command of an authority, and they require instead an ongoing technical-political management.[16] Second, a population is a series of relations, or a relational object. Its existence is one composed of variables (such as climate, commercial activity, customs, laws and values linked to forms of conduct, means of subsistence, and so on, and what they mean for the living) (Foucault 2007, p. 70). It follows that acting on a population is an indirect affair, accomplished by attending to one or more of these variables and relations, rather than directly pressing on a solid, given object or issuing an order to an unambiguous recipient. To sum up, a population is made up of living beings and it escapes direct control. To govern a population involves indirect actions, not commands, and a careful detailed knowledge of the particular living beings at stake, in order to try to make these indirect actions appropriate to guiding what these beings may themselves do. Governing is a leaky exercise, due to the nature of its target. That is, it is an exercise of power routinely beset by potential leaks and unexpected outcomes (such as various national governments' "War on Drugs").

Focusing on populations, which is what the broad practice of government does, shifts our view of politics from the important but limited activity of officials legislating desired outcomes to accommodate also the much more diverse kind of activities involved in the sort of projects we suggest have shaped online populations. This kind of governing, therefore, in the case of migrating people's lives online, includes the small promptings, the little incitements, the ephemeral invitations, the repeated pedagogic instructions (from broadcasters, for example, about how programs can be accessed online and listened to again, or encouragements to viewers to engage with Twitter and other associated social media platforms), promptings to go down this path, try out that new online experience. Think of the work needed to get an older demographic to shift from taxis to Uber or Ride Boom or Didi Kuaidi's ride-sharing service, Hitch, for Chinese customers, if they are not utilizing apps.

To consider the mundane but transformative exercise of shifting and shaping multiple populations' habits and communication routines, geared to a multitude of different tasks, pleasures and necessities of work or daily existence, and now expanding or reconfiguring to include digital routines, means bringing into view these little, ephemeral things. Such things as advertisements for software, experiences, possibilities; and advertisements for the hardware to *have* those experiences, partake of those possibilities. And of course not just the advertisements, but the reviews, the advice columns, the workplace recommendations and instructions, the specialized magazines and media, the product placement and promotion of Apple design-cool and digital lifestyle, the warnings from educationalists and business people about missing out. These are diverse elements and techniques that help govern populations by pushing and pulling them, nudging them this way and that—techniques arrayed in ways that are hopeful, persistent, persuasive, contingent, which take advantage of multiple avenues of approach and attention-getting, and are easily overlooked. And as well as this calculated provision for and incitement to mobilize populations online are also all kinds of contingent events. Everyone has a story of an unplanned purchase, an overseas trip, or a dispersion of family members that led to adopting a digital device into their routines.

So governing occurs through the myriad unexceptional ways we are led to find ourselves online and "creating," "connecting," "sharing" … *whatever these may be counted to be, as activities.* Leadbetter's communitarian project is, of course, just one of many governing projects for encouraging and leading people to go online. Many projects intersect. The digitizing projects of a multitude of existing organizations, bent on updating or seeking efficiency or "democratizing" themselves, have first invited and then to an increasing extent required their particular populations to go online—tax offices and medical bureaucracies, employers, educationalists, councils, libraries and other civic agencies, banks and utility companies, and the list could go on and on. Or we could think of these intersections as making up a common but *dispersed* project in the sense that there is repeatedly proposed a certain kind of future scenario, for education, for companies, for medicine and health, for public service, that is predicated around Web 2.0 and the behaviors it is said to comprise. This dispersed project draws from the work of a set of loosely allied actors: from technology experts publicizing the affordances of new devices, to educational pioneers and universities positioning themselves

as part of the knowledge class avant garde and speaking to their coming digital native customers, to managerial theorists remaking organizational models, to company IT consultants advising on more efficient or inclusive software applications for workforce communication and coordination, to government agencies upgrading e-government politics to Gov 2.0. In other words, a loosely affiliated set of enthusiasts and promoters of Web 2.0, all with objectives specific to the organizations and institutions within which they speak, contribute—in some cases quite contingently, in others, knowingly (as in a manifesto)—to a broad project to advance the use of digital communication technology through inciting uptake and use of social media, joining Web 2.0 communities, to see, somewhat formalistically, what will be created, to be on board.

The purposes formulated and presented to these organizations' target populations and to themselves, to understand why this shift was desirable or necessary, at times have shared ambitions with Leadbetter's world of sharing, creative individuals; but at other times not. In the second decade of the twenty-first century more and more commentators are rueing what they see as a betrayal of the early promise of a digital utopia, or, less sentimentally, adopting a realistic inevitability about online environments as increasingly characterized by the more familiar organizational, commercial, and security objectives of established forms of power.

These prognostications about lost early promise, a slide away from utopia into dystopia, are not what we want to add to or locate ourselves within. With a less idealized starting position, what can be said is that digital environments have long been caught up in heterogeneous attempts at governing, often dispersed across the ambitions of different governing bodies or groups of actors. Think of just these projects. Leadbetter's manifesto for digital communitarianism has been joined more recently by the Pirate Party's agitation and advocacy for digital piracy and against national governments enforcing intellectual property regimes. In rough alignment with the cause of an open Internet, celebrities, politicians, citizens, and various NGOs campaigned in 2014 to maintain net neutrality in the US and therefore guard against access to broadband capacity being differentiated according to ability to pay. At the same time, a clutch of companies such as the US software provider Lithium Technologies pushes the capabilities of integrated profiling for diverse marketing purposes, involving a commercial recasting of what community means.[17] During the period 2003–2014 the UK Home Office oversaw an e-Borders program, outsourced to Serco (and now suspended following a difficulty with the

quality of data and with managing the more than 600 stakeholders of plane, ferry, and rail carriers),[18] to gather information about all passengers entering and leaving Britain for storage in a database enabling data matching with criminal and terrorist watch lists.

More creative and sharing digital communities, a free and open Internet, better targeted marketing, more effective national security—these are diverse and divergent objectives. Registering even a few of what we are calling governing projects clarifies that there is no overall pathway of development that was set for digital activity by the inventors and assemblers of the Internet, nor one that has since been derailed or foregone. This recognition gains even sharper focus if we remember that any project to govern conduct is always uncertain in terms of what outcomes it will achieve. The fact of digital environments and those engaged in digital networked activity being subject to diverse projects of government means that these environments are not susceptible to any overarching all-purpose assessment.

The diverse projects for mobilizing populations online are effective—or at least some of their objectives seem to have come about: these have consequences or effects of some sort. And, lodged within, or silently riding a dominant rhetoric of digital revolution and a digital century, these projects appear descriptive of what was simply always in train anyway, rather than engineered. (This is their paradoxical character, connected no doubt to techniques of actively shaping populations which, nevertheless, have their own "natural" or immanent features.) Looked at in another way, these projects can also seem fanciful and fantastic, marked by a utopian aspect around an idealized new world and way of doing things. This utopian aspect is, no doubt, integral to their rhetorical, affective dimension.

The aspect of populations we are interested in is, of course, not only how people are persuaded to go online. In this chapter we consider how populations are governed in terms of economic production, and in the next chapter we scrutinize more specifically how they are governed in the areas of work, health, and education. This governing is increasingly accomplished and ordered through digital networked technologies. While changing rapidly, there are established patterns of use, established norms, established exercises of power and knowledge to consider in these areas. In very broad terms, as foreshadowed at the end of Chapter 2, the dual themes of mobile privatization and democratization describe continuities stretching from the government of populations through older communication technologies into the kind of governing made

possible through digital communication technologies. An extended sense of mobility and freedom afforded by various media on one hand, and on the other, an intensification of governing through inciting individuals to work on the self, are characteristic of digitally networked existence. As for democratization, this is the name routinely given to the broadening of access to communication channels in late twentieth to early twenty-first century communication and organizational environments. The nature of this broadening, as argued earlier, is not simply a function of the Internet. Digital and older communication technologies overlap, complement, and contest with each other. Perhaps the notion of communicative abundance best names the current circumstances (Keane 1999), neither exclusively highlighting the Internet and digital applications nor churlishly ignoring the extent of their contribution to this latter-day abundance. While access to multiple communication technologies and a plethora of communicative forms and options is by no means equivalent for different geographic populations and differentially resourced groups within them, a more widely dispersed lowering of the costs of entry to mobile telephony, for example, as an entry point to printed materials and images and sounds, is a very considerable shift. Beyond this element of access, what *counts* as its *democratizing* character is up for discussion. We join this discussion particularly in Chapter 5 as the basis for some provisional assessment of contemporary forms of government.

The Lives of Populations: Productive Resources in Digital and Other Economies

The governing of populations has, from its early history in modern Europe, entailed efforts to shape and steer the populations of regions and nations as a productive resource. This economic aspect of government is abundantly on show today. Media stories regularly frame digital technologies as disruptors to existing businesses and people's economic habits and relations. Business school students examine case studies of digital disruption in the commercial field and absorb the lessons of how to recognize the threats and embrace the challenges and opportunities entailed in constant, technologically driven change. Politicians position themselves as abreast of and competent managers of this "new" economic environment, one whose reality has been with us and repeatedly heralded now for two decades, but still apparently beckoning to be milked for advantage as marking out those who grasp its significance from those who

do not. Australian Prime Minister Malcolm Turnbull, in another life an early Internet investor, fought the 2016 Federal election with a campaign pitch of his plan for 'a strong new economy,' foregrounding 'the industry and jobs of the future' through his party's Innovation and Science Programme and its 'Welcome to the Ideas Boom,' all geared to 'trigger a "cultural shift" in the economy' (Shields 2016). Images of young, casually besuited employees suggested hope and opportunity for Australian workers by promoting the acquisition of the tools and dispositions of entrepreneurialism. By learning coding skills, benefiting from tax breaks for startups, 'access[ing] crowd-sourced equity funding' (Liberal Party, n.d.) and committing to the uncertainties but opportunities of an unencumbered open economy, Australian workers were invited to hitch their wagon to the inevitability of the changeful and challenging technology-driven economy and ride it to a prosperous future.

This hopeful terrain is contested, of course. In Australia, Turnbull's Coalition Government was only narrowly returned, with a generally suspicious electorate arguably not much moved by his positivity about 'a new and more diverse economy' (that is, one shifting away from mining and fueled by innovation and more investment in enterprise). As elsewhere in the world, for Australians on-the-ground employment and workplace trends meshed with news of threats to the jobs of as many as half of all North American workers, as researchers warned about the implications of accelerating automation, the rapidly forming Internet of Things, and developments in artificial intelligence (AI). That is, the actual economic circumstances in which many people are embedded foster a considerable degree of resistance, of varying sorts, to wholesale embrace of a world of digitally enabled knowledge work.

It is nevertheless toward work of this kind that populations throughout the world have been incited and turned, although with some variances in different countries.[19] They have been hailed, invited, and invested as productive resources in economies undergoing transformations of capitalist practices and relations entailed in shifts first to "knowledge economies" and more latterly to "new economies" and "digital economies." It is in these proliferating economies that populations are increasingly located.[20] It is worth noting that despite a governing and insistent rhetoric to this effect, these transformations in capitalist arrangements have not been driven by an unfolding logic of "the economy" or "the market"—and neither, in the case of digital economies, by a technological imperative—but rather accomplished by a wide array of loosely allied economists,

business leaders, politicians, managers, academics, technicians, designers, journalists, public relations experts, and other actors.[21] And these transformations, perhaps unsurprisingly given the lack of a singular unfolding logic, go under a proliferation of names. Knowledge economies, post-industrial economies, service economies, new economies, digital economies, but also broadband economies and creative economies, as well as learning economies, attention economies, app economies, gig economies, algorithm-driven economies, the platform economy—all economies named for what are picked out at any one time or by any one authority as leading features of changed production, distribution, and consumption arrangements. This proliferating terminology bespeaks a constant refurbishing of the rhetoric and vision geared to promoting future-oriented economic development,[22] rather than any definitive difference and sharp delineation among these various economies. In this sense the naming is best thought of as part of overlapping co-rhetorics, with the vocabulary picking out specific emphases for different audiences and occasions.

The umbrella term is the knowledge economy, an economy 'where ideas and intangible assets rather than tangible physical assets are increasingly the central sources of new wealth creation' (Flew 2007, p. 99). The transformation of capitalist economies in this direction has been happening for more than a hundred years but has accelerated since the 1990s (Flew 2007, p. 100). Knowledge-intensive economies have been especially propelled by networked digital communication technologies and an associated multiplication of knowledge sources as well as a capacity to newly capture and codify what has existed as tacit knowledge across all areas of economic activity. The rhetoric of "the knowledge economy" has accordingly been joined by the more focused "digital economy." Digital economies are those economic activities and relations that networked technologies make possible or, as an indicative policy statement has it, the digital economy is 'the global network of economic and social activities that are enabled by platforms such as the Internet, mobile, and sensor networks' (Department of Broadband, Communications and the Digital Economy 2009, p. iv). National governments, foundations, and commercial organizations have developed or are embarked on policies to facilitate digital economies, searching for new avenues of productivity, growth, and competitive advantage within the financialized environments set up in many countries over the past three decades. Sometimes economic advantage or catch-up is the key policy driver (as it was for the EU's Go Digital initiative for businesses, addressing the slow uptake

of 'new digital opportunities' (European Commission 2001); sometimes economic growth is partnered with wider social and public good objectives (see the Aspen Institute's 2012 Report and its stress on a free open Internet serving both economic ends and human rights). Whatever the particular policy objectives, it is significant that the various projects to assist and shape digital economies are themselves located within a general revival of finance as the leading sector of economies, a revival of the dominant position of financial capitalism in the late nineteenth century and early twentieth century.[23]

Our immediate interest here is to set out some evidence of how populations engaged in online activity are located in digital economies; how their transactional activity, their productive labor in handling and generating data, information and knowledge, their contribution as consumers and users of data, information and knowledge when these are understood, valued, and calculated as assets is situated within, and making up, rapidly establishing or already established patterns of economic practices and relations (buying, selling, exchanging, renting, uploading, downloading, employing, outsourcing, contracting, hiring, and so on). Part of the effort required here is to build up a picture of "digital economies" and one that does not rest at identification of technical devices. We have noted digital economies' connection to the contemporary push to knowledge economies, and we have just indicated the underpinnings of financial capitalism that are involved. To consolidate this picture, a look at the turn-of-the-century phenomenon of "the new economy" is helpful.

Any significant change or plan for change in an existing economic formation provides the opportunity to hail a "new economy." In the 1990s, the term solidified around the rapid investment in and development of information and communication technology. This surge in the economic significance of information and communication technology was given high visibility through the public floating of numerous tech start-ups, especially but not only in the US, through the staggering capitalization achieved by these companies, and through the accompanying media coverage and sustained speculation about the rising fortunes, boundless opportunities, and game-changing innovation they promised. Thrift describes the new economy idea as 'strong non-inflationary growth arising out of the increasing influence of information and communications technology and the associated restructuring of economic activity' (2001, p. 414). Pinpointing the aspect of 'non-inflationary growth' is important. The new technology economy promised a source of growth that broke with the dynamics of the late 1970s–1980s period of stagflation

(slow growth, high unemployment, high inflation), which afflicted capitalist economies around the world. Once again, it is important to grasp that, while the focus on new information and communication technology is central—personal computers in people's houses and workplaces and the advent of the Internet and World Wide Web—the new economy was not simply born out of this technology. Investment and wide uptake were made thinkable and desirable within a changed economic rationality, one that had challenged and then broken with the governing Keynesian economics of the mid-twentieth century and wound economic policy back to liberalizing, deregulating settings. This is why Thrift does not leave his description of the new economy idea at singling out the influence of information and communication technology, but adds, '[a]ll kinds of other features can be, and usually are, associated with this core definition—for example, the growth of small high-tech firms, the increasing importance of mobile and highly skilled talent, the rise of entrepreneurship and the centrality of venture capital' (2001, p. 414). Digital media and networked communication technology shift to center stage, but only in concert with a new leading role for private finance and and newly financialized dispositions. This constitutes, in Thrift's words, 'a new version of capitalism,' 'a new style of doing business,' 'a new kind of market culture' (2001, pp. 415, 414, 429).

The new economy was more, then, than information and communication technology, or more precisely, more than the wide uptake of digital networked technology. The embedding of digital media into economies through ubiquitous computing involved financial capital for information technology, but another input into this development was what Thrift styles a 'cultural circuit of capital' (p. 415). This is the production and circulation of knowledge to business elites—the formation and spread of new ways of making sense of their circumstances. This circuit is driven by academics in business schools, management consultants, and management gurus (the latter able to embody their ideas in personal performance), as well as journalists and other professionals occupied in a burgeoning business media (books, magazines, television and radio programs, online sites). *Wired* magazine was an iconic example. Taking this cultural circuit seriously means giving due notice to the role of rhetoric as persuasive communication, spread across different social institutions, and formative of this new version of capitalism, this new style of work, this new market culture in which populations have come to live in the twenty-first century. Media, and not only digital media, infuse and are used to help shape this new economy.

Our cultural and social contextualizing of the role of digital networked technologies in new economies is not meant to detract from the technology's central importance. The technical features of the technology allow new forms of knowing (for example, collaboration and sharing), and the particularities of software design provide new means for guiding how people can act (Thrift 2001, p. 418). But all this occurs cheek by jowl with those new ways of making sense that are being produced and disseminated: making sense that the way "forward" is through a focus on enterprise (the habits of successful people in business for themselves as the means to vitality of all kinds of conduct everywhere) (du Gay 2004); making sense of all sorts of organizations' circumstances through a returned to and reinvigorated (pre-Keynesian) neoclassical economics and a prioritizing of financial return (Return On Investment and shareholder value); and understanding that success lies in a focus on innovation and creativity (a creativity manifesting in new, networked, ways).

These touchstones—enterprise, financial return, and creativity—have set the mould for the dispositions and capacities both called forth by and making up these new, digital economies. The requirement to acquire and demonstrate entrepreneurial skills has become widespread, embedded, for instance, in curricula and modeled in popular reality television shows. Fostering the disposition to seek financial return has been the objective of a plethora of actors in the finance sector, and achieved through formal campaigns for widespread financial literacy, as well as ubiquitous advertising campaigns to woo audiences from their earlier identities as cautious savers to new imaginings of themselves as investors, moved to new kinds of action with their pay-packets.[24] The focus on creativity and its rise as an aspirational element of people's professional resources crystallizes in talk around creative economies (Howkins 2001), an economics of creativity (Potts 2011), and a distinctive *creative* industries rationality. All these, all coming to the fore at the turn of the century and its first decade, are marked by the effort to understand how creativity and economics come together. The result is a rationality devised and used by academics, business people, policy makers, and others to understand the productive potential of creativity as a resource that is not new but is coming into its own, so to speak, as globalization and technological change have increased demand for creative output and lowered the input costs of creative activity (Potts 2011, p. 51). The phenomena of creative

economies and creative industries (as a part of, but more importantly, also a motor of creative economies) offer, therefore, a more focused view on a globalized, digital technology-enabled economy and how it works. In keeping with our perspective on the social fashioning of economies and how populations are implicated in them, we observe how these efforts to understand creativity have at the same time been part of efforts to turn digital knowledge economies *into* creative economies, that is, efforts to add another and significant layer to the knowledge focus, and the technological focus, of contemporary economic life.

Creative Industries, Creative Economies

Examining the formation of creative economies brings us closer to understanding how populations today are governed as productive resources. Even the populations *not* employed in designated creative jobs or creative industries—and of course there are many such workers—can find themselves conceived and counted in relation to those populations who are.[25] While there continue to be populations of workers in manufacturing, agriculture, retail, and many other occupations—occupations already bound up with digital technologies and increasingly so—the creative industries rationality stands out as one explicitly outlined argument for conceiving of, understanding, and programming new knowledge and digitally enabled economies.

A creative industries push developed in the 1990s in the UK and Europe, where it figured first in government policy. It has since spread through a wide range of countries, in organizational and state policies, business and academic research, and educational qualifications and training. Increasingly, creative industries is the umbrella term used to designate a range of familiar cultural and communication industries—advertising and marketing, architecture, design, visual arts, music and performing arts, film, broadcasting, writing and publishing, new media, mobile media, gaming, and software. As an industry sector, creative industries contributes employment and production outcomes to national economies, but its key theorists argue that it is considerably more than a particular economic sector. They see it as a vanguard for achieving innovation and growth *across* economies. For them, creative industries names a particular way of understanding and positioning production and consumption in these fields of paid work such that it plays an innovation role in national and

regional economies (e.g., Britain, Europe, Singapore, Australia, China). On these grounds, the proponents of what we call a creative industries rationality claim there is special economic value in governments, businesses, and higher education supporting creative industries through policy and investment and facilitating the development of creative economies.

The creative industries rationality is recognizable as a late twentieth century variant of the longer-running economic focus on knowledge production as a source of value. It is also underpinned by a distinctive economic argument that, while absorbing a market-based approach, shifts away from neoclassical economics' assumption of market equilibrium and sees instead dynamic economies as the norm to be embraced. It takes this dynamism to flow from what the Austrian-American economist Schumpeter coined the "creative" destruction of old economic arrangements and institutions giving way to new, more efficient and productive ones. Digital disruption fits like a hand into a glove into this vision of creative destruction.

As already noted, creative industries rationality is just one entry point into the much larger terrain of projects for shaping and re-forming the economic activity of populations by means of digital communication technologies. For example, in the past few years there have been increasing calls for proactive policies around what constitutes work and the place of work in people's lives, given the forecast loss of as many as five million workers in 15 major developed and emerging economies by 2020 as a result of the technological changes now being spoken of as the Fourth Revolution ('artificial intelligence, robotics, the Internet of Things, autonomous vehicles, 3-D printing, nanotechnology, biotechnology, materials science, energy storage, and quantum computing') (Cann 2016). Nevertheless, the efforts surrounding creative industries stand out as distinct and significant through their public policy codification, their academic theorization, and their institutional embedding (e.g., in Nesta in the UK, Forum d'Avignon in the EU, numerous university research centers and degree programs): they are embodied in novel educational pathways for future tertiary-qualified employees, and in large-scale investment in the development of creative cities as hubs to attract particular kinds of workers and to revitalize urban spaces. They have been durable (e.g., from being part of the UK's 'Cool Britannia' framework of the 1990s for refurbishing its cities, 'Cool Japan' policies taken up since 2011, through to a current focusing through annual

festivals and summits[26]). Remembering our earlier discussion of the sometimes formal, sometimes looser nature of governing projects, the creative industries push qualifies as a project to foster creative economies through the government of identifiable populations. These are the organizational populations either engaged in particular kinds of creative or knowledge work or being trained for such work in the future. So they may include, for example, employees at global strategic design consultancy Tangerine in the UK, South Korea, and Brazil[27]; students acquiring entrepreneurial skills in their university degree programs in advertising or the music industry, industrial design, or media; and employees in mining companies or hospitals, with their creativity embedded in these extractive and healthcare industries.[28] Other people are also effectively governed, those making up urban populations affected by their location in and around redesigned cities and creative urban milieu. In Gregg's (2011) description of the mid-2000s makeover of Brisbane, Australia, as a creative city based in the creative industries, the example is given of residents finding themselves cheek-by-jowl with a newly legislated Special Entertainment Precinct to accommodate the late-night-party hours of creatives. As Gregg points out, Brisbane's makeover was something of a model for the making of creative cities elsewhere in the world, 'a template for initiatives in creative cities policy development taking place on a global scale' (2011, p. 25).

Projects to engineer economic regeneration or, in Brisbane's case, a boom, by fostering and nourishing creative industries have drawn on Richard Florida's influential theorization of a creative class who require particular neighborhoods, cityscapes, leisure opportunities, and so on to lure their talent, potential for innovation, and the multiplier effect of their disposable incomes. To accomplish this stimulus of a creative class in Brisbane—a State capital with a second- or third-tier reputation within Australia and a place people in other Australian states mocked, a place up-and-coming knowledge workers historically "came from," rather than flocked to—what was required for transformation was not only headline policies at state and organizational level (e.g., federal and state government funding for a multi-stakeholder Australian Research Council Centre for Creativity and Innovation at a Brisbane university), but many other smaller, more ephemeral things. Gregg describes the newspaper feature stories that helped signal to workers, to investors, to company boards and management that Brisbane was now a head office destination.

She analyzes the advertising billboards that narrated the story of disruptive urban development for disgruntled Brisbanites. She details the wider, ongoing genre of technology advertising for PCs and Macs, with their seductive imaging of knowledge workers set free by sleek mobile devices to continue their passion for their interesting and creative work in any number of exotic out-of-office locations. Gregg attends to the role such publicity has played in forming the subjectivities of knowledge workers and the dispositions that make it possible to perform their roles, as well as in shaping the aspirations, career paths, and course choices of (by now) several generations of school leavers, providing a ready pool of takers for new-style humanities degrees preparing graduates for knowledge-cum-creative economies.

Gregg's telling of the Brisbane boom homes in on the strategic parlaying of older arts courses into Creative Industries programs and qualifications. She describes the success of a Brisbane university and an associated group of academics who have been influential in importing creative industry policy and rhetoric from its beginnings in the UK and Europe, translating it into policy initiatives persuasive enough to win federal, state, and local government funding for Creative Industries Precincts and for new arts and cultural infrastructure, and developing a coherent and influential body of research to consolidate and help spread the creative industry brand worldwide. However, as important as these academic actors and the local and state politicians were in the Brisbane instance, just as involved were the less visible real estate agents, investors, public servants, public relations experts, journalists, advertising creatives and strategists, and business people of many kinds. The making of this particular creative economy is instructive for the range of allied actors, their particular professional interests brought together around a rhetoric and rationality, whose work coalesces in shaping and guiding the economic lives of others. The creativity of creative economies is not self-seeding, nor is the story of creative economies all positive for the populations concerned. In the Brisbane instance, as well as "winners" in the employment and lifestyle stakes, other workers who moved cities to capitalize on booming Brisbane found themselves struggling a few years later when the boom deflated after the GFC (global financial crisis), "non-creative" workers were displaced, and older residents had to confront the prioritized lifestyles of an influx and concentration of young urban professionals.

Let us step back from the specifics of this one instance of the project to foster a creative economy and take a somewhat different angle on how populations, as productive resources, are entangled in digital economies.

A Broader View of Creative Populations

Beyond specific organizational or geographically designated populations such as Brisbane's, there is a way in which broader or large-scale national populations are also caught up in the economic push that has been assembled around a distinct creative industries rationality. We can recognize how what we will call quotidian populations (for want of a better term to designate the wide sweep of locations and activities in which they are involved), or people going about their daily lives, have become productive resources in economies geared increasingly to knowledge and cultural outputs. Stefano Harney has described this in the course of writing about popular culture. Since around the middle of the twentieth century, and more than ever before, populations are engaged in cultural activity and knowledge production; they are 'more deeply involved in creativity, judgement, opinion, aesthetics, and social and cultural re-evaluation than at any time in history' (Harney 2010, p. 436). Harney lists the activities in which populations are engaged:

> People make and compile music. They design interiors and make-over their bodies. They watch more television and more movies. They think deeply about food and clothes. They write software and surf the net for music videos and play on-line games together. They encounter, study, learn, and evaluate languages, diasporas, and heritages. There is also a massive daily practice in the arts, from underground music, to making gardens, to creative writing camps. And with this, there is production of subjectivities which are literally fashioned, which are aesthetic, which are created. When people are not working, they are doing this other work (or the work renewing their capacities to work, in the gym or the classroom …). The point is there is a massive daily register of judgement, critique, attention, and taste … [a] deepening and widening of cultural activity in populations. (2010, p. 437)

Harney's list is in many ways mundane and the things it directs us to quite familiar. But that is his point. Apprehended as a massive daily register of judgment and attention and taste, it takes into account populations that are being productive on a daily basis, in multiple ways, as

never before.[29] Cultural Studies, a field of scholarship developed from the middle of the last century, established this fact with its insistence on the *active work* people do, continually, in their consumption of the products of cultural industries dominating the twentieth century—film, broadcast radio and television, popular music, mass-circulating paperbacks, comics, advertising. The sense-making activity previously attributed only to a smaller number of discriminating readers of literature and audiences of theatre and the arts, and contrasted to a morally inferior passivity gripping mass audiences, was argued or understood by Cultural Studies to be activity in which all are ceaselessly engaged.

If this was the achievement of Cultural Studies, a reevaluation of what "the mass" of people, or large-scale national populations, were doing, at one and the same time it brings into view how these populations were productive beyond the accepted locale of their labor in their workplaces.[30] That is, Cultural Studies' reframing of what people were doing, daily, in huge numbers, made it possible to grasp the meaning and knowledge they are generating as *having value*, and ripe for apprehension in economic and not simply cultural and social terms.[31] This recognition of where value lies in culture- and media-rich environments is what creative industries are all about. The teenager recording his gameplay and uploading to YouTube is building his future labor skills for a range of industry jobs and tasks. The suburban mum crafting recipes and blogging about cafe food and child-friendly venues helps form a social network market within which the choices of other economic actors are played out (Cunningham et al. 2008).

At one level this is a tale of re-framing and re-apprehending the world of cultural activity—a tale of different ways of knowing the world and its inhabitants, a tale of the shift from disciplinary knowledge of Literature and other high cultural forms and their views of readers and audiences to Cultural Studies and then to Creative Industries thinking about these audiences and users. But it is just as much a tale of what people are actually doing. As a result of decades now of their unprecedented cultural activity, populations have provided the 'raw material' of what today are known as the creative industries (Harney 2010, p. 437). If a creative industries rationality and the creative industries that it promotes are important in the twenty-first century, it is because together they are harnessing a field of latent value ready for exploitation, according to Harney, and this field of latent value has come about because of and on the back of populations.

A further point to be made about the latent value produced by the dispositions and activities of populations, not least through their relations with a rich array of communication technologies,[32] is that it has provided opportunities for intervention and organization by managerial actors in the new creative industries. Here again we glimpse the dual aspect of a population, as already discussed: it has immanent qualities lodged in the lives and bodies of individuals, but exists *as a population* (a quotidian population as productive resource) only through the techniques for knowing that are brought to bear on those lives, bodies, and activities. Taking a detailed, observing, and documenting interest in what large-scale populations are doing and producing by way of opinions and taste judgments has assembled a knowledge base for the expansion of creative industries. People's activity of both crafting and giving attention to myriad cultural artefacts and outcomes is accompanied by observing, tracking, and recording practices designed to manage this activity or productive resource.[33] This resource, in other words, is a fertile opportunity for management: 'where there is work, even unpaid work, can management be far behind?' (Harney 2010, p. 440). With Creative Industries' industrial conceptualizing of creativity comes managerial objectives of making labor more efficient in what it produces and more directed toward financial rewards. This objective can fall to managerial actors who carry the explicit title of manager—those hired to plan and organize the work of other employees—but also to employees more broadly engaged in activities of managing, planning, and strategizing, for example, those employees managing the data produced by the free labor of audiences, users, and consumers and using it to steer those groups in commercially desired ways.[34]

Management can of course be tasked with other objectives (such as prioritizing the effective provision of public services), but the contemporary focus on the productive resources of quotidian populations in the field of communication, culture, and knowledge sees managers generally gripped by a ubiquitous financial rationality. Creative industries' own rationality, made available to educators and students, politicians, employers and a wide range of business people as an insightful and promising way of seeing the world, is firmly lodged in this period of financialization.[35]

This financial aspect and objective is perhaps most clearly evident in Creative Industries' theorizing the dynamics of what populations are doing. Creative Industries conceptualize the activity of populations in terms of a market logic. If populations are producing 'a massive daily register of critique, judgement, attention and taste' they are at the same time forming

and engaged in social networks of valuing goods and services and activities, social networks that are in effect markets. The clearest examples of this are when social network markets take a digital form—such as ratemylunch.com, or fashion blogging such as Theblondesalad.com. These sites provide visible traces of the accumulated evaluations which direct economic activity down particular paths (producing this kind of menu, consuming that kind of food, buying this kind of talent, selling this kind of expertise). It is perhaps no accident then that the concept of social network markets has been coined by creative industries theorists when digital media have reached an ascendancy with social media platforms. The identification of social network markets departs from dominant neoclassical economics' view of markets as composed of the utility-seeking activity of *individual* economic actors, propelled by the logic of acting rationally, to secure their own best interests, which are also deemed to be known to themselves and predictable as to how they can be reached. The salient shift is from individual actors to social networks of multiple, distributed actors. This discovery of social network markets (Cunningham et al. 2008) is part of a Creative Industries rationality incorporating a distinctive innovation economics. Such an economics helps explain how creative industries add something new to established economic arrangements and thus can innovate them.

The focus on social network markets also deflects the arguments of those economists and writers who have diagnosed digital communication technologies, especially the Internet, as enabling a post-industrial reflowering of production in households and in networked environments as *non-market activity* (see Benkler [2006] and Quiggan in Quiggan and Potts [2008]). Where these economists saw the phenomenon of user-generated content—say, a teenager uploading a video to YouTube—as driven by social motivation and altruism ('a desire for fame and reputation, curiosity, and the simple desire to find out what you can do and share') (Quiggan and Potts 2008, p. 146), Creative Industries theorists redefine user-generated content as market activity, a signaling by future workers in labor markets of the quality (and thus price) of their own human capital (Quiggan and Potts 2008, p. 148). Rhetorically, the notion of social network markets sweeps up any possibility for this new productive activity to be 'non-market' through its 'social network' location, and presents it once more as market behavior.[36]

We have gone into this detail to establish something of the conceptual work with which a creative industries rationality reframes the activity of designated workers, or "creatives," as well as the activity

of the quotidian populations in which they swim. Our broader view of creative populations has taken in the tremendous upturn in the daily cultural activity of populations during the past century and the more recent and insistent reframing of this activity as production and a source of market value. We are also establishing how this reframing fosters a managerial, steering activity alert to and calculating future value, and that this management effort routinely accompanies, shadows, or targets what populations are doing in their daily lives in the late twentieth and the twenty-first centuries. Think of rating systems targeting audience preferences. The effort involves the carrying out of surveys, the devising of metrics for counting audiences' free labor of perceptual and interpretative attention as they watch television programs or read print newspapers and magazines (Bermejo 2011), trying to understand what effect exposure to advertising messages means in terms of product sales, and the subsequent recalculating of which programs, stories, or layout would best deliver this exposure. Think of now ubiquitous online behavioral advertising, with pop-ups of categories of likely purchase items built into people's daily checking of the weather on bureau of meteorology sites.[37] In terms of daily lives in the twenty-first century, we are a long way from Leadbetter's simpler vision of an unfettered, spontaneous 'we think' with 'millions of people creating games, worlds, knowledge, information, software …' (Leadbetter 2008a, b). The concerted work involved in managing and steering this newly dispersed, population-wide capacity and disposition to be creative, to create information and culture, to collaboratively 'think,' should shift any misunderstanding that this contemporary form of life simply springs from human nature, unleashed by a democratizing technology (networked computers) and driven solely by its own momentum.

Notes

1. There may be a necessary proviso here. Matthew Crawford (2015, p. 196) writes of the extent to which Americans exercise a 'new mode of self-understanding' in seeing themselves as 'average.' This norm is an artefact of the populational perspective set in play by the technology of social surveys (e.g., the Kinsey Report) introduced in the first half of the twentieth century (Savage et al. 2010, p. 8). If not wittingly, orienting oneself around the norm of average-ness is in practice to think, thus perhaps to conduct, oneself as a member of a population.

2. And these uses of mobile telephony are themselves not straightforward. Rather than guaranteeing in any simple way a progressive shift "forward," such as the alleviation of poverty, for example, the stories of actual uses are more complex than the mythical versions which proliferate. See Burrell and Oreglio (2015, p. 289) on 'the creation of an echo-chamber reinforcing a compelling myth, here the notion of "farmers using mobile phones to get market prices"' and thus improving their livelihoods.
3. See the Digital Sabbath movement: http://www.sabbathmanifesto.org/. One set of concerns stems from the multiple health risks of the embodiment of digitally enabled work (sedentary desk or laptop work, increasingly interspersed with mobile screen work).
4. As 'doing subjects' people's transactions (clicking on, linking, downloading, purchasing, and so on) are prioritized over how, as subjects that are 'reflexive and self-eliciting,' they can decide to present themselves (Savage et al. 2010, p. 10).
5. In the infrastructure of 'the cloud,' the energy capacity of data centers ranges up to 100 megawatts, 'equivalent to the power consumption of eighty thousand homes' (Tung-Hui 2015, p. 79).
6. For example, the US telecommunication company MCI's television advertisement (1997) for the fastest Internet network, 'There is no race…there are no genders…there is no age…there are no infirmities… there are only minds… Is this a great time or what?' https://www.youtube.com/watch?v=ioVMoeCbrig.
7. Such positive rhetoric is the target of Crawford's (2015, pp. 210–211) critical observation of the value of 'the unencumbered self' for the twenty-first-century economy: 'education must form workers into material that is similarly indeterminate and disruptable. The less situated, the better.'
8. There are many examples we could use of rhetoric about Web 2.0, and this abundance is important: to qualify as a "governing rhetoric" the key criterion is the diffusion or multiple incidence of the rhetoric, that is, of the formulated, styled, and circulated argument.
9. Charles Leadbetter was adviser to the Blair Labor government in the UK and an influential writer on knowledge economies and "the new economy."
10. In regard to the economic problems, see Freedman (2012).
11. But see Flew (2002, pp. 12–13) for a less exclusively countercultural emphasis on ideas and ideals.
12. See a similar benign and exciting vision in Silva's 'Radical Openness' video. http://blog.ted.com/exploring-openness-in-radical-video-jason-silva-at-tedglobal2012/.

13. As Miller and Rose (2008, p. 89) point out, the current salience of community needs to be distinguished from its long history in political thought, and is bound up with it now having become 'made technical,' a tool with which to govern.
14. Included on the front cover of *We Think* (second edition).
15. Or as Foucault puts it, how government shifts the focus away from sovereignty, in an 'opening up of the field that we call politics' (2007, p. 76). This observation still seems pertinent to us, despite recent attention to the role of states in twenty-first century conjunctures such as the War on Terror. Hu's (2015) thesis of renewed sovereign power, in the form of the 'sovereignty of data' risks missing the original point that the problem of 'the State' was not a defunct concern, simply not well identified as a totalizing locus of power. Howard's (2015) account of contemporary digitally enabled power as a 'pax technica,' involving a more dispersed and contingent formation of state, commercial, and technical actors, works to avoid this.
16. This is how Foucault defines a population: 'a sort of technical-political object of management and government' (2007, p. 70).
17. 'The vendor [Lithium] has a holistic vision of providing its clients with a total community that consists of customers, prospects, influencers, employees, and advocates' (Celestre 2015, p. 10).
18. Reasons for the suspension of the project are set out in a report 'E-borders and successor programmes' by the National Audit Office. https://www.nao.org.uk/report/home-office-e-borders-and-successor-programmes/.
19. Ong distinguishes the situation in Western and Asian countries (2007) as she describes the neoliberal government and self-government of knowledge workers in different places. In China, India, and Malaysia it is only certain populations, differentiated by region or city (Shanghai, Dalian, Malaysia's high-tech economic zone and multi-media corridor, Special Economic Zones in Chennai and Cochin) that find themselves shaped and managed as knowledge workers and 'neoliberal exceptions' from their fellow citizens. In Western countries a more generalized regime of governing workers is in play, although with national populations still differentiated through the particular class–gender–educational nexus found in these economies.
20. Although industrial economies, manufacturing economies, and retail economies continue to exist: both in their established form and as part of knowledge/digital economies, through the Internet of Things and the Industrial Internet.
21. On the social activity involves, see Mitchell (2007, p. 95, emphasis added): 'Like economies … markets must be made. They are produced

not by the natural working of self-interest but by the *complex organization* of desire, agency, price, ownership, and dispossession.'

22. On economists as governing through an invention of 'the future' and the present forms of conduct this future requires of us, see Mitchell (2013).
23. Financialized environments in the late twentieth century have been characterized by arrangements for a growth regime organized around increase in equity, enabled by neoliberal economic doctrines such as deregulation, privatization, user pays, the rise of pension funds or superannuation, as well as changes in information and communication technology and its various contributions to financial innovation.
24. See Greenfield and Williams (2001) on the rhetorical techniques of turn-of-the-century finance advertising in Australia; see Langley (2008) on the constitution of everyday investors. in the US and UK. By 2016, these actions might include downloading and using the Acorn app to automatically invest spare change.
25. The marketing firm Fletch, for instance, sees its clients employees in terms of this opposition: 'Creatives vs. non-creatives: the mistake that could sink a thousand offices. Children seem to be born knowing how to create … Then those children grow up, enter the workplace, and become firmly entrenched in one of two categories: Creatives vs. non-creatives.' http://fletchcreative.com/creatives-vs-non-creatives/ And see Greater London Authority Economics' mapping of creative and non-creative jobs and creative and non-creative industries (GLA Economics 2015, p. 5).
26. For example, Vivid Ideas ('Asia Pacific's annual celebration of innovation, creativity and community, building audiences and markets for the creative industries, and offering professional development opportunities across the sector') https://www.vividsydney.com/ideas.
27. Winner of the 2016 Creative Industries Council International Award, http://www.thecreativeindustries.co.uk/.
28. Flew describes 'embedded creatives' as 'engaged in creative occupations outside of the traditional creative industries' (2013, p. 8).
29. It is a productivity that is not defined by digital technology—it has its roots more in the consumer economies and changing leisure institutions of the mid-twentieth century—but which has been turbo-charged, sped up by the capabilities of digital communication technologies, especially Web 2.0 applications, and lowered costs of access for many though by no means all populations.
30. Since the Industrial Revolution and the formation of the factory system, the recognition of productive labor by orthodox economists has been confined to designated places of paid work outside households. Insofar as households were engaged in economic activity it was as consumers of

goods and services produced elsewhere. See Stretton on the normalized and contested uses of 'production' and 'consumption' (2000, pp. 37, 42–43). See also Quiggan's argument that digital networked technologies and the literacies they entail shift the locus of production to once more include households (in Quiggan and Potts 2008, p. 145).

31. Harney's somewhat revisionist history of Cultural Studies (2010) is that this diagnosis of the value of popular culture is precisely what Cultural Studies has achieved, not necessarily toward the critical political ends it envisaged. He thus offers a reworking of an antagonism between Cultural Studies and the scholarly field of Creative Industries (that has cast Creative Industries as a neoliberal Trojan horse in the Humanities), by tracing Creative Industries more circumspectly as the inheritor of Cultural Studies' insights about cultural activity.
32. Harney's account of populations, like ours, is not confined to the availability and uptake of digital communication technologies, but takes in the mix of technologies and locations or occasions within which populations are entangled, addressed, and able and encouraged to produce meanings, knowledge, and to communicate: this would include changed working conditions and increased leisure time in the consumer economies of the twentieth century.
33. Telecommunication and technology companies' employment of humanities and social science scholars on Internet and mobile phone use (e.g., danah boyd at Microsoft, Melissa Gregg at Intel Corporation) extends the historical role of social sciences in knowing populations and what they are doing through a range of instruments (the interview, the diaries of the inter-war Mass Observation Unit in the UK, opinion polls and surveys, ethnographic studies, ratings surveys of audiences).
34. See Grey (1999) for a breakdown and discussion of the complexity of "management" as a set of activities and as what a particular social group does.
35. Although there are significant points of difference among proponents of creative industries. For example, Cunningham's work has held open an interest in social democratic, public interest objectives.
36. This move can be seen in two ways, either as a symptom of creative industries' neoliberal, market-promoting impetus, or as creative industries' recognition of the cultural and social make-up of markets and their variable form (thus departing from an in-principle championing of the institution of "the market").
37. Pop-ups were introduced to the official Australian weather site, www.bom.gov.au, in 2013.

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CHAPTER 4

Productive, Schooled, Healthy

Introduction

In Chapter 3, we established our understanding of digitally networked populations and the nature of their use of digital media as always embedded in the particular situations, organizations, and institutions in which individuals find themselves. Our insistence on recognizing these mundane social locations and the social relations they entail in any consideration of digital technologies was contrasted with the rhetoric of online communities in an ethereal cyberspace, a rhetoric too easily forgetful of grounded bodies, finite energy resources, and local geographies.

We built a little further on the notion of what a population is, and what thinking about our contemporary environments in terms of populations brings into view. Specifically, we noted the kind of indirect action that governing a population requires, as well as the resistance that living beings who make up a population may exercise in the face of efforts to govern them. Although we have not yet focused significantly on such resistance, we did briefly note the lacklustre response—a form of resistance—that Australian voters gave the recent injunction by campaigning politicians for them to embrace the future wave of new, digital economies and to see only opportunity in digital disruption to existing industries and jobs. (A much more widespread but similar resistance to the "neoliberal" and "globalizing" policies which have been used to govern populations worldwide was observed and commented on throughout

P. Dearman et al., *Media and the Government of Populations*,
Palgrave Studies in the History of the Media,
https://doi.org/10.1057/978-1-137-34773-2_4

2016, in the wake of the UK Brexit vote and the presidential election in the United States, amongst other events.)

Through a succession of accounts—of the knowledge economy, the new economy, the creative economy, and creative industries—we elaborated a picture of digital economies as places where populations are formed and valued, known and managed, as productive resources. And we made the point that none of these arrangements of the late twentieth and twenty-first century has come about through simple or complex evolution, nor as the outcome of a revolution in communication technology. In the place of these explanations, we focused on a few of the governing projects discernible in this period, as a way of making visible some of the contending objectives and plans for shaping the lives of populations in a time of ubiquitous computing. These are plans that variably fail or succeed, become dominant or remain peripheral, but whatever their outcome, are brought to bear in some degree on the lives of individuals and on the populations of which they are a part. With this focus on governing projects, we necessarily directed our attention to rhetorics and rationalities, to their practiced propositions and ways of making sense. To make particular courses of action 'rational' or sensible is part of governing through indirect action. Rhetorics are thus material elements in the recent history we started to set out in Chapter 3, able to shift bodies and the conduct of populations. If because of this our focus seemed not always to be squarely on digital communication technologies but strayed to rhetorics of community, to particular economic concepts, and to a finance rationality, it is because our argument is against any such abstraction of communication technologies as "in themselves." The *governing* of digitally networked populations does not all flow from the availability of digital networks, which may make the picture we paint seem frustratingly decentered in comparison to a more familiar headlining of digital media and digital communication technology. However, it answers to the question we posed in Chapter 1: How do we keep sight of all the activities and artifacts we call 'communication,' avoid inflating their importance out of keeping with the moments of their production and use, and yet grasp the consequences they have beyond the instrumentality of these occasions?

To take further our consideration of how populations are governed in the present time and how digital networks are part of this exercise of power, in this chapter we turn to some different areas of governing the activity of online populations. We group these as three different

institutional domains—work, education, and health, which correspond to some of the locales in which populations live important parts of their lives: workplaces, classrooms, and clinics and homes. They are the domains of dispersed governmental objectives, efforts, and policies to make up populations as productive, educated, and healthy.

Work: Knowledge Work, Managed Work

In canvassing the way populations have been formed as productive resources in knowledge–digital–creative economies, we have of course already been discussing the domain of employment and work, although not exclusively. People's economic activity shows them as both workers and customers, producers and consumers. In this section, we look more closely at how people who are chiefly engaged in knowledge work of various kinds are governed.

Knowledge work is a curious notion (Drucker 1959), as if manual labor did not also utilize knowledge and knowhow and as if knowledge workers did not also utilize forms of manual competence. But in the sense that, in a knowledge economy, knowing and knowhow have fallen under the shadow of "knowledge" as a class of product and value asset, to designate people as knowledge workers is perhaps apt. Even though the Internet of Things means that the manual work of pickers and packers, or dock workers (in much diminished numbers), involves dealing with information flows from digital devices embedded in the workplace infrastructure, it is a different interaction than that required of knowledge workers—perhaps located in the same industrial workplaces and responsible for designing and managing the information flows and the logistical efficiencies these devices enable. The knowledge workers labor with the purpose of producing knowledge (reports, judgments, books and documents and media of various kinds, analysis, interpretations, and advice), and affecting events, environments, and people through their use of and work with data, information, and knowledge. A familiar list would include programmers, planners, architects, engineers, lawyers, administrators, managers, scientists, technical writers, professional communicators and media workers, marketers, teachers, and finance and policy and data analysts.

Knowledge work, similar to other work conducted in organizations, is managed work. At least some of this ubiquitous managing work is accomplished by a specific workplace population of managers. Managers exercise power through knowledge and communication: 'power to be

able to bend others to executive will and knowledge enough to be able to interpret both the nature of that will, resistance to it, and the effects of changing circumstances, contexts, and contingencies on its implication' (Clegg et al. 2011, p. 6). They are, in other words, consummate knowledge workers. The role of manager is not new, but the number of managers increased in the late twentieth century, as part of a wider growth of a managerial–professional class. Frank notes this development, in his discussion of the post-industrial economy in the US: 'knowledge industries such as software, finance, communication, surveillance, and military contracting are the vital economic sectors of our time, and the corporate world has proceeded to bulk up with armies of middle managers, efficiency experts, laboratory scientists, and public relations specialists' (2016, p. 28). This bulking up of a managerial population whose job it is to steer others as resources in the organizations in which they are employed has been widely remarked upon as a transforming feature of contemporary workplaces. We consider this specific population a little further here.

Organizational populations of managers govern the production habits of workers, and through them also the consumption habits of quotidian populations. These managers have themselves been more or less successfully formed in and molded to the reasoning and norms of the business schools they have attended and the management consultancy firms in which they have worked (such as Arthur Andersen, McKinsey, and Pricewaterhouse Cooper). Both business schools and consultancy firms have boomed since the 1960s and have expanded rapidly in Asia from the 1990s (Thrift 1998). These institutions have enabled the development of management theory and its embodiment in growing cohorts of management graduates.

The reflexive business knowledge produced and spread through business schools and firms is also underpinned by business media that has burgeoned since the 1980s and which ranges from management literature (both academy based and popularly circulated in books, magazines, and broadcast and online business programs) to routine news media coverage of corporate life and generic themes in corporate advertising. As noted in relation to the New Economy, Thrift describes these developments as a cultural circuit of capital. They provide a cultural technology for forming and shaping managerial populations with an increasingly internationalized rationality (comprising theories, practices, and dispositions—such as social psychology, staff engagement techniques, and passion for the job). In turn this rationality is a key resource used by

managerial populations to govern, form, and steer employees, customers, and clients. The standard work of human relations departments in large organizations, or, in smaller ones the work of managers operating alone but similarly schooled in circulating notions of "best practice," has been to shape employees by promoting engagement and alignment with organizational objectives or "missions." A well-known example from the New Economy period was the widespread use of the best-selling business book *Who Moved My Cheese? An Amazing Way to Deal with Change in Your Work and Your Life* (Johnson 1998). Providing the book for workers' perusal, or screening *Who Moved My Cheese? The Movie* and workshopping the lessons entailed was designed to inculcate in employees more productive attitudes to organizational change. The motivational exercise was an exhortation for them to reflect on their existing habits and dispositions against the measuring stick of the different mouse characters in *Who Moved My Cheese?*, noting and applying to themselves the mice's varying fortunes in the face of inexorable change in their workplace.[1]

Now we are not saying there is a necessary correlation between employees being presented with a story about mice and change and employees adopting their organizations' required habits and outlook, that is, their becoming sanguine about and welcoming of changes affecting their jobs. Whatever the project to govern people, along with effective persuasion there is always the likelihood and actuality of resistance. Workplace skepticism and cynicism, for example, are routine. At the same time, resistance, or variable response to any human relations strategies for staff management, does not mean these governing techniques and ideas go nowhere. Just because there is not a 'total grip' does not mean the managerial rationality prevailing in this financialized period of digitally enabled work has no grip (Thrift 2005, p. 135). And how that grip is applied and achieved in local workplace circumstances may take different forms. Thrift notes that shades of cynicism on the part of managers themselves to some of the ideas and practices in their professional toolbox do not stop them from drawing on these available resources; even if a manager is not sold on them, these ideas and practices can 'still be brought to bear' (Thrift 2005, p. 136). Wholehearted belief and fervent adherence, professional skepticism and pragmatic employment, and compliance with standard operating procedure mixed with mindfulness of their own promotion prospects in the organization: managers, governing others but themselves governed, may occupy many different relations to this managerial rationality.

Virtues and Qualities for the Workplace

Managers do not just manage what already exists. They shape and try to modify, to form and reform their human and other resources. This work of shaping and molding the populations making up digital–creative–knowledge economies, in various and multiple roles, is one major way the lives of digitally networked populations are governed, remembering all the while that the individuals who comprise them are not only "online" but are embedded and embodied in local, diverse situations and ways. In what directions has this forming and reforming of people proceeded?

For populations to be productive resources in digital economies, one obvious skill to encourage them to acquire and hone is digital literacy (although what constitutes adequate digital literacy is a moot point: for example, in Australia it is only recently that the widespread advice to acquire coding skills has surfaced) (Stuckey 2015). But to qualify as productive—to be a good fit for the particular economic arrangements that confront them—people find they need not only technical skills and knowhow but also a particular subjectivity, identity, or relation to themselves. It is not enough for individuals to work on set tasks: they also need to do considerable work on their selves; to attend to and make over their selves in ways that will suit the kinds of economies envisaged and promoted by economists, politicians, business and labor leaders, and other authorities. As we have seen with the mice and their cheese and the business best-seller,[2] the opportunity for individualized scrutiny offered by popular business media such as *Who Moved My Cheese?* is an invitation, and pressure, to re-form one's self as a worker according to the favored managerial norms for responding to change.

The requirement to fashion oneself for work is not novel: the discipline required to efficiently, safely, and continuously labor in workplaces has always had to be acquired and has always been shaped by authorities within the workplace or in institutions for training or educating individuals before their employment. But the late twentieth and early twenty-first century norms to which this work is yoked have to a considerable degree intensified the privatizing direction we discussed in Chapter 3, making more people more individualized and perhaps more visible *as* individuals. Foremost among these norms are speed and agility, a quick responsiveness to change, enterprise, an investment orientation, and creativity. Workers had best shape themselves in relation to these norms to be employed and to flourish in digital–creative economies.

This focus on speed and agility results from several factors. Digital communication technology and its vaunted ability to instantaneously connect and transact is one element but not the only one. Economic conditions have contributed their own driving urgencies. In financialized capitalism, companies are run to short-term horizons. Short-termism is imposed by the doctrine of shareholder value—the need to increase returns to investors through the highly and continuously visible performance of company stock prices. Thus, in digitally enabled and financialized knowledge economies—underpinned by ubiquitous computing and in which metrics of financial value have come to lead, rather than support, business performance previously measured in terms of production and allied wage growth—the rhythms of work and all activity have accelerated. In pursuing new routes to increased financial value, ever more elusive because of heightened competition, businesses (and also noncommercial organizations restyled along commercial lines) (du Gay 2004) can operate with the 'streaming ethos' of real-time, networked digital communication technologies (Thrift 2006, p. 284). These technologies turbocharge organizational activity, and enable businesses to draw more thoroughly than ever on the capacities of workers and consumers. Thus, in practices of co-creation consumers of purchasable goods freely provide their design advice to manufacturers, aided by the sped-up cycles of digital feedback and assisted by new management styles sensitive to the competitive advantage of flexible production schedules. The IT company Dell was an early starter in enlisting people to collaborate with company experts and be part of an "innovating community."[3] Its model of design competitions and user forums is now familiar. Consumers are caught up in accelerated cycles of free labor—shadow labor—either through these opportunities for engagement or through other routines, invited and increasingly required to provide their data to log into online sites, endlessly invited to provide customer service feedback immediately after conducting most transactions. The tastes and preferences, the affective responses of consumers, the intuitions and barely conscious creative impulses of workers, or their collaborative exchanges solidifying what had only existed as tacit knowledge of their work routines, all have become resources to be harnessed for the more rapid innovation of products and services.

Communication technology and environments of ubiquitous computing are central to this requirement for all aspects of workers and consumers to be available to business calculation through constant feedback on performance. Required innovation presents employees with tight deadlines,

and most are familiar with 'the frantic pace of the under-resourced office' (Gregg 2015). In amongst this increasing activity and increasingly valued responsiveness to the activity of others, the subjectivity demanded of workers is one that is 'fast,' as Thrift (2005, p. 131) has argued about managers as change agents, responsible for ensuring the agility of their organizations. Our focus on the acceleration of work tasks is not meant to imply workers have never before faced such challenges—telecommunication in the form of telephones and telegraphy also altered space–time relations. But as Isin and Ruppert suggest, in describing the velocity of digital technologies, '[f]or better or worse, it is almost possible to perform an act on the Internet faster than one can think' (2015, p. 43).

A need to work at high speed is part of an overall intensification of work, contributed to by the erosion of definite boundaries of work through the mobility and always-on features of digital tools for working and for being reached by managers, coworkers, and clients. Fast subjects are potentially and often literally on call and able to work, to labor, to produce on a 24/7 basis. Most importantly, they are *disposed* to such a ceaseless demand for their energy and attention and opportunities to expend it, *up for* a constant monitoring of demands for their response, and *in synch* with their organization's need to respond to rapidly changing circumstances. The responsibilities of a public relations expert devising, running, and monitoring the social media element of a client's campaign, yoked to the flows and rhythms and upsets of social media, would be a case in point.

The intensification of work is also fed by how intimately people inhabit their work roles (Gregg 2015). Emotions—in the form of an actual or obligatory passion for the job, or of anxiety about never getting through an endless list of tasks, or of pleasure in professional accomplishments—make work much more than an economic bargain between employer and employee but, in the contemporary world, also a key arena for the formation of self (Miller and Rose 2008, pp. 173–195; Kelly 2013). And this self-formation is managed, culturally patterned and steered, whether by specialist salaried managers, or through familiarization with the norms of workplace cultures, achieved both on the ground and through the mediation of these norms in popular news, commentary, and entertainment. The emphasis in the last decade on resilience, that employees be not only flexible, or agile, but resilient, able to adapt to changing circumstances at work and to recover quickly from challenges and stress—is only the most recent or memorable example of this

managing, replete with specialist companies offering a growing list of techniques (mindfulness, exercise, coloring books, relationship-building, sleep hygiene) to teach employees such resilience. The double twist here, an important one, is that although we are pointing to the managing or governing of this self-formation (it is not autochthonous), one of the norms involved is that of self-management. Hand-in-hand with reimaginings of workplaces that have occurred in recent decades is the required capacity for workers to self-manage.

One such transformation is that people increasingly spend their work time in values-based organizations, that is, organizations conceptually and to some degree practically distinguished from organizations that are hierarchical and rule bound (the rationale being that these old industrial economy forms impede the agility of the organization to respond to change). Values-based organizations put much effort into floating particular values in the work environment: there are often rules about how regularly employees have to encounter and thereby pay some measure of attention to them, for example in bi- or tri-annual online performance reviews and work planning activities. The employee is prompted, in the face of these values, to reflect on their own ownership of, or distance from, the organization's values. Thus, they are brought to consider, so the management calculation goes, how these values are directing their work effort (or not), and through this route be led to manage themselves in optimal ways, that is, in ways optimum to their productivity for the organization and their personal success within it.

A well-known example of this technique of floating values for employees to understand and align with their organization is the viral presentation 'Netflix Culture: Freedom and Responsibility.' Originally used in-house, Netflix made their lengthy PowerPoint available on Slideshare in 2009 for recruiting purposes. By 2014 it had been touted as reinventing Human Relations (McCord 2014) and by 2016 it had received over 15 million views. Using the slideshow, prospective employees of Netflix can self-filter according to how they see themselves in relation to the company's hiring and firing policy, the policy that sits at the heart of a work culture which headlines 'Values are what we value.'[4]

What is valued at Netflix? Judgment, Communication, Impact, Curiosity, Innovation, Courage, Passion, Honesty, Selflessness. In the presentation these attributes are teased out as behaviors: 'Impact,' for example, means 'You accomplish amazing amounts of important work' and 'You exhibit bias-to-action, and avoid analysis-paralysis.' If you

exhibit all these qualities and skills, you may find yourself inside the Netflix tent, where a 'Great Workplace is Stunning Colleagues' (Slide 20), that is, where you work with colleagues who fit the description of the 'Rare Responsible Person' of Slide 40: 'Self motivating, self aware, self disciplined, self improving, acts like a leader, doesn't wait to be told what to do, picks up the trash lying on the floor.'

Few rules and only the right context is needed when you have these rare responsible people working for you. 'Responsible People *Thrive* on Freedom and are *Worthy* of Freedom' (Slide 41). The right context is … 'stunning colleagues.' Hopefully, the 'amazing amounts of important work' these colleagues accomplish does not rest on the less noticed, less valued bread-and-butter work that routinely supports what is counted as 'excellence' (Slide 34, 'Hard Work – Not Relevant'). But if to hint at such a possibility sounds churlish, Netflix is nothing if not aware that their emphasis on performance and excellence is 'Not Right for Everyone' (Slide 38).

> Many people love our culture, and stay a long time.
> — They thrive on excellence and candor and change …
> Some people, however, value job security and stability over performance, and don't like our culture
> — They feel fearful at Netflix
> — They are sometimes bitter if let go, and feel that we are political place to work [sic]

This division between the Netflix suited and the Netflix unsuited is replicated in the comments at https://gigaom.com/2013/01/29/netflix–company–culture/, where readers of 'Silicon Valley's most important document ever' (Roetggers 2013) responded in diametrically opposed ways to the Netflix slides linked to the article.

> Agreed. Amazing document. I loved that the best work environment = stunning colleagues. Fantastic perspective. (Jordan Michaels, January 29th, 2013)

> Reblogged this on *Kelly Abbott* and commented: Wow. This is the real deal. (kga245, January 30th, 2013)

> Sounds very cut-throat to me: You lay the prize and see who can get to it first. (Jorge, January 31st, 2013)

> Am I the only one creeper'd out by using the word "stunning" to describe employees? Sounds like a hellhole, no thanks. (Uggh, January 30th, 2013)

Some are persuaded to the project of making oneself into a rare responsible person, of acting like a leader, or, if you like, of finding yourself in workplaces in which 'we are all managers now,' managing ourselves (Grey 1999). Some are not.

The capacity for self-management is both a sought-after attribute in knowledge-economy workplaces and the bedrock for being a responsive fast subject (self-aware and not waiting to be told what to do). One consequence of this in-demand capacity for self-management has been described as habituating people to thinking what it is to be human in managerial terms (Grey 1999, p. 577). This is echoed in the observation that the contemporary emphasis on management work 'pushes or motivates individuals to adopt an investment orientation to life-in-general' (Maravelias 2011, p. 106). Whatever else it does, self-managing entails an intensifying of employees' or would-be employees' focus on their *individual* fitness for work and for success at work. Thus, although collaboration might be high on the list of workplace virtues, solidarity is not, just as loyalty has an outdated feel in today's digital–creative–knowledge economies. Self-managing individuals, entrepreneurs of their own value, come together in teams (in the Netflix culture, that's a 'pro sports team not a kid's recreational team': Slide 23) but they come together *as* free individuals ('We're a team, not a family': Slide 23). Governing through self-managing individuals dovetails with the governing through community that we discussed earlier, in the sense that in a community an individual forms freely chosen affiliations with other individuals, rather than, as in a society, being faced with the obduracy of social bonds that preexist the individual's choice. In this regard, prioritizing as they do the individual and their freedom, the contemporary norms for working life mesh with the longer-running phenomenon of mobile privatization, shaping individuals defined in terms of a core private being, imbued with desirable senses of freedom and self-realization, and distinct and distinguished from an earlier collective public existence.

Another element contributing to the continuation and intensification of mobile privatization is the contemporary impetus to personal branding. While many people attending to their digital media profile is driven by prosaic advice to "keep it clean," by a caution about how social media

conduct will be viewed by prospective employers or other authorities, for many others attending to their profile entails a more proactive strategy, an entrepreneurial cultivation of profile as a marketing tool for their career and life. Pewdiepie, the Swedish vlogger and gamer with 40 million subscribers to his YouTube channel, is one of the standouts of personal branding, working his amateur status into multi-million-dollar profits. But Kjellberg/Pewdiepie and others like him are only the more spectacular practitioners of personal branding. It is a strategy recommended to sportspeople, CEOs, managers, politicians, academics, graduates, journalists, and generally all employees—in fact to 'almost every individual,' as a contributor to *Forbes* business magazine put it: 'The question is no longer IF you have a personal brand, but if you choose to guide and cultivate the brand or to let it be defined on your behalf' (Hyder 2014). How you guide and build a personal brand includes 'knowing what is your uniqueness,' 'shoring up your social media outlets,' 'sharing your passion,' 'determining your personal headline,' 'getting involved in your community,' and 'having a great headshot' (Forbes Agency Council 2016). The personal brand, a digital phenomenon of identity curation that builds on twentieth-century business advice on how to further a career, makes sense in the context of labour markets and workplaces that require employees to be highly mobile (rather than enjoying job security and staying with one organization) and to signal their value in highly competitive financialized economies. It also makes sense in terms of the ability of individuals equipped with digital literacy and the necessary infrastructure to reach large audiences with relatively minimal capital input.

But as well as personal branding "making sense" in these environments, the claim that it counts as mobile privatization perhaps needs a further comment. Pewdiepie's videos of his daily life, and employees' tending of their LinkedIn profiles, might seem to be moves which are not privatizing so much as the epitome of living in the collective or social eye. Arguably, however, what this form of existence involves is the taking of a generous attention to the private and psychological world (the articulation of personal aspirations and emotions and uniqueness as central to a successful life) *into* the social eye. And if social media have become a preeminent stage for the private self produced through the activity of personal branding, the privatizing orientation is not undercut by the apprehension of these media as "social." The "social" aspect of this media environment, at least in its own understanding and as it is lived, is less about the social and more about freely elected membership

of "community." The "social" in social media—the social relations and collective connections involved—is routinely lived as an outcome of an aggregate of individuals (me and you and online friends and members, as well as individuals who are lurkers and trolls) and their freely-made choices to join in and connect. We could agree to say that this simply means that what is social has changed,[5] but it is valuable not to cede the sociological, and political, sense of the social as a domain that provides the conditions for individuals and their conduct, indeed the conditions for their freedom to choose. For example, amongst these social conditions we should not forget the mundane fact of the protocols involved in using social media, routinely become-invisible to users as they delegate the decisions for how they will communicate within a site.

This understanding of the social conditions (but also the cultural, technological, political, economic, and historically changing conditions) for the contemporary existence of individuals and their qualities, capacities, and conduct, is what we seek to keep in view by tracing mobile privatization, which is nothing other than a 'dominant set of social relations' (Williams 1983, p. 189). We suggest that this privatization, as well as its accompanying mobility and freedom of movement amongst different geographical and digitally imagined and materialized spaces, has intensified since the 1970s. The mobility offered by automobiles, and by broadcast radio and television taking listeners and viewers to the "outside" world through coverage of events and distant imagined locales, in a variety of portable radio and televisual forms, was augmented in the mid-1990s by the "global" reach of the World Wide Web, by the shift from desktops to laptops. The scope was then hugely amplified by ubiquitous mobile telephony, providing not only an ever more easily portable device on which to roam physically distant locales and sites, their number multiplying exponentially for a multi-platformed self, but also the capacity to conduct all manner of transactions from wherever the user physically roams. The devices, as ever, do not determine or guarantee a mobile, privatized individual,[6] nor do they guarantee or determine that all users will achieve a similar intensity of mobile privatization. However, along with the governing rhetorics that have accompanied their development and uptake, rhetorics of speed, modernity, progress, innovation, productivity, creativity, economic competitiveness, and ease of communication, they provide the conditions for an intensified mobile privatization.

It is important to remember why this particular formation of individuals and their social relations matters. As Williams wrote, using

his metaphor of the car as a shell for its thereby privatized occupants, 'from the shell…the only relevant calculations are the terms of continuing or improving its own conditions' (1983, p. 189). Such calculation exactly fits the investment orientation to life in general mentioned earlier as one of the consequences of the workplace virtue of self-management. In this light, it might seem sufficient simply to call social media, and more broadly digital communication technology, neoliberal technologies. That is, they are technologies joined to the historical program of liberal government, as Thomas (2000) puts it, in which neoliberalism, or advanced liberalism (Rose 1993), names a current and particularly libertarian strand, with strong emphasis on personal freedom and freedom of expression. In this book, we have generally avoided discussing the contemporary period of financialized digital–creative–knowledge economies as the moment of neoliberalism. We are wary of the possible simplification this carries, as if all we need to know of the period—and from knowing, by definition, criticize—concerns a wrong-headed belief in the self-sufficient agency of markets, an elevation of the freedom of individuals through those markets, and the need for the state to act only to facilitate both these things. Rather than so uncomplicated an approach, we agree with Dean that it is not enough to treat it as 'a mindless belief in markets' but to grasp it, as a species of liberalism, as among 'the resources which can help us to work out how to govern our societies' (2009, p. 4). This attitude guides our attention to mobile privatization as the effect of the multifarious ways in which people have been shaped in the twentieth and twenty-first centuries. Taken in the manner offered by Raymond Williams as registering the welcome freedom and mobility with which people live these new social relations, compared to their earlier forms of life, to recognize mobile privatization is to register how thoroughly populations have been remade and that any political contestation of "neoliberalism" has necessarily to start from this reality, and not content itself with 'critical paranoia' about markets (Dean 2009, p. 4).

Our interest in mobile privatization is therefore with the kind of agency with which people are now quite routinely equipped, and to which the mobility afforded by the 'extensity' of digital communication technology has significantly added (Isin and Ruppert 2015, p. 43).[7] Remember that in Chapter 2 we described mobile privatization as the organization of a material disposition, the formation of a socioeconomic literacy with which to make sense of one's own situation, and to formulate one's interests. We contended that this socioeconomic literacy was a

way of making sense which distances oneself from, rather than joins oneself to, others' interests, in the pursuit of making an expansive career path through one's life. Formulating one's interests does not exhaust what is involved in agency, which entails the possibility of *acting* in some way on those interests: to do so requires also the appropriate means, which may be financial, cultural, political, and technical, and which not everyone has in equal measure or at all. So in talking about agency we are not embracing the familiar notion that everyone is empowered in this age of digital technology and of consumer sovereignty; that laptops, mobiles, and freedom of choice in open markets of services and goods has enabled individuals to achieve whatever aspiration they choose. More soberly, our point is that the conditions for mobile privatization have enabled, for a good many, a powerful agency and ability to act, and that this agency is of a very particular kind. In workplaces requiring the self-managing, investment-orientated, constantly aspiring and "moving on" worker, this kind of agency will fit comfortably and likely reap rewards.

To some, the desirability of the qualities and capacities of this entrepreneurial self-manager, or Netflix's rare responsible person, is absolutely self-evident: to others, it is very distant or rejected outright. If populations are formed as productive resources, through the efforts of educationalists, management, and the wider circulation of workplace norms, the individuals comprising these populations certainly can and do differ in their adoption of or matching themselves to these norms. Organizational populations can be scrutinized for signs of different attitudes toward the norms of responsibility and self-responsibility and be managed in response: through either promotion and reward, or by firing—with a 'generous severance package' if you work at Netflix (Slide 25). Or, the managerial strategy might be mentoring, with the aim of shifting out-of-kilter attitudes. That populations are governed by norms does not mean that all comply with these norms; only that all are positioned, as well as come to position themselves, around them. Despite New Economy win–win rhetoric, 'for there to be faster subjects, there must be slower ones' (Thrift 2005, p. 151): these the workers who are falling behind, the resistant, or the overworked and tired. If some individuals embrace change and speed and constant innovation demanded by financialized environments and made possible by digital communication technology, and make themselves fast subjects, other individuals will resist or struggle with these preferred ways of being. An explicit resistance to these norms is evident, for example,

in adherents to the various slow movements (slow travel, slow cities, slow food, slow journalism, slow schools)[8]; less activist resistance is the no doubt more widespread *lip-service* from overworked employees to the embrace of constant innovation. To those who are under-employed, casually employed, or unemployed, these norms of self-responsibility, swift responsiveness, and self-entrepreneurial nous may be either talismans of hope or the specter of where they are failing or have failed in the labor market.

Normalization of this kind of entrepreneurial agency has had the further consequence of a general depoliticizing of work and workplaces. The routine mode of addressing the structural conditions found in many workplaces (expanding workloads, casualization, work intensity) is to ask for individual employees to cultivate the capacities and dispositions to handle them: resilience is demanded. Passion for the job, regardless of pay rate, is the remedy for overcoming workplace problems. In the face of this, the erosion of any industrial economy politics of solidarity, such as might have been found more routinely in twentieth-century work sites in some countries, is widespread.

In this section we have traced what we think is a key aspect of populations being "productive resources" in financialized knowledge, economies sped up and facilitated by the settling in of digital communication technology. This aspect is the formation of persons in ways deemed to make them productive. Such person formation is organized around norms of speed and agility, self-management, and creativity. These norms have been deployed in a remaking of who we are, or at least a remaking of those of us who are situated squarely in digital–creative economies, in offices and in mobile out-of-office locales from which we telework via the Internet and the Cloud. We do not imagine this is a universal state of affairs. These norms are more likely to be found in large companies or small "cutting-edge" ones than in every workplace, and, as per the spread of Thrift's cultural circuit of capital, to have been promoted earlier in such workplaces in Anglophone countries but certainly now to be found internationally. Whether the different workplace regimes in Scandinavian and some European countries, especially Germany, with their legislated system of co-determination,[9] offsets the promotion of these norms or coexists with them is beyond the scope of our research.

But to the extent that these norms have infused our workplaces and remade us, we are now, therefore, quintessentially creative, equipped with creativity understood as a 'general cognitive value,' whereas

previously the values that allowed us to fit in a business culture were 'competence, business ability, probity or going by the book' (Osborne 2003, pp. 508, 509). This creativity is not what it may have been in past times, about 'innovat[ing] in accepted conditions,' but is instead the trait of those 'who can change the conditions themselves' (p. 508). Where it actually eventuates, this bestows, as we have noted, a powerful kind of agency.

Finally, if "we" are the vaunted creative powerhouses of contemporary economic life, those not playing this role can be defined against our qualities of enterprising, agile, and creative self-management. Older workers are found too slow for new work practices and digital technology (e.g., Papadakis 2016). Left-behind workers—in industries such as manufacturing in high-wage rich countries where jobs have been offshored, or in caring industries typically employing poorly remunerated women workers—not only need new practical skills to transition to new employment but face the not inconsiderable task of acquiring these less tangible, normative virtues and qualities. Although different forms of work remain, and knowledge economies have not simply replaced industrial economies, and although the mix of different employment varies across and within countries and indeed knowledge workers in both rich as well as poor countries are neither uniformly well paid nor secure in employment opportunity, the push to valorize knowledge work as the only feasible path to future prosperity for both nations and individuals is strong. It is a hallmark of one particular, dominant project for governing populations as productive resources, a project never without contestation. The labor movement in many countries mounted arguments against the "globalizing" removal of tariffs in the last decades of the twentieth century. In recent years this project has again come under question under the banner of concerns about growing inequality of workers within rich countries. In the US for example, Frank has described the push to knowledge work as precisely a purposeful argument, rather than a neutral description of economic facts and inevitability. He describes how successive Democratic administrations were persuaded of and have in turn persuasively circulated the proposition that for their historical constituency of increasingly precariously employed and poorly remunerated blue-collar workers and nonprofessionals in retail, cleaning, and caring services, the only option was to accept the reality of a world of college education-led, innovation-fueled, and entrepreneurially driven jobs, and for them to rise to the challenge this presented.

Frank's interest in this recent history is the foregone commitment to social justice in employment policy. For him, through its single-minded championing of 'wired workers' and creative professionals at the expense of other workers, through extolling entrepreneurialism at the expense of solidarity, and through downgrading positive policy work by delegating responsibility for the economy to finance capital markets, the Democratic Party is no longer the party of the people (Frank 2016, p. 59).[10] Other populisms have taken over, in which populations mobilized as "the people" in various countries of the global north have given public voice to—amongst other things—their disaffection for the decades-long project of globalized economies, disappearing industries, and the vaunted promise of better lives through digital–creative–knowledge work.

Managing Through Data

We have concentrated on the effort of person formation, self-directed and incited by managers and mediated forms of managerial knowledge, whose purpose is to make populations capable of productive, efficient, fast, sustained, and creative "value-adding" work in digital–creative–knowledge economies. And yet it is only part of the story.

As Henman puts it, governing is a 'two-fold process; the formation of individuals and individualized forms of governing' (2007, p. 176). Individualized forms of governing—entailing attention to the individual person and their minute details through records and photography and file-keeping—are not new but have taken on new possibilities with digital communication technologies. We return to such details shortly. These new possibilities have consequences for how workers are made visible through data about their performance in their workplace and, in turn, for how their future performance can be steered. In contrast to the person formation undertaken by individuals and their managers working on their selves in knowledge economy workplaces, digital individualized governing results in an individuality that, rather than being "creative" and "unique," is instead composed of 'the more quotidian and often drab set of responses to standardized forms and entries into data fields and the linkage of these responses with electronic databases,' an individuality 'encoded and enacted by algorithms embedded in computers' (Henman and Dean 2010, p. 90.) Using this description of 'standardized individuality,' Henman and Dean write about the data makeup of

individuals as customers for all types of government and commercial service delivery (such as welfare benefits, or passports, or airline travel). Similarly, standardized individuality is produced in the data makeup of individuals as workers, through data collected as they navigate labor-hire organizations; and in the constitution of employees as subjects of company personnel files.

This effect of standardized individuality is also achieved through the data harvested by "capture technologies" as well as through data entry of formalized responses. These technologies are used to measure and record a person's actions undertaken as an internal part of a digitized system; for example, the labor performed using a computerized cash register, or filling out and manipulating cells in an online office data management system (Kitchin and Dodge 2011, p. 87). Dodge and Kitchin (2005) call the data thus harvested 'capta.'[11] Beyond its presence in their working lives, people are now familiar with the software in these capture technologies, having to use it directly for all manner of purchases, enquiries, and membership joining, or through employees having to interact with it to serve them. In the workplace, capture technologies work through machine-readable identification codes such as employee numbers, able to link specific capta—for example, the time taken by an individual worker to accomplish a task—directly to their personnel file. The software and the requirement for workers to use such software allows an 'automated management' (Kitchin and Dodge 2011, p. 85) which can efficiently bring the exercise of power and knowledge by management *to* each worker's conduct and output, up close, with precision, and sometimes in real time.

For a retail worker at a computerized checkout register, for example, standardized individuality and automated management mean that the worker's individuality is governed through measurement of their actions by an algorithm for optimum grocery throughput figures per hour. This form of management extends to high-end as well as low-end knowledge workers (such as call center operators whose hourly customer handling rate is similarly tracked). Both groups are implicated in automatic management and standardized individuality. Professionals such as academics,[12] for instance, are not immune, although the rhythms of online compliance are more forgiving. In yearly or half-yearly routines, they complete templates on their performance with drop-down menus to classify how well, satisfactorily, or poorly they have exhibited the values of their university's mission (such

as connectedness, passion, creation of transformative experiences), and they self-report what are counted as their knowledge outputs, as well as the hours they will spend over a year on various tasks, directly into software that can be combined with the measurements on all other academics for a given cost center or school. Automated management thus can provide omniscient knowledge for managers in their calculations about and discussions with their academic staff.

To clarify where standardized individuality sits, we have said throughout this book that individuality and the individual who bears it are socially formed, a corollary of the population. In Chapter 2, we stated that the individual and the population were together part of a political technology new to seventeenth-century Europe, spreading to new geographies in uneven ways and at a variable pace. Detailed attention to individual lives in all their minutiae was central to this technology—combining observation, characterization, and classification—as was careful documentation of what was observed and classed. Thus observed and classified, individuals have long been subjects of knowledge in ways that suggest standardized or systematized forms of knowing, that is, knowing through the application of classification systems. It is not therefore the element of standardization per se that is new in computer-driven standardized individuality, but the way in which it can be applied and brought to bear on a person. Here is where the specifics of digital communication technology matter: its qualities of granularity (the extent to which an entity can be divided up into distinguishable bits or pieces), and ease of combinability of distinguishable bits. Digitally produced and assembled data is granular—assisting a 'microscopic' focus on each individual case—and is also able to be easily combinable at the scale of whole populations, so that both the actual population (all its members, not just a representative sample) can be brought into view as well as all the observed detail of each of its members. In this way, 'everyone and every transaction can be scanned, monitored, and subject to analysis and intervention' (Savage et al. 2010, p. 12). This emphasis on documenting and analyzing "transactions" is also a feature of individually governing digitally networked populations. Analogue files yielding biographical facts about individuals are computerized and turned into digital data,[13] but data produced through digital networks privileges the doing or transacting subject (Savage et al. 2010, p. 10; Isin and Ruppert 2015), with authorities seeking online transactional data (e.g., registering, applying, paying, moving, clicking) because it is considered 'measurements of what people

"actually" do' (Ruppert 2011, p. 4) and thus more accurate than the self-reporting of reflecting subjects (for example, in survey responses that employees might give about the hours they spend on different tasks).[14]

An example of the new powers to scan, monitor, and analyze "everyone and every transaction" is the recent capacity for e-discovery of illegality in the workplace. By searching all emails, messaging, and phone calls, data-mining companies employing engineers and linguists can produce evidence of possible white-collar crime. It can show, as the founder of one such US company put it, 'who leaked information, who's influential in the organization or when a sensitive document like an SEC [US Securities and Exchange Commission] filing is being edited an unusual number of times, or an unusual number of ways, by an unusual type or number of people' (cited in Markoff 2011). Perhaps more interesting than the specific detection of this kind of illegality by employees (or employers) is how data-mining capacity to know and record the details of worker conduct can be used for other and more routine purposes in managing workforces.

The routine use of data-mining has been a decade and more in development. An early observer, Stephen Baker, described how workers were increasingly able to be commoditized by the gathering of data on their habits, performance, productivity, and what tasks groups do best together and which they do worst. email analysis, he wrote, could track who communicates with whom, outliers who do not communicate much with anyone, and the most common words in these exchanges—what is being talked about. Tying this information to the scheduling of work tasks and meetings could be used to optimize productivity. So, detailed data on a worker's tasks and productivity would allow white-collar work to be 'measured and modeled' and white-collar workers made part of a 'virtual assembly line' (Baker 2008, p. 39).

Writing a decade ago, Baker was outlining the research being undertaken at IBM to drive the logistics of what has now become reality: 'Big jobs are parsed into thousands of tasks and divided among many workers … once the workers are represented as mathematical models, it will be far easier to break down their days into billable minutes and send their smarts to fulfill jobs all over the world' (p. 39). Baker's account was of IBM's vision of outsourcing from the aspect of a corporation employing large numbers of workers. Just as familiar these days is piece work presented as opportunities for self-employment on platforms such as Odesk and Elance (now Upwork), TaskRabbit, Fiverr in Australia, Anytimes in

Japan, and Uber and Lyft and Didi Chuxing in China. Here the parsing of the work appears more like peer-to-peer, disintermediated exchanges between the one-off employer, or hirer, and freelancers, and is often given the positive branding of being part of the sharing economy, or the gig-economy. Publicity for the platforms presents the gigs or projects as ideal for knowledge workers with self-initiative, seeking extra income, an interest in building profile, and wanting creative freedom or freedom from organizational bureaucracy. But these freelancers do not, despite the pull to freedom, escape organizational management. Upwork's Work Diary (Upwork, n.d.), for instance, 'counts keystrokes and takes screenshots of the freelancer's screen (six times per hour)' to verify billable hours for the hirer—a capture technology providing automated management. And Upwork management of their population of freelancers, ostensibly self-employed workers, includes vetting and classifying them into 'professional freelancers' (the general pool of labor) and 'premium talent' (for hirers wanting a premium management service).

Perhaps, then, workers using these platforms are more usefully and neutrally described as engaged in 'the platform economy' than part of a socially optimistic sharing economy (Chandler 2016). Just how to regard this kind of work and describe the economy of which it is part is much argued over,[15] for example, in the creative labor debate.[16] In this debate, polarized views about creative labor in creative economies see it as either a welcome opportunity (as in the platform publicity mentioned here) or as a form of exploitation which leaves willing workers in conditions of deplorable precarity through deregulated workplaces and the decline of collective bargaining power in what were, sometimes, previously unionized industries. Digital technology is implicated in the debate to the extent that, although not all creative labor is performed online, digital platforms have facilitated batch work that can be sent to boundless labor markets, and added to the commoditization of workers through the augmented techniques of measurement via tracking and the algorithmic calculations which they enable. The value of a journalist, once a matter for an editor's professional estimation, is now known through the engagement metrics of her articles (e.g., click-depth index, duration index, feedback index, interaction index).

Quantifying work and the value of workers is not new. The settling in of ubiquitous computing has enabled an intensification of a set of power–knowledge arrangements that has been in place for some centuries. Numbering of people for purposes of governing their conduct was

established from the mid-eighteenth century, and the period from 1820 to 1840 was marked by an upsurge in bureaucratic statistics, counting technologies that spawned new human categories including that of social class (Hacking 1986). The quantification of people was in place before computing, although computing in each of its various stages from the nineteenth century on has accelerated it. As to whether an associated tracking and commoditization of workers deserves straightforward condemnation, the answers are less simple than they might appear. As Lobato and Thomas (2015) challenge, before taking a position of radical critique toward worker conditions in financialized digital–creative–knowledge economies, one must first identify *which* worker's conditions are being considered. If e-discovery software reduces the number of low-level lawyer jobs reviewing documents in firms in high-wage countries, has the work disappeared or been dispersed elsewhere? 'The phenomenon of disappearing jobs is … often a function of where we look for them, what counts as employment and who counts as a worker' (Lobato and Thomas 2015, pp. 79–80). The simple fact of remembering that how working populations will experience work will depend on their geographic, cultural, and social situation helps us remember the limits of focusing on work in terms of a digitally determined algorithmic economy, of seeing the platforms and their affordances as the most important shaper of the experience of work.

This section has focused on the tracking of users of digital communication technologies in the circumstances where users have some of the fewest options about their interactions with software—their workplaces. Tracking through ubiquitous computing, the associated cascade of data, and the possibilities of big data, are now popularly covered topics. Baker's was one of the early accounts: it also stood out for his focus on 'the numerati.' In his 2008 book of the same name, Baker not only described the exploding use of automated algorithms to mesh statistical information about populations of individuals in large-scale databases and plumb the probabilities of particular behaviors occurring, he put his finger on the social actors involved, the numerati. Knowledge gathering and interpretation may be automated, achieved by complex algorithms, but these need to be devised, programmed, and their findings made sense of and then used in specific ways.[17] If populations of workers in digital economies are subject to new forms of knowledge and power, this cannot be ascribed in any simple way to the power of the digital technologies involved. For Baker, the numerati are the mathematicians, computer

scientists, and engineers who constitute a counting elite. This elite could be considered the ally of managers, their labors intersecting to govern the activities of other workers. For the numerati and for managers, their exercise of power comes from their location in 'centres of calculation' (Latour 1990, p. 59), whether these be lodged within the offices of public authorities (such as the Australian Federal Government's Department of Human Services, where in 2016 it devised its automated data-matching system for retrieving debt from welfare recipients) or in the commercial offices of companies such as Facebook (where, in its controversial 2014 experiment on users and mass emotional contagion, it altered its algorithms around the emotional content of its News Feed).

What image of work in digitally saturated workplaces is suggested by bringing these social actors into view? Is this a picture of managerial and technical power escalated to inexorable control over workers through a relentless data gathering and the individuating propensity of the granular production of knowledge bestowed by digital technology? Attention to the machine logic at the disposal of those collecting and gathering information in centers of calculation and parlaying it into knowledge of subject populations can lend itself to such a dystopic view. Offsetting this is the actuality that these centers of calculation and the actors found in them are part of a dispersed exercise of power through various governmental projects, and to have a governmental project for a population is not the same thing as executing it with success. In public sector organizations and capitalist firms alike managers and data analysts can organize and gather up the labor of workers but not simply control it (Thrift 2006, pp. 300–301). If workers are made into productive resources through their self-managing activity and engineered creativity they are also shaped for a productivity that is to some degree unpredictable rather than securely controlled. In response to the possibility that the counting elite are in control, Baker points out, 'Even the most powerful of Numerati only master certain domains. Everywhere else, they'll be just like the rest of us: the objects of study' (2008, p. 207). It is ongoing, this politics and negotiation of the relations of power and knowledge between managers and numerati and diverse other groups of workers (including designers, researchers, clerical and customer relations staff, public relations and media officers, and property and service workers), a negotiation of power that is not displaced or simply brought to conclusive outcomes by the agency of digital technology.

To attend to the ways in which working populations are governed, as we have been doing in this section, is to argue that there *is* a politics of work in which populations are enmeshed. A widespread depoliticization of workplaces in recent decades—the result of the wider dismantling and waning of forms of solidarity, along with automated management based on algorithms that go unnoticed and codes which treat populations as 'ostensibly classless' (Halford and Savage 2010, p. 952)—can hide this from view. But the working lives of populations are routinely caught up in disparate exercises of power as organizations seek efficiency in digitally enabled commoditization of workers, and workers themselves discipline their energies and routines to measure up to acceptable workplace norms. This is a matter neither for simple condemnation nor embrace, but a reminder that engagement with the politics of any particular work situation is conditioned by, although not inevitably determined by, longer-running and diverse projects for governing working populations.

We turn now to the classroom, to register some of the ways in which digitally networked populations are schooled and in the process made responsible, independent, and self-managing. We should note that the classroom is a site where many of the norms and practices tabled here are very much to the fore. It is, after all, not just a site of teaching and learning but a place of work. Teachers, in schools and universities alike, are key knowledge workers (Gregg 2011). A further overlap is the close articulation between the classroom and the workplace, which has been engineered over recent decades in a concerted push to—among other things—reconfigure national workforces as digitally work ready.

Education: The Promise of Liberation in the Digitally Networked Classroom

Making up workers who are digitally competent is a recognizably twenty-first century educational objective. Strategies to achieve this digital literacy in the classrooms of today sit next to longer-running educational projects of self-formation, such as those utilizing the ethico-literary practices discussed in Chapter 2. Schools have long been examined, and programmed, as sites of self-formation. The classroom has been seen variously as a space for realizing the promise of human potential (Dewey 1897), for hailing and forming ideological subjects (Althusser 1971), and for shaping the ethical dispositions of young

minds and bodies (Hunter 1994). And, for a long time now, schools and universities have been awash with data—raw numbers of bodies and things, test scores, audits and evaluations, performance indicators—that are used to govern the conduct of organizational, regional, and national populations of teachers and their students.

But what exactly do we see, now, in the digitally networked classroom, busy with a host of electronic devices, personalized online learning tools, national standards and testing regimes, and so on? Who is involved, and what relationships do they have to each other? What claims do they make, about the promise of digital technologies and the formation of persons? What are they seeking to achieve, and what outcomes can we discern?

This section offers answers to these questions by sketching out key elements of recent claims about student-centered learning, a method and perspective for organizing educational effort. Claims around student-centered learning speak of digital communication technologies, and the practices and arrangements they make possible, as offering a kind of liberation (or at least, less dramatically, a release) from the limitations of traditional "factory models" of education; which reconfirm a set of governing arrangements that are bound up with an array of new and old forms of knowing and are making (more) space for private commercial interests.

The Digitally Networked Classroom

To set the scene, we start with the places of education and what we find there. Schools and universities have been reconstituted through and around digital networks. Challenges that have long driven policy makers, school principals, and teachers and parents alike, and the practices adopted to meet these, have been renegotiated with the new technologies in mind, implicating and testing the relations of power and knowledge that had sedimented around earlier responses. These challenges remain: How exactly *do* children, and adults, learn? What *is* the role of the teacher, and the parent, in that process? What devices, arrangements, and regimes of practice work best in the classroom, and beyond? The markers of this reconstitution we list as what we see in a "digitally networked classroom."

We have an eye to managers, teachers, and students taking their work online in an effort to maximize "performance," variously conceived as

meeting the criteria of more authentic learning, higher test scores, an increase in profit margin, an increased graduate satisfaction score, and enhanced reputation in the marketplace. Managers, specifically, have a number of agendas, including reducing costs by developing new approaches to the use of physical facilities and services (e.g., classrooms, libraries, lecture theaters); connecting with new "markets" and expanding their engagement with existing ones (e.g., through MOOCs,[18] micro-credentialing, and other forms of modularization); and deriving new forms of useful data through tools of tracking and surveillance (e.g., in test scores, date/location-stamped email systems, submission systems, attendance systems, electronic swipe card systems). Those data are then used in projects that seek to reshape the attributes and capacities of staff and students, which are variously technical (e.g., in managing data hygiene), social (e.g., in strengthening staff and student loyalty to institution and cohort), and personal (e.g., in managing themselves in relation to corporate objectives, such as being astute in facing and managing risks). For managers, online systems offer both flexibility, efficiency, and visibility: teaching and learning can carry on outside the classroom; managers can more easily insist on staff completing various forms of professional development, in non-class time; online performance and development software systems can be linked to other management systems, creating a new 'line of sight' between managers and the statements staff make in their performance plans (DET 2016, p. 4).[19]

For teachers, regularly challenged to engage with new curriculum thinking and meet increased performance standards, online learning opens up new opportunities for knowing and steering students. A simple example: primary teachers can stream individual pupils into particular levels of curriculum content, using online applications such as Reading Eggs—a phonics awareness reading application—which allows them to schedule activities based on books their pupils have just read. They can specify tasks to be completed before the child is allowed to move on to the next stage. The system gives the child feedback and keeps records for the teacher, and in that sense it automates and delegates work previously done by teachers to the application.[20]

Our main purpose here is to observe what is in a digitally networked classroom, but the implications of these new dimensions for the labor of educating students also demand mention. We have an eye, then, to the pressures created by the convergence of face-to-face, open, and online modes of teaching and learning, embodied in the progressive

development of learning management systems, which have opened a space for a 24/7 "anywhere/anytime" online environment. We note the associated extensification of responsibility from the development of a host of applications that teachers, administrators and students are required to navigate around and through (e.g., attendance registers, student records, results management, lecture recording), often with very little training and with limited after-hours support. Some staff groan under the weight of the redefinition of teaching—from "sage on stage" to "facilitator on side"—as they negotiate the renovation of architectural spaces and work routines within our classrooms (e.g., navigating the "flipped classroom," running classes with rich media, recording lectures), while others are enthusiastic. Some shrink from the additional temporal and emotional burden flowing from the need to manage the intensification of communication between teachers and parents. Enormous labor has been expended in reshaping the content of and access to digitized learning materials. In the process we have watched a relatively silent shift in responsibility for printing and collating, from libraries to students, and seen a significant redefinition in the roles of libraries and the publishing industry (e.g., consider the battle between Open Access publishers and proprietary giants such as Springer and Elsevier). Staff and students at all levels have been challenged to master new techniques for finding, reading, annotating, storing, and retrieving digital information. Staff and students, and their principals and managers, have worked hard to define appropriate etiquette for online interactions, to set boundaries around what is considered safe or not safe.

In classrooms, teachers are confronting more distracted students, who now operate in personalized and modularized learning environments saturated with social media. Indeed staff and students have been integrated into an attention economy, reconfigured as consumers of entertaining and engaging learning services, where those technologically empowered and choosing subjects can now increasingly see learning as only what personally interests them. This shift has created a particular conundrum for educators who still think about their curriculum as an explicit tool to develop interests that will help form the student as person, but then simultaneously feel compelled to retreat in the face of a pedagogy that sees the child as a natural learner, who is empowered not only by digital tools and skills, but also by the rhetoric of self; and who is constantly encouraged to "know themselves," in the language of marketing and careers advice, for example, to the extent that the relations between

teacher and student get disordered, or overturned, or in a more positive spin "transformed."

The Promise of Liberation

Many of us know this digitally networked classroom intimately, either because we teach in it, because our children have made or are working through it, or because we are ourselves enrolled in a higher education program. Regardless of the extent of our personal experience, we all are regularly asked to think about classrooms by a range of popular texts, which publish claims about what education "should be." For example, in an opinion piece published during the debate about the drafting of a national curriculum in Australia, Xavier Symons (2012) referenced what he saw as a sense of crisis in the nation's high schools. Some say the crisis is one of funding, he said, while others point to lack of discipline or to poorly educated teachers. Symons blamed something else: 'I see the crisis as this: teachers have got caught up with nebulous education theories and are focusing too much on student-centred learning and IT literacy. Meanwhile, students are crying out for direction and guidance. They want teachers to answer questions, not just ask them. Too little time is spent on teaching, and too much on fruitless discussions and fiddling around with technology … Traditional teaching in which teachers provide a succinct overview of topics is an endangered species.' This is just one example of the ongoing flow of comment and opinion on the puzzle of education today: how to do it?

In the puzzling over this question, whether digital technology is to the fore or not in any particular contribution, it is inescapably part of the complex terrain of argument over education, full of claims about the limitations of current arrangements and about the promise of various education technologies. The rhetorics and rationalities used by those who make these claims are part of the contemporary shaping of education, and it is instructive to sketch these in through some indicative instances. In each instance the possibility and value of a more individualized or personalized approach to education is addressed, coupled with the aim to convince audiences of the particular affordances of digital communication technologies for achieving this. These claims are made by people with substantial investments in creating a relationship between digital communication technologies and the classroom, that is, in proposing the former as a solution to the particular needs of the individual student.

Describing the claims begins to make clear what we are being persuaded to think about, and to think with.[21]

Let's begin with an illustrated folio, published in 2006 by the architectural firm Woods Bagot.[22] Titled *Education Futures: Public#2*, the folio includes a collection of short articles describing a broad rationale for new learning environments. In one contribution, Ken Fisher (architect/academic) writes that while students still wanted to be part of a face-to-face on-campus community (then, in 2006, just 2 years into the popularization of Web 2.0), there was an increasing virtual element to this, and a need to form a 'seamless educational delivery platform which ranges from fully online to fully face-to-face' (2006, p. 15). The problem he posed is that 'the physical learning environment is still predominantly stuck in the industrial age egg-crate model, with classrooms, laboratories and lecture halls dominating the campus learning environment' (p. 15).

Fisher tells us that, concurrently, universities were refiguring what graduates needed to know at the end of their degrees, that this refiguring included a reassessment of teaching practices, and that the newly articulated competencies could not be achieved in traditional classroom environments. His article includes a figure titled 'Graduate competencies and student centred learning' (2006, p. 15), with two columns displaying diametrically opposed models of pedagogy, presenting an explicit contrast between 'teacher centered' and 'learner centered' pedagogies. The former is labelled 'Content focused' whereas the latter is 'Process focused – learn to learn'; the former incorporates 'Rote learning' as against the latter's 'Ability to communicate'; the former uses 'Rigid timetables and supervision' while the latter allows one to be 'Self organized/self-directed'.

In the same vein, images published in the folio between the contents page and the first article "prep" the reader, leaving them in no doubt about the epochal shift signaled here, between the historical and the aspirational: we see on one page an early twentieth-century schoolroom (a black and white photograph of desks all lined up, chalkboard in the background), and on the next a colour photograph of a young man sitting outside, alone but somewhere in the city, smiling, focused intently on his laptop. The words 'past' and 'present' caption the respective images. There's a less than subtle epochalist rhetoric employed here, a persuasion to agree to move in the direction of 'the future' (du Gay 2004), where that future involves digitally networked and spatially reconfigured teaching and learning spaces.

Two further examples cement the point about the promise of digital communication technology in securing a desired educational future. First is a speech given by Rupert Murdoch in 2011, in which he described the current organization of schools as a barrier to realizing the promise of digital technology. Claiming that current schools were designed for the nineteenth century, the challenge is to 'bring classrooms into the 21st century'; you don't get change 'by plugging in computers to schools designed for the industrial age. You get it by deploying technology that re\-writes the rules of the game by centering learning around the learner.' According to Murdoch, student prospects have been frustrated by a 'top-down, one-size-fits-all approach,' and likewise teachers 'stunted' because they are 'treated like interchangeable cogs' (2011). There's an implicit anti-state rhetoric here, an antagonism toward the State's administration of education, and digital technology provides a ready solution: the 'human toll of complacency' associated with the state might be addressed through new technologies which, Murdoch suggests, can help 'bring topics alive,' with video clips, real industry voices, gamification, and assessment tools with instant feedback. Finally, there's an echo here of anti-teacher sentiments widely used to critique the regimen associated with formal education. 'Is there any doubt that most students would learn more about this principle from this kind of lesson than from reading almost any chapter in their textbooks? … Is there any question that the results would be far superior to what we do now: wait for the teacher to give a test, grade it, and return it to the student?' We'll come back to Murdoch again, shortly.

Just a few months later, entrepreneur educationalist Joel Rose[23] published an article in *The Atlantic* echoing Murdoch's views. Rose claimed we are still stuck in what he calls 'factory model' schooling, where 'groups of about 28 students of roughly the same age are taught by one teacher, usually in an 800-square-foot room' (2012). That model, he says, was the dominant archetype for most of the twentieth century—because it fulfilled the particular social and economic needs of an industrialized economy—but people started to question it from the 1980s. There was the promise of a revolution then, he says, thanks to personal computing, but the implementation has fallen short of the mark, and most of the tools we've adopted in classrooms since then have just been 'grafted on': they 'continue to be used within a school structure that is virtually unchanged since the mid-nineteenth century …

Factories weren't designed to support personalization. Neither were schools … [and] we continue to assume the factory-model classroom and its rigid bell schedules, credit requirements, age-based grade levels, and physical specifications when we talk about school reform' (2012). As well as Rose's elaboration of the value-laden division between a stultifying past and a just-out-of-reach future, what is notable is his orienting assumption, presented almost in passing, that what is desirable and required is the personalization of education.

How did these men propose that such reform, the drive to refocus efforts around the needs and qualities of the student, should proceed? When Murdoch gave his 2011 speech News Corporation was aspiring 'to become a leading provider of educational materials within five years, aiming for about 10% of total revenue to come from this source' (Simons 2011). And so it is not surprising he used the moment to also advocate for common standards and a competitive market—things, he said, which would allow schools to 'deliver a first-class education to any child, from any background, in any classroom in America.' Spending more on devices and less on textbooks, investing in individualized online instruction, and accepting common curriculum standards would lead to higher performance with lower labor costs:

> I don't pretend to be an expert on academic standards. But as a business leader, I do know something about how common standards unlock investment and unleash innovation. With standards in place, investors are willing to take bigger risks because there are bigger rewards … Now, it's true that setting standards will help News Corporation as we try to figure out what programs our schools need. I must note, however, that common standards will give every one of my competitors the exact same advantage. And that's how it should be in a free and competitive market. (2011)

The logic of "unlocking investment" and "unleashing innovation" here is that standards—which have been enormously controversial in their development in many countries (Graham 2013)—and the standardization entailed ensures a bigger market for service by opening the door to more schools wanting to take on the same high stakes teaching and testing, and in turn allows fatter margins to accrue to bigger developers spending correspondingly fewer dollars per unit. And in the same breath Murdoch wheels in a further anti-state rhetoric: we need a little less regulation to allow for the development of a competitive market (an

indisputable good in the contemporary context); in other words, here is a business model that will both work in the marketplace, *and* solve managerial dilemmas about labor costs, *and* resolve pedagogic questions about student performance.

Joel Rose also proposed a business case, in a revealing 2011 presentation to managers and teachers at Avenues: The World School (a high-priced private school just then setting up in New York City). He spoke to senior managers and teachers about his School of One model, a mathematics instruction system that uses digital technology to deliver individualized, daily-adjusted student curricula, which students access via an online portal. Despite being used in just a small number of schools in New York City, *Time* nevertheless described School of One as 'a leading example' of a growing number of innovative 'blended' learning initiatives 'that combine online content with live teaching … content is provided online from more than 50 different sources. That enables customized programming for each student based on their ability and needs' (Rotherham 2011).

Rose's presentation was clearly produced for the purpose of publicizing his One School concept to a wider audience, but it also reads as a pitch to this particular business community. And it is here that he makes clear the kind of algorithmic calculations about students and learning curricula that he has been experimenting with. He first differentiates between what he calls the existing 'live teacher-led model' of classroom instruction, and the different 'modalities' of teaching he has incorporated in his School of One concept. Of the former he says: 'the bottle neck is the teacher. She can't possibly figure out, day in day out, how to match up what each student needs with the content that would be available' (Avenues: World School 2011). Using a bar graph as a prop he then offers a case example of a teacher, operating on this traditional model, confronted with diverse student needs and abilities and overwhelmed by lack of time:

> The bars represent the incoming score, the red line reflects the outgoing score. If the red line touches the top of the bar, like it does right there [pointing to the top of one column in a bar graph], it means that [that] one student made exactly one year's worth of growth. This is what a great teacher can deliver, and *it's nowhere near enough.*' (2011, emphasis added)

His model, on the other hand, offers the potential to mix this 'live teacher-led' instruction with group work, and with online instruction

that is personalized on the basis of an algorithmic knowledge of each and every student's academic level, and their preferences for different learning modes. He says, 'our algorithm takes all the data about each student, all the data about all the content, and creates a unique schedule for each teacher and each student each day' (2011). A key objective is to make better use of time; there is no point teaching a child something they already know, or something they are not ready to learn, or something that does not resonate with them: 'the amount of hours we waste in school day, day in and day out, is astonishing. This took time out of the equation' (2011).

Rose asserts that his system also takes power out of the relationship between student and teacher. The traditional classroom, which he says is based on power, is one where the teacher says 'sit down take out your books, go here go there, stop talking.' In that context, the model starts immediately with 'I am here, you're there.' In his School of One, however, 'they look at the monitor, and *that* is driving the organization, the teacher becomes a scarce commodity. The kid is working, [and saying] "can you please help me? I'm learning this, I want to learn this to get my points to move on." And so the dynamic between adults and child changes. Most teachers love it, some don't. Some miss their stage, you know they miss their four walls. I mean we are taking some control away from individual teachers, and that is the trade-off: it's an easier job and it's a more professional job, but it's not the same job' (2011).

So far we have considered claims made during a short period that crosses the release and refinement of the smartphone, and a whole series of experiments and changes in the "wiring up" of the classroom. What have we seen since then? How have governing projects sought to refine and embed digital devices and student centred thinking into the classroom? In 2015 Kath Murdoch (an educational consultant, teacher and author, best known as a promoter of inquiry-based learning, and who we presume is no relation to Rupert) published a collection of short videos to YouTube to promote her new book, *The Power of Inquiry*. She names some key elements of what for many teachers is the now familiar pedagogic approach of inquiry-based learning, which she calls a 'way of being, as a teacher,' and 'a disposition' that can be used across the curriculum. She describes her book as being about 'communication, self-management, and thinking and collaboration and research; these twenty-first century skills and dispositions, like curiosity and risk taking and persistence' (Murdoch 2015a).

To understand inquiry-based learning from Murdoch's perspective is to understand some abiding concerns in contemporary education systems. 'Inquiry is something we all do everyday. It's how people learn. We're born curious [and] we need that curiosity in order to survive, in order to make meaning.' Her emphasis on the foundational nature of inquiry occupies a paradoxical position: it is simultaneously where all learning naturally starts, but where it also needs intervention to enable it or at least, needs a clearing away of institutional obstacles. The removal of obstacles seemingly calls for a champion like Murdoch: 'when you've got no voice, and no agency in your own learning, that diminishes your curiosity … there's no real purpose; learners need purpose, we need a reason, we need problems to solve, we need questions of our own that we want to answer' (Murdoch 2015b).

In all these comments so far we hear echoes of the liberatory rhetoric of the 1970s 'deschooling' movement (Illich 1971),[24] of the calls made then to democratize—or at least liberalize—the classroom, and to release it from institutionalized modes of governing by rejecting rote learning and experimenting with "discovery" and "experiential" learning. In each instance sketched so far there's a promise of some kind of liberation: from apparently dreary and boring teacher-centred pedagogies, from the prospect of economic stagnation, from a waste of time, from restrictions on movement placed on students by timetables and formal learning spaces—in short, from power that's suggested to be autocratic and indifferent.

In Kath Murdoch, specifically, we see this in the way she speaks about the student as an individual whose capacities for learning are presumed pre-social, and to require for their full development a liberation from the shackles of a teacher-defined curriculum and rote learning. There's an implicit appeal to a democratization of the education space, an empowerment of the student, of their agency in being able to formulate and ask "their own questions." And there's something about how the digital imposes a new obligation: this is a book, she says in one of the videos, 'that I think shows now the important shift we all acknowledge that has to happen around building kids' skills and dispositions in an age where information is so readily available. Inquiry needs to be about inquiring into how we go about learning and what it means to be a powerful learner' (Murdoch 2015a).

While we see a foregrounding of the need for more technology in the earlier claims (by Rupert Murdoch and Joel Rose), here, Kath Murdoch,

in 2015, inhabits a period where the role of digital networks has been embedded and can be taken for granted: we simply hear that students operate now in learning environments where 'information is so readily available' (2015a). Her claims about learning, and indeed the very vehicle of their delivery—a personal YouTube channel—take for granted that learning environments are information rich because they are digitally networked.

Finally, we come full circle, back to Woods Bagot, a more recent publication on thought leadership titled *Education Sector Futures Report* (2017). This is a collection of short descriptive summaries of the features and affordances of flipped classrooms, entrepreneurship in higher education, the "sticky campus," and designing requirements for "agile academics." The rhetoric here indicates again—through the architect's interest in space, in the desirability of unhooking temporal and spatial circumstances—the achievement of a 24/7 student-centered classroom as a norm, and the bedding down of a business vocabulary for speaking about the circumstances of school and university. In this digitally produced and distributed folio, we see striking images of shiny modern buildings, with a mix of open plan spaces. We read a long list of the now familiar activities of twenty-first century vocationally oriented classrooms: innovation, blended learning, active learning, interactive learning, collaboration, flexibility, choice, informal learning spaces; these are all situated in and between new 'social learning spaces' which enable students to 'synergistically move from informal to formal spaces and back to informal spaces, meaning that engagement can continue beyond the constraints of access to timetabled spaces' (p. 46). We read about students with 'curiosity and confidence' (p. 32), working across 'new generation learning environments' (p. 33), which are situated in 'innovation hubs, incubators, makerspaces, enterprise centres and accelerator hubs' (p. 40). The 'curious and confident' students who find themselves here, able to practice the forms of inquiry and authentic learning that Murdoch idealizes, 'can come together to develop ideas, [creating] services and products that can be tested and taken to the market … the intention is that very few barriers will prevent people from coming together to develop new ideas' (p. 40). We read that 'places where students can linger longer on campus will contribute to an engaging and meaningful student experience: a sticky campus' (p. 46), which is assuredly a connected campus, and we read about the value placed now on 'the student experience,' which is promoted by—among other things—blurred boundaries

between socializing and learning: 'They like to study with and alongside peers, oscillating between focused learning activities balanced with having fun and relaxing. Therefore, social spaces are designed as "third spaces" – places in between the concept of formal and informal learning in which learning can still occur' (p. 46).

What can we conclude? The claims sketched here speak—variously—about new learning spaces, networks and devices, markets, standards, testing, data, and algorithms. As we have seen, their proponents rely on the juxtaposition of "then" with the possibilities of "the future," where "then" is the industrialized models of the past (the egg-crate, the interchangeable cogs, the factory), and "the future" is vividly imagined—in ways that seek to steer populations of teachers, managers, and students to a range of solutions for the current sense of "disruption." This disruption is registered in repeated and widely circulated commentaries on education as a failing project (failing students, failing the needs of business, in some countries failing the nation in comparative league tables of student capabilities). Such commentary is both saturated with insecurity but also pregnant with the possibility that current arrangements be "re-imagined," as Rose puts it, through a process of "reform" that's unquestioned as a common sense "good."

In this way, this object of public worry—the digitally networked classroom—is being progressively colonized by edu-businesses (Hogan 2012; Lingard et al. 2017; Gavrielatos 2017), by entrepreneurs and venture capitalists such as Murdoch and Rose, setting up and operating a plethora of embedded for-profit companies, and it is steered by converted policy makers who in turn have been persuaded by consultants and architects such as Kath Murdoch and Woods Bagot, who operate across an international policy network (Ball 2016; Lingard et al. 2017) in ways that play to multiple insecurities. They offer a variety of off-the-shelf ways of thinking and speaking, and practical applications: to governments and senior executives, worried about rising labor and infrastructure costs, scrambling to define and meet new quality and curriculum standards, seeking to protect the safety of learners/users and the integrity of their data networks, and striving to climb up their respective league tables; to educators, looking to consolidate their individual career prospects in a tightening labor market, and to equip themselves and their pupils with the digital skills everyone keeps talking about; and to parents, deeply concerned to make the right "choice" about their children's education, and their "future" in that same tightening labor market.

We are, after all, in a business-like environment. This digitalization has been happening at a particular moment in time. It is not as if it was proposed just for this particular problem, "how to focus our energies around the needs of the individual student?" The fact that News Corporation's $1 billion investment in the ed-tech industry subsequently failed in 2015 did not undercut the purchase of Murdoch's claims about standards, markets, and technology. As Deloitte tell us, we're on a journey to education's 'digital transformation' (2015), and although the current configuration of bodies and things as it is now—personalized, and increasingly commercialized—might not have been inevitable, the pressure to convert has been overwhelming. That Deloitte report concludes that 'Government's digital era is progressing at a relentless pace' (2015, p. 29). It offers suggestions on 'how the most ambitious public bodies can accelerate their rate of progress,' and presents a series of claims about how education (amongst a range of public services) should be managed in line with a set of standard business principles and objectives—including a flexible and adaptable workforce, with an armory of 'necessary digital-age skills'—and in this context the digitalization of the classroom, and of all the systems surrounding and supporting it, presents a lever via which this can be achieved: 'A tech-savvy workforce is integral to any organization's digital transformation strategy. It isn't limited to technical skills – it includes skills such as business acumen, willingness to work collaboratively, and an entrepreneurial streak' (2015, p. 15).

Bound up with all this rhetoric of transformation we can see the same 'two-fold process' (Henman 2007, p. 176) of governing, which we registered in our discussion of knowledge work in the first part of this chapter. The couplet of individualization and aggregation, of "each and all." We see it in a proliferation of projects that seek to shape self-managing individuals and at the same time capture and exploit traces of whole populations. Those individuals are formed and yoked to a range of corporatized financialized imperatives—for example, of increased revenue and reputation management—via a range of performance systems (Henman and Gable 2015), and through a variety of reflexive media, that communicate persuasive arguments about how individuals can and should act. Teachers looking online for solutions to complex and overwhelming workflows can read the "tips and tricks" incitements of "online champions," or they can visit a host of proprietary sites such as Edutopia, or search for material on Pinterest. University teachers, struggling with the demand to become 'teacher researchers,'[25] to produce more—and more

"impactful"—research can read a host of publications describing how to be a productive writer, such as Paul Silvia's *How to Write a Lot* (2007), with its proposal to monitor your output each and every day, and instructions on how to enumerate that output in spreadsheets and histograms (pp. 39–45). These incitements circulate around organizational/institutional intranets, calling on teachers to be, in effect, new kinds of people.

We see the governing of these populations in the manner in which teachers and students are drafted to participate in a host of new data analytics and classroom management systems, which provide their principals and manager with insights into classroom practices and relations that previously were not visible from their remote vantage point. The numbers derived promise new opportunities to activate spaces previously beyond control, spaces of professional trust and personal discretion. The numerical and other traces of everyday routines, patterns of access, ways of speaking, thinking and acting, can now be gathered, collated, formulated, and then used to govern in new ways. Indeed the governing happens all along the chain—it is not just the numbers at the end, and their application, that are of consequence. The tablets used in the News Corporation project may have failed on multiple fronts (Colby describes how their screens cracked easily, how they often overheated, or would not always connect to wireless networks), yet they allowed new kinds of control: 'Teachers said they liked how the devices can be used to call on kids randomly, eliminating the need for shy students to raise their hands. The tap of a teacher's screen can freeze all students' tablets with the message: "Eyes on Teacher!"'; they also enabled new lines of sight, into spaces not previously open: 'It shows me what each kid is working on, and allows me to identify what apps they are working on' (Colby 2015).

The shift in relations of knowledge and power in these new classrooms cannot be separated from the business-led rationalities and rhetorics that have dominated the late twentieth–early twenty-first century. These rationalities and rhetorics enable all manner of actors to make sense of—to see the sense in—a raft of techniques for producing more efficient outcomes, techniques that act not only on structural conditions but on the very makeup of teachers and students. And folded into this dimension is the project to personalize education, which is simultaneously a set of data collection exercises and also the inheritor of quite different pedagogic rationalities—concerned with the authentic learner, peer teaching, open and democratic classroom practices—with a much longer pedigree than

the shiny new networks to which they are now coupled. Where should we look for the governing here? All around, but look in particular to the manner in which teachers are yoked to an increasingly commercialized set of objectives, where managers and educationalists are persuaded they are the route to optimally performing classrooms and to delivering skilled and schooled graduates to market. And look to the manner in which students are now positioned as the epicentre of digitally enabled efforts to know them, and to cater to their "authentic learning propensity" and their "natural curiosity."

Every Living Moment: Health, Bodies, and Minds

It is not a great step from work and education to health, from considering populations as the object of efforts and technologies to make them productive resources for knowledge economies, to seeing how they are the object of efforts to make them healthy bodies and minds. These efforts, how they are currently organized, and how in this century they are utilizing the powers of digital communication technologies, and especially their quality of mobility, is what occupies us in this relatively brief final section. Its brevity bears no relation to the importance of the domain of health, but reflects the fact that we have already set out an argument about the mobile privatization of social relations, as well as noted some of the features of digital communication technology that enable ubiquitous tracking and assembling of knowledge concerning individuals and whole populations, at every point that they touch online networks. Both tracking and mobility are germane to the contemporary governing of healthy populations. And once again, our indicative descriptions of features of what has been called by some players in this domain the new health economy ecosystem (PwC CN 2016) lead to the conclusion that what is involved in making a healthy population entails an intensification of practices and social relations that have been in play for much longer than have digitally networked technologies. What we register here is how this intensification accompanies people's every living moment.

In European countries at least, the intersection between health and work has been in play since the eighteenth century. From that time, the health of a country's population, for economic rationales of enabling reproductivity and productivity, has been an enduring objective. 'The biological traits of a population became relevant factors for economic

management' (Foucault 1980, p. 172). Health is a governmental objective because it is secular, something to be achieved on earth; it replaces the religious aim of securing salvation for the faithful in an afterlife. This shift changed the social actors and the nature of the problems with which they wrestled. Until the end of the seventeenth century disease had been collectively dealt with as part of the problem of poverty and paupers, using municipal and charitable–religious bodies to provide assistance to the poor and alleviate their sickness, but in the eighteenth century medicine became the institution which knew and intervened in sickness, so as to preserve and conserve the labor force (Foucault 1980, p. 171).

The institution of medicine—with its practices of handling and ordering bodies (for hygiene, to avoid contagion, to facilitate discovery of their workings), its techniques and technologies for observing and documenting the biological traits of populations and for seeing into biological organs and organisms and tracing their movement (with maps of disease locales in cities, with microscopes, specula, and, later, electrograms and X-rays)—made the body of the population and the bodies of persons increasingly visible and knowable. The resulting "medical gaze" has been a central technique in governing individuals and populations, and the bearers of this gaze—physicians, all types of allied public health professionals, medical administrators—have been an historical source of authoritative knowledge about both individuals and populations. As Foucault put it, in the eighteenth-century politics of health '[t]he doctor wins a footing within the different instances of social power' (1980, p. 176), able to direct patients, families, and town planners along the courses of action which will best ensure healthy, clean, fit bodies. Alongside the development of practices and routines for individual patient care public health campaigns have focused on efforts, at different times and places, to eradicate drunkenness, improve fertility rates, constrain birth rates, warn against addiction to illegal drugs, prevent suicide, vaccinate against contagious disease, provide optimum conditions for child development, improve longevity through early detection of particular conditions, encourage the practice of healthy sex, and so on. All of this is to state the well-known point that we are highly medicalized: one of the most pervasive and formative ways in which people are governed has been through the normalization of standards of hygiene, of healthy lifestyles, of ideal body shapes and ideal behaviors, and of responsible behaviour for preventing illness.[26]

The Knowledgeable Patient

Medical knowledge and power have taken different forms at different periods. Although exercised in specific locales for treating the sick (the medical practice, the hospital, the asylum), the dominance of medicine has also historically involved the dispersion of medical knowledge, as advice or guiding precepts, to many other institutional spaces (families, schools, prisons, workplaces, sporting organizations, cinemas, broadcast educational and entertainment media). The extensity of the Internet has only added exponentially to this dispersion and multiplied the kinds of health knowledge available. From its earliest days Internet bulletin boards and online forums allowed people to share symptoms and experiences around their illness and medical treatment. In the first decade of the Web, users could consult medical dictionaries, visit government advice sites, personal and expert diagnostic sites, join online communities, and get alternative medicine advice. For those with online access it has been a source of access to medical information (anatomical images, symptomatology, progression rates of disease), in ways which have been heralded as challenging the exclusivity of medical knowledge and allowing the potential for a renegotiation of power relations between doctor and patient. Patients could draw on wider sources of information to make sense of what they were being told about themselves and their bodies by doctors. Questions might be asked of the doctor where they had not thought to have been asked previously. Different kinds of questions might be asked, requiring knowledge not previously to hand for lay people. Trust and bedside manner might no longer be enough to ensure willing compliance on the patient's part to a doctor's orders or routine acceptance of their expertise. Self-diagnosis could seem a viable option.

Renegotiating roles and relations at the medical practice or in the hospital has no doubt been uneven and fraught as well as sometimes welcomed and heralded as the future. For patients, the availability of medical information, online access to it, the will and energy to seek it out, and the decisions and ability to bring it to bear in doctor–patient exchanges have been highly variable and remain so. Nevertheless, digitally networked communication technology has been a major contributor to the rise and spread of the knowledgeable patient (Lupton 2013, p. 3). This figure—or at least that of the informed patient—had in the past been the objective of public health campaigns by health authorities seeking self-reporting of symptoms of conditions such as heart disease, STDs,

and skin cancers. With the Internet the formation of the knowledgeable patient was given a do-it-yourself ethos and occasion (Lewis 2006). In the longer view, the Internet as a locale and conduit for medical knowledge fits within the context of a wider shift in the twentieth century, signaled by the rise of health promotion as a public health focus in the 1980s (WHO 2009), to a 'more individualized health culture' (Parr 2002, p. 77), with the responsibility—not just the inclination—shifted onto individuals to make use of health and medical information to prevent falling ill or becoming unfit.

Two decades later, digital communication technology is implicated in a massively expanded focus on individuals as self-responsible health consumers, driven by knowledge of bodies and body type, of a multitude of health conditions, risks, goals, and treatments, of their own health metrics and profiles. This expanding field of information, attention, and practice includes the now more than 100,000 mobile digital apps (Lupton and Jutel 2015) and the many websites and platforms available for individuals to adopt health and fitness regimes and to observe, monitor, and manage their efforts and the results on their bodies, image, moods, and lives. Popular sites such as myfitnesspal.com, dailyburn, and ibodyfit, for example, help individuals focus on weight loss and fitness, guided by norms of aesthetically visualized and narrativized male and female bodies intersecting with (much contested) medical norms about obesity and healthy weight range. As for individuals taking charge of all these efforts, communication of a responsibility for self healthcare comes not only from household trainings or encountering illness, but increasingly from workplaces where employees are made aware of the need to get more sleep to enhance their productivity, drink less for reasons of occupational health and safety, manage their cognitive capacity to handle data clutter; and from insurance companies offering discounts to customers who optimize their health with approved exercise regimes.

So far we have indexed just a little of the longer history of the current health environment and how, into this now familiar responsibilizing of individuals, digital technology has proliferated and been taken up in a third wave of digital health.[27] Against this background, we note just a few recent instances of how this digital remake of health has been envisaged and, to the extent that these visions have been persuasive, how it has reprogrammed the relations and practices involved in "being healthy." These recent examples are telling in their focus. In particular,

they highlight the way mobility, coupled with tracking for health objectives, has become central to twenty-first century healthcare.

Personalization

The first example is an interview with the president of a marketing agency for pharmaceutical and healthcare companies. Digitas Health LifeBrands is 'a creative agency purpose-built to connect health and wellness brands with people's deep desire to make healthy, confident choices for themselves and for their loved ones' (Publicis Health 2017). In 2013, the company's President and global creative officer gave a short interview in which she presented her philosophical position on how mobile is, in effect, changing her company, then simply called Digitas Health, from being in the business of helping to sell products to now finding its purpose in providing services. "Mobile" is identified as the transformative element, and although the phenomenon of m-health is now mundanely embedded into many people's lives through their use of mobile digital apps for tracking steps walked or insulin levels or consulting symptom checkers (Lupton 2012),[28] the interview captures this expanding field just at the point where its advocates see it still worth remarking on and promoting. The creative officer, Alexandra Von Plato, sketches the transformation in the following terms.

> [M]oving the customer to the centre of brand strategy … is really what we believe digital represents in today's marketplace … the opportunity around mobile is really an opportunity to engage with our customers in a much more meaningful, much more personal way than we ever have before … to move from an industry that focuses on selling … beakers and benefits … to really developing services that … by combining the actual pills and medications with information, support and personal connection that mobile really represents … really support[s] patients and physicians and help[s] them make better more confident decisions … But we're still looking at mobile as a channel for advertising if you will, as a channel for promotion … and in fact what we see if we really watch the way people use mobile technology to conduct their lives it's not about disrupting that journey that process that they use mobile to support, it's about being part of it, it's about weaving into the fabric of it, so one of the challenges is to kinda get out of our own way and stop thinking about it as a channel for advertising and promotion and start thinking it as a way to be part of the decision, support and the healthy decisions and the choices and the everyday fabric

> of somebody's life when it comes to managing their health and wellbeing. (PMLiVE 2013)

This account of personalization in marketing may well read now as unremarkable. Health technology companies like Philips promote personalized health programs made possible through connected health devices and lifestyle wearables (such as ingestible digital health feedback systems) as the basis of 'future health' and 'connected care' (Coleman 2016). In 2013, however, the healthcare industry was still articulating to itself the transformation enabled by "mobile." In so doing, von Plato gives us an enlightening image of pharmaceutical companies, healthcare organizations, and their marketing experts 'weaving into the fabric' of people's lives, into the 'everyday fabric' of how 'people use mobile technology to conduct their lives.' What has crystallized, in the journey from Digitas Health to Digitas Health LifeBrands, is the image the agency has of itself as connecting health brands to people's 'deep desire,' which explains the company's slogan of 'Helping not Selling,' reflecting its self-understanding of the shift from advertising to connected conversations. Although the company is in the specific business of health marketing, Digitas Health's rhetoric is of a piece with the reshaped understandings of doctor–patient relations in this second decade of web-facilitated healthcare. Developments—or projects—such as Health 2.0, or Doctors 2.0,[29] borrow extensively from the rhetoric of digitally enabled co-creation around social media, imparting the promise of empowerment to patients and the democratization of medicine.

To further emphasize one aspect of our example, desire is a trope that crops up across the Digitas Health site: the home page has 'Helping not Selling' inscribed across a prettily tattooed, rosy, heart-on-fire, placed in close-up on an image of an aesthetically pleasing upper arm. Similar to 'passion data' harvested from people's bucket lists (Kitney 2016), the notion of desire suggests an intimate closeness to the truths of people's lives. It might be tempting to see the rhetoric of 'connected conversations replacing advertising' as simply masking the real financial motivation of Digitas Health, but that proposition also shows us business operating at the level of life, in the sense of life as an individual's most intimate stratum of being. Advertising and desire, of course, have a long, pre-digital history: its digital continuation replays the old dream of communication allowing us to achieve personal connection (Durham Peters 1999), although perhaps more claustrophobically or relentlessly in

a mobile world where the opportunities for communication ever more rarely leave us.

A more elaborated view of personalization as placing individuals at the centre of technologically enabled healthcare is provided by PricewaterhouseCooper China's promotional video 'An Integrated life' (PwC CN 2016). It is a shiny statement of a project for shaping the future health of populations ('What if new technologies could simulate future health outcomes of entire populations … ?'), improving the training of doctors ('helping doctors to recommend treatments that better fit their patients individual profiles'), making a more efficient industry ('with innovative new blockchain technologies encouraging … guaranteed authenticity, and instant payment across the entire supply chain wherever you are'), and placing individual bodies as nodes in digital networks ('What if our bodies were in synch with our devices utilizing real time smart data to help us and others more easily and simply manage our health … ?') (PwC CN 2016). Through the intersection of genome sequencing technology, tailored medications, digital wearables that monitor both an individual's symptoms and their compliance with treatments and optimum lifestyle regimens, we are empowered 'to enhance our lives, to never miss a dose and never be caught off guard' (PwC CN 2016). A continual watchfulness over potential risks and present function is ensured. The life that is integrated into multiple health industry sectors is our responsibility to manage—not simply live—and in close relation to multiple sources and practitioners of health knowledge: health scientists, primary care professionals, pharmaceutical companies, health technology providers, health care marketers and insurers, with all their expertise in how to manage life states such as fertility, anxiety, obesity, mental decline, and aging. Although we spoke earlier of these relations as relations of power, Sloterdijk reminds us these are not to be mistaken for a simple domination, because in acting to manage our health we take up the position of clients, 'sharing in a foreign competence:' 'If I go to see my doctor, I usually also welcome the unpleasant examinations which his specialized competence enables him to grant me; I subject myself to invasive treatments as if I were ultimately performing them on myself' (2013, p. 376).

We do not have to adopt the skeptical libertarianism of Skrabanek's early warnings about the exploitation of health (1994) to note how all this management work required of individuals is governed by the norms of healthism ('privileging good health above other priorities')

(Lupton 2014, p. 709).[30] Approaching individuals as in part routinely governed through their encountering and acting in relation to norms of some kind or other, it is harder to imagine, as Skrabanek does, a 'personal yearning' to pursue health as something historically separate from various authorities and the norms they endorse (1994, p. 15). Nevertheless, there is space to consider the kinds of authorities and norms involved. With the current growth of both employer interest in and insurer incentives for wellness, dominant norms—such as athletic body type, ableness, and emotional resilience—can be difficult to achieve for some people if they are translated into hiring or insurance preferences.

It is also interesting to consider the kind of empowerment envisaged in these contemporary projects to make healthy individuals and populations and compare it to another contribution to shifting power relations, some 40 years ago.

> In the beginning we called ourselves 'the doctors group.' We had all experienced similar feelings of frustration and anger towards specific doctors and the medical maze in general, and initially we wanted to do something about those doctors who were condescending, paternalistic, judgmental and noninformative. As we talked and shared our experiences with one another, we realized just how much we had to learn about our bodies. (Boston Women's Health Book Collective 1973)

These words are from the Preface to *Our Bodies, Ourselves*,[31] written in the early 1970s by 12 women who met at a women's movement conference and went on to form the Boston Women's Health Book Collective. The book was an underground success—first mimeographed papers on stapled newsprint,[32] then papers printed and bound together in an inexpensive edition by New England Free Press, a publishing collective providing low-cost services to movement organizations—before being commercially published, all told selling millions of copies since 1971. The Preface tells of the group of women putting together a course for women on female sexuality and fertility by learning first from professional sources ('textbooks, medical journals, doctors, nurses') but learning 'still more' from sharing personal experiences: 'Once we had learned what the "experts" had to tell us, we found that we still had a lot to teach and learn from one another.' What strikes us here is the explicit prompt of and challenge to the experienced relations of power and knowledge endemic within the institution of medicine, the collective

approach entailed in the women's mounting this challenge, and the by-now strikingly low-tech method undertaken to spread what could be seen as a project by women to govern their own reproductive health. We offer it not as a retreat from present realities and advances in ease of access to medical information but as a contrast to the contemporary sense of empowerment being something delivered by digital technology and, primarily, delivered to people as individual health consumers.[33]

The Boston Women's Health Book Collective's account of learning by sharing personal experiences also contrasts with the activity of lay persons in today's digitally connected 'health universe' sharing their experiences of their medical condition (Silber 2016). On patient network platforms such as PatientsLikeMe, for instance, patients share stories and donate data about their condition in ways that clearly prioritize the individual, as is made clear in PatientsLikeMe's explanatory video, 'Data for Good:'[34] 'The dream is to take your experience and turn it into something that gives you a real voice to make the system about you, the patient.' This self-centering message from the CEO overshadows the one patient who is featured saying 'we can do much better fighting the disease as a group than we can as individuals.' Although the featured patient seems to echo the collective experience of the Boston Women, the digital platform places people (as patients, already designated medically) in a 'digital patient experience economy' where they are treated as individual consumers and where, to different degrees according to the various websites, their health data is commodified (Lupton 2013, p. 2). Information about patient symptoms, responses to treatments, demography, and medical histories is of rapidly increasing value in a booming health economy. As in other areas of digitally governed existence, individuals and populations are not only being persuaded or pushed to work more intensely on various aspects of themselves, but, by doing so, are engaging in a shadow work that produces valuable data in which others are interested.[35] E-health records for more efficient, connected healthcare, is one way such data are amassed. Self-tracking through mobile health apps, either where these are wittingly and willingly connected to networks or where data are covertly harvested, is another. This kind of information about individuals' health is valorized as produced-by-doing, rather than self-reporting, subjects and is therefore counted as more accurate than previous patient disclosure. Gathered through the use of mobile digital devices, it has the quality of real-time documenting of bodily states and treatment compliance.

The imperative to work on oneself has a long history. The domain of digitally enabled health is one more place where it operates. An ethic of health and practices of self-examination may today be made visible in fitness bands, and bind people with the institution of medicine, with health technology corporations, with health marketers in a networked health economy that is rapidly expanding. Earlier practices of self-examination such as the Society of Jesus' *Spiritual Exercises*, used to work on the state of one's soul as described in Chapter 2, bound the exercitant with the church. Sloterdijk suggests an empirically varied but historically persistent subjectivity underpins both sets of practices. It is 'a form of enclave subjectivity in which [humans] are primarily and constantly concerned with themselves and their inner conditions' (2013, p. 228). This concept seems as aptly descriptive of the users of mobile health apps as members of the faithful practicing their books. Sloterdijk's observation connects at least one dimension of mobile privatization—the social relations we have noted as part of the contemporary governing of populations toward objectives of productivity, education, and health—to the longer history of a disposition of separating self-concern.[36] The mobility of the medical gaze, the knowledge apparatus with which people monitor themselves and with which they are monitored, intensifies the disposition toward and continuous exercise of self-concern as health norms, devices, and regimes are increasingly networked throughout the occasions of daily life.

This chapter has examined the incorporation of digitally networked technologies into a range of projects for governing institutional and organizational populations, in workplaces, schools and universities, hospitals and clinics. The personalization and privatization that have increasingly styled social relations in contemporary environments have been traced through a variety of examples, the purpose being to grasp these as positive efforts to bring such social relations into existence. In the next chapter we conclude our consideration of how populations are governed by addressing the claims about democratization that have routinely accompanied digital communication technologies. We do this by gathering up several threads from this and previous chapters that pertain to the government of populations, and to the rhetorics and rationalities used to speak about, make sense of, and act upon present democratic entanglements, to conclude our argument about the need to pay close attention to communication, in all its myriad and mundane forms, in any assessment of the prospects for democracy, right now.

Notes

1. The crux being how the characters react to their cheese being moved. See Frank (2001, pp. 249–251) for more detail and a corruscating assessment: his view of the New Economy of which such management techniques are a part is that its 'business revolution' has visited 'extreme capitalism' and the 'end of economic democracy' on American workers and society.
2. Wikipedia records *Who Moved My Cheese?* as still one of the best-selling business books, with sales of more than 26 million copies worldwide in 37 languages. Who Moved My Cheese Inc. was formed to meet the demand.
3. Dell's IdeaStorm launched in 2007. Such techniques are in some ways an electronic version of the focus groups used in the 1940s and 1950s, when businesses drew on the human relation expertise of places like the Tavistock Institute (in the UK) to problematize relations between customers and products like Toblerone, ice cream, toilet paper, and Guinness, and devise strategies—based in part on what they learnt from the consumer—to mobilize these consumers to increase the occasions for purchasing them (Miller and Rose 2008, pp. 115–141). The reach of the Internet and crowdsourcing techniques brings consumers much more routinely inside companies' knowledge-range.
4. All quotations from the Netflix PowerPoint available at https://www.slideshare.net/reed2001/culture-1798664.
5. It has changed—but not in ways adequately described by the twenty-first century vernacular of "social"-cum-social media. To grasp the changes would be to heed Savage et al. (2010, p. 11) and their detailing of how 'humanist conceptions of society are being eclipsed': 'the social is rather about *heterogeneous association* rather than societies and people. It is about factors, impulses, risk profiles, and circuits.'
6. As Thomas pointed out early this century, 'The Net does not mean that public citizens will all become private users' (2000, p. 1559).
7. By 'extensity' they mean 'the number of addresses and destinations that are possible for acting through the Internet.' The number is 'staggering. So, too are the boundaries, borders, and jurisdictions that an act can traverse' (Isin and Ruppert 2015, p. 43).
8. See, for example, www.slow-journalism.com with its *Delayed Gratification* magazine; www.slowmovement.com with its championing of local economic structures; www.sloweducation.co.uk for deep and purposeful learning rather than learning that is heavily tested for qualifications; www.slowmoney.org for patient capital, social finance, local farming initiatives and investment.

9. Defined by the German Trade Union Confederation (n.d.) as 'a set of rights that give employees the possibility to actively participate in shaping their working environment.' http://en.dgb.de/fields-of-work/german-codetermination.
10. See also Crawford's (2011, 2015) challenge to knowledge work and higher education as the only, or optimal, path to work and life success and to a self-directing individuality. He argues the value of manual competence and trade schools.
11. Data is all the facts that an entity or person can potentially yield and capta, 'units of data that have been selected and harvested from the sum of all potential data' (such as censuses, health records, and criminal records). Capta is thus partial, a result of the selection and the tools used for harvesting (2005, p. 854).
12. See Lupton (2015) for an account of 'Academic Metric Assemblages and Audit Culture.'
13. For example, in Atlanta, the company Choicepoint amasses identity data in 'court rulings, tax and real estate transactions, births and death notices' from files that have existed for centuries, and sells these data to individuals, other companies, and states (Baker 2008, p. 75).
14. Despite the rhetoric of representational accuracy, the data remain selective, an artifact. Hence Henman and Dean's point that 'embedding standardization within computer databases' reduces 'informational complexity,' as well as 'discretionary judgement' about the appropriateness of classifications and criteria (2010, p. 85). One size does not, actually, fit all.
15. For discussion of different views of the sharing economy and for effects on the future of work, see Sundararajan (2016, pp. 23–46, 159–176). For critique of the 'corporate sharing economy,' see Scholz (2016) and also Das (2018).
16. See Lobato and Thomas (2015, pp. 70–80) for a useful overview of the positions taken in the debate and of their limits.
17. Irani's (2015) political economy of data janitors also reminds us of the essential but poorly remunerated and hidden work of continually calibrating automated technology to the real world.
18. A MOOC is a Massive Open Online Course. MOOCs are discussed as disruptors of the higher education model of accrediting and offering courses.
19. Consider this promise made about the management technique, published in a Victorian Department of Education and Training document on setting performance objectives for teaching staff: 'Ensuring explicit links between the SSP, the AIP and all teacher Performance and Development Plans creates a line of sight from school improvement priorities and

initiatives to the work of each individual in the school. This ensures that each school harnesses the efforts of all of its staff towards the shared goal of school improvement, and that each person understands their role in working towards the priorities' (DET 2016, p. 4).

20. A range of other applications can be noted here, including the Progressive Achievement Tests (or PAT), which the Australian Council for Education Research (ACER), its producer, describes as: 'Constantly expanding and competitively priced … the key to turning test results into real student learning and improvement' (ACER 2017).
21. This is not meant to be an empirically precise history of the development of the digitally networked classroom but rather an indication of the kinds of claims that have been made over the past 10 years, as this relationship has been bedded down.
22. Architectural firm Woods Bagot (https://www.woodsbagot.com/) operates 17 studios across Australia, Asia, Europe, the Middle East, and the United States, specializing in—amongst other things—education projects. It describes itself as a 'people architecture company,' and has the following words as a floating banner on its website: 'Placing Users at the Centre of Every Design.'
23. Rose is CEO of New Classrooms Innovation Partners, a company that has been developing and implementing personalized learning models in a small number of US schools (Hess 2017). He previously worked as Chief Executive for Human Capital at the New York City Department of Education, where he led the creation of the School of One concept.
24. See Evans et al. (1990) for a summary of the claims made at the time about 'individual education.'
25. As in a Victorian departmental publication which describes 'teacher-researchers' as 'those practitioners who attempt to better understand their practice, and its impact on their students, by researching the relationship between teaching and learning in their world of work' (State of Victoria 2006, p. 3).
26. Lupton's comprehensive studies of the health field (1995, 2012, 2013, 2014, 2015; Lupton and Jutel 2015) provide extensive evidence for this perspective.
27. Lupton (2014) discusses the first and second waves of digital health in terms of computerized technologies for data entry, data management, and health records.
28. Although the takeup by consumers is uneven. In 2016 there were 259,000 health apps (www.digitalcommerce360.com); the increase in the rate of uptake by consumers was slowing. And in China, despite initiatives such as the launch of Alibaba spin-off Ali Health, a general lack of online health information needed for the algorithms in mobile apps is

slowing development http://www.imedicalapps.com/2017/02/china–digital–health–initiatives/.

29. A view of doctor–patient relations is given in the 'Doctors 2.0 and You' manifesto, in 85 points explicitly modeled on the 1999 Cluetrain Manifesto and its reworking of marketing as conversations. Reposted at http://www.denisesilber.com/ehealth/2016/02/manifesto.html by Denise Silber, strategic e-health consultant, as part of the aim for 'an open, connected health universe.'
30. Defining the healthism emerging in the US in the 1970s as the 'exploitation of "health" for professional, political and commercial purposes' (1994, p. 11), Czech toxicologist and medical researcher Skrabanek identified its earlier manifestation in totalitarian ideologies in Nazi Germany and Communist Russia.
31. Cited from the 1973 edition available at http://www.ourbodiesourselves.org/history/preface-to-the-1973-edition-of-our-bodies-ourselves/.
32. The original, then titled *Women and Their Bodies: A Course*, can be viewed at http://www.ourbodiesourselves.org/cms/assets/uploads/2014/04/Women-and-Their-Bodies-1970.pdf.
33. Lewis notes this individualization, even while observing access to health information on the internet being used 'not just for self-management but also for managing the health of relatives and friends' (2006, p. 536).
34. 'Data for Good', https://www.patientslikeme.com/conditions/50-diabetes-type-2.
35. For instance, the cybersecurity thinktank ICIT reports that in identity theft marketplaces 'healthcare identity information is at least ten times more valuable than financial data alone' (ICIT 2016, p. 2).
36. That is, a self-concern that separates a person from the worlds and others of which they are a part.

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CHAPTER 5

Conclusion: What Kind of Governing?

Has the digital age been a period of democratization? Early claims about digital communication technology routinely positioned it this way, a harbinger of new freedoms for everybody. As late as the 2010 Arab Spring, these claims still proliferated. What assumptions underpin this kind of claim-making? In what register can we appropriately link communication technologies and practices with politics? These questions guide this chapter, as we draw together how previous chapters have sought to recalibrate the questions we can ask about the various kinds of governing that rule our lives.

In Chapters 3 and 4 we worked through the familiar topics of online worlds and digital economies to bring into view significant features of how social relations—including relations with ourselves—have been formed and directed. We considered digital-creative economies and their particular species of person formation, as well as their dimension of standardizing workers' individuality to assist an automated management of productive labor. We noted the efforts to make people the bearers of healthy bodies and minds. We discussed how they are schooled and made literate in digital environments. Throughout, we have had in sight the digital infrastructure that promotes mobility. Our descriptions, alternately brief or detailed, were motivated by our intention to foreground the fact that our lives are governed, the complexity of what that means, and the essential although decentered role of communication practices, technologies, actors, artifacts, and relations specific to that government.

P. Dearman et al., *Media and the Government of Populations*,
Palgrave Studies in the History of the Media,
https://doi.org/10.1057/978-1-137-34773-2_5

At least to some extent this work responds to libertarian and boosterist claims about the impacts of a late twentieth century "communication revolution." But there are more developed and measured accounts of communication technologies as democratizing, and it is to these that we now turn.

Envisaging Democratization

The claim about a relationship between new communication institutions and a shift toward a more democratically formed society was raised in Chapter 2 in relation to Scannell's account of broadcasting 'as a public good that has unobtrusively contributed to the democratization of everyday life, in public and private contexts' (1989, p. 136). Scannell's account of this cultural and social democratization is made in terms of a democracy of 'ordinary people,' a 'general public' (pp. 137, 142).

Less focused on broadcasting, although not neglecting its contribution, is Keane's work on 'communicative abundance' in the late twentieth and early twenty-first century. Keane's account is less peopled with the "ordinary persons" that figure in Scannell's argument and more with citizens and activists of all kinds, 'red-blooded' journalists (2009, p. 17) and proliferating organizations bent on scrutinizing the exercise of power and the conduct of authorities in all manner of areas. His argument is that communicative abundance—the relatively wider distribution of the means of communication to a greater number and variety of people, boosted especially by widespread, if not equal nor universal, access to the Web from the 1990s, and incorporating the continuing resources of broadcast, print, and other media—has provided the possibilities of a new form of 'monitory' democracy. This new species of democracy—Keane dates it from 1945—is defined by the scrutiny and holding to account of those groups exercising power in political, commercial, State, educational, church, policing, media, sporting, and other domains. Monitory democracy does not supplant but both augments and extends, internationally and intranationally, existing institutions of representative democracy. Keane is explicit about the continuing importance of representative democracies: monitory democracy is 'more than elections, but no less' (p. 2). Monitory democracy augments the formal features of representative democracy by its basis in a 'marriage of democracy and human rights' (p. 14). The democratization entailed in monitory

democracy is thus the scrutiny of the institutions and processes of established electoral representative democracy (e.g., through independent electoral commissions or integrity commissions) and the recognition and monitoring of an expanding list of human rights (such as rights of minority culture recognition, or same-sex marriage, or safe workplaces). Keane names a host of Internet-enabled monitory mechanisms, from Wikileaks to online petitions by civil society organizations to talkaoke (local/global shows broadcast live on the Internet), which intersect with a range of post-1945 inventions (e.g., citizens' assemblies, democratic audits, constitutional safaris, participatory budgeting, deliberative polls) to bring about the greater public accountability of a host of powers.

In his scholarly accounting of the long and varied history of democracy as a principle of organization, Keane thus spotlights communication technologies, and notably the Internet, as integral to, although not sufficient for, the contemporary fortunes of democracy, which at least in the first decade of this century he saw as reaching its most complex form.[1] He sets great store on the publicness afforded by print, broadcast and—through its further amplificatory power—the Internet. This publicness is at the heart of the proliferation and efficacy of the monitory impulse. However, at the same time as emphasizing the role of public spheres—a civil society resourced through communicative abundance—he yokes this communicative dimension to an insistence on representative democracy, that is, to elections as an institutional means for decision making: he yokes them, or at least does not let his account of democracy fly loose from the practical mechanisms for making decisions. In this way, through the sense he gives to "the monitory" and his specification of the organizations involved, Keane avoids a familiar and altogether looser ascription of democracy to the Internet, while still asserting the Internet's centrality in "communicative abundance."

Clarifying "Democracy"

What is at stake in avoiding loose ascriptions of democracy is holding to an understanding of democracy as an institution or technology for doing things, rather than conflating it with populist notions of the expression or voicing of the will of "the people" or "the ordinary person."[2] This is an important distinction in any assessment of democratization. And it is a distinction that is not simple to make, because populism—democracy's political competitor—is closely entwined with it,

earning populism the description of democracy's latent 'auto-immune disease' (Alonso et al. 2011, p. 12). A populist view of democracy understands it as popular sovereignty, that is, democracy based on the doctrine of the sovereignty of "the people." In this doctrine "the people"—or some equivalent identity, such as "the public"—is the organic touchstone of government: they are held to authorize government, and this authorization provides authorities with a rightful origin for the exercise of power. In this role, the people is the repository of common sense or a natural wisdom, and, if not obstructed, will anchor government in virtue or right action. All these positive understandings of the people and their popular will are, of course, reversed by those who decry populism and populists. If these critics, sure of the fallibility or gullibility of the people or the everyday person, remain wedded to these virtual entities then their critical analyses will employ a populist compass rather than be analyses of populism.

Also implicit in a populist view is the assumption that political constituencies and their interests are given, natural, pre-political, and that the people as the preeminent constituency requires simply the expression of its interests for politics and governing to take its rightful course. With this understanding in place, many politicians can and have claimed to express or incarnate the will of the people. Many cultural forms—newspapers or talkback radio or Twitter—have similarly been claimed to have special qualities in this regard. The view that the Internet can confer a democratic benefit by extending to ordinary people a means of expression that has previously been blocked extends this claim in a type of digital populism.

The difficult overlap between populism and democracy is that popular sovereignty is a doctrinal truth within representative democracies, a founding assumption that cannot easily be excised. Hence the common observation that all democratic politics has some populist element. What is important then is to separate populism and democracy as political forms (the task is often squibbed by explaining populism as an outcome of deeper, socioeconomic, realities). If the two are conflated, then the result is a poverty-struck notion of democracy, not because it values expression or giving people a voice, but because it stops at voice and treats people's interests—or what is being voiced—as given and, effectively, pre-political, thereby radically circumscribing the scope and role of democratic politics.

Distinguishing democracy from this populist view is achieved by attending to how power is *exercised* rather than focusing only on sovereignty or right to power, in this case, on the people's right to power. In this regard it is helpful to treat democracy as a technology, as the practical arrangements through which populations come to participate in decision making concerning activities in which they are engaged or by which they are affected. Such a definition, purposefully abstract, requires further empirical specification in each case: concerning the composition of the specific population in question, who is included and excluded, what counts as "engaged in" or "affected by," and the practical arrangements (votes, elections, majorities, proportionalities, forms of oversight of how decisions are made and implemented). All these specifics may vary and are open for argument: what does not vary is that there is some organized form of open, or public, decision making.

If we work with this clarified sense of democracy—and what, therefore, democratization might mean—we get a sharper view of claims about how communication revolutions have democratized societies: claims about how we think about the relations between media and politics. At issue, then, is not whether these relations *allow* or *block* expression of the interests or will of the people or the public, or ordinary individuals in aggregate, and not whether certain media have democratic affordances they can somehow inevitably lend to the activity of politics. Instead, a different issue appears, requiring an altogether more circuitous tracing: of how and with what rationales particular media (overlapping, contesting, and adjacent old and new media) are used to bring particular kinds of constituencies into being, constituencies able to formulate for themselves particular interests, which may in turn drive their decision making in those institutional and organizational forums where it is provided for. This rather elongated and wordy diminution of the proclaimed democratizing force of the Internet, or of any other media for that matter, points at two concerns.

The first point we have already mentioned: that democracy is not an affordance of a communication technology. Sassen makes the same observation: 'technologies with enormous distributive potential … can be used to democratize but also concentrate power' (Sassen 2012). More broadly, in recent years growing popular awareness of the centralizing, monopoly tendencies of the digital corporations Facebook, Alphabet, Amazon, Netflix, and Google has eaten into the currency of the digital technology's promise to democratize our worlds (Freedman 2012).

The second concern is revising the status of the central figure in the story of democracy, "the people." Rather than a political given, this figure is better thought of as a virtual entity, a collective identity shaped through efforts to govern populations. We considered this in Chapter 2 in discussing the historical use of popular cultural forms—their popular status defined by their addressee, "the people" or "the folk"—to shape the dispositions of national populations for self-government. Our point there was to note the role of such communicative strategies in forming and equipping national populations with populist literacies. As we have witnessed internationally in 2016–2017, from such literacies the organizational forms of populist political parties can be developed to further embed populist dispositions among populations. Forming populations as "the people" can play a role *within* democracy, understood as a technology for decision making. But a clarified sense of democracy cannot start from the assumption of the independent existence of the people, or of the public: it rests on a grasp of politics being in part about the *bringing into existence* of these or other collective identities.

To now return to Keane, it is with this clarified sense of democracy, with this negotiation of the overlap between populism and democracy, that we can say his account of by-now Internet-saturated monitory democracy avoids populism, despite his purpose of bringing into view many popular, widespread, informal, demotic uses of the Internet for holding authorities to account. Keane's clarity about what makes this sprawling monitory activity—which is given technical oomph by the distributive potential of the Internet—properly democratic is his attachment of this monitory power to, on the one hand, a rationale of defending and extending human rights, and, on the other, the nonnegotiable basis of elections, of representative democracy. It is important to note Keane claims *no more* of this monitory phenomenon than it being "democratic:" he does not conflate democracy with an outcome from monitory activity that we will always want or find beneficial, given that our assessment of benefit will vary according to our particular political position. But he holds steadfastly to the benefits of being schooled by the commitment to public exposure, that it makes the contingent nature of power evident and tutors populations in the possibility of challenging authorities (2009, pp. 20–21).

So Keane's proposition is that the communicative abundance of the second half of the twentieth century, and the deepening of this abundance in the period of widespread digitally networked technology, has enhanced publicness and—given a human rights rationale and the

continuation of national representative democracies—has underpinned a distinctive, augmented form of self-government. And he defends its efficacy against charges that the 'business of power scrutiny changes very little,' arguing that:

> all of the big public issues that have erupted around the world since 1945, including civil rights for women and minorities, American military intervention in Vietnam and Iraq, nuclear weapons, poverty reduction and global warming, have been generated not by political parties, elections, legislatures and governments, but principally by power-monitoring networks that run "parallel" to – and are often positioned against – the orthodox mechanisms of party-based representation. (2009, p. 13)

Does Keane's account of the workings of monitory democracy, heavily reliant on computerized media networks, guarantee anything about the democratizing power of digital technology? Does it help solve our opening question about the digital age? No, it does not. Keane is clear that the defense and extension of human rights is not the only motivation driving the scrutiny of authorities and their exercise of power: 'personal ambition, monkey business, power games and the quest for more effective and cheaper government have also played their part.' Communicative abundance 'does not somehow automatically ensure the triumph of either the spirit or institutions of monitory democracy' (2009, p. 21).

If democratization in a period of communicative abundance is a contingent outcome, let us return to our earlier sketching of how the relations between media and politics need to be quizzed. We asked: how and with what rationales are particular media used to bring into being constituencies that are then able to formulate particular interests which drive their decision making in those institutional forums and organizations where it is provided for? As a picture of some kind of democracy—signaled by the features of a constituency engaged in decision making—what may give pause is the final point: that the constituents' decision making occurs "where it is provided for." This strong whiff of governmental prerogative in *allowing for* public decision making certainly undercuts any notion of an inherent desire for or drive to self-governing by large numbers of a population: it is a very unheroic picture of democracy. Perhaps we could amend the phrase to "where decision making has been won." But the essential point sticks: that the winning of forums and organizations for open decision making springs not from inherent desire but

the shaping of constituencies and their interests. We are underscoring the point that democratic arrangements are anchored in *nothing other* than a contingent political work of forming publics interested in decision making, as a general understanding of or orientation to themselves and their worlds. By "general" we do not mean abstract: such a disposition for inclusion in decision making is much more likely shaped and developed around *specific things* or matters of concern about which those publics would like a say. Political campaigns around conscription, sewage, gun laws, taxation, or emissions targets—or any other matters that have urgency for a particular population—are more likely to engage than formal civics lessons about the expected obligations and benefits of being a participating citizen.

As well as the central point that publics are formed and governed for decision making, our statement of the relations between media and politics embeds the rationalities and the media as integral to this political work. Publics are formed out of individuals and their interests, and if their interests are to count—that is, to be plausibly connected to the possible decisions and actions of individuals—they require a formulation of some sort by those individuals. What matters, therefore, are the rationalities or frameworks that are available and culturally communicated to them, with which they can assess situations and formulate their interests to themselves (Hindess 1989). To consider the role of media in democratization is to consider whether individuals and populations are, on the one hand, resourced with a democratic rationality, and thus sensibility, or literacy, or way of making sense of their situations and those of others, which they may use to produce their interests as being to participate alongside other strangers in deciding about those situations. Or, on the other hand, are they instead resourced with a populist literacy, which may be used to formulate their interests as part of a commonality of like-minded folk—"us"—wanting to have their say from a blinkered surety about its general, singular, decent, apolitical truth? Where the democratic sociability of strangers involves the hard work of negotiating differences (Warner in Hawkins 2013, p. 88), the populist unity of "us" is certain in the validity of its rejecting the "other." There are of course more than these two rationalities for making sense of the world, and also no functional inevitability about the uptake and use of any one rationality. But the huge power of dissemination with which digital communication technology has augmented print and broadcast, cinematic, audio, and photographic technologies has meant an accelerated cascading of the

material forms in which these rationalities are inscribed. The communicative abundance described by Keane could be read to mean there has been an associated multiplicity of the kinds of rationalities in play; or it could be that the huge power of dissemination has not so much further pluralized rationalities, but has more effectively cascaded a smaller number of rationalities already enjoying currency—for example, the liberal individualist and financialized rationalities we have considered in earlier chapters.

Put like this, how could it not be both? Conditions of communicative abundance, or media saturation, lend themselves both to consolidating conceptual currencies and also to circulating a greater variety of ways of apprehending the world. The different political possibilities and shaping of populations' and individuals' interests depend also on the different uses of contemporary media. People's usage may exhibit homophily, the voluntary or orchestrated flocking together of user-audiences in familiar reading, viewing, and listening spaces reinforcing established ways of thinking; or use of the Internet as a library of libraries for uncovering previously unencountered phenomena, knowledge, or information.

In turn, patterns of use—and not simply access—are connected to social differences and divisions. As boyd, a digital ethnographer with expertise in teenagers' engagement with social media, has said of the social differences that split the uses of Twitter:

> what journalists and tech elites see from Twitter is not even remotely similar to what many of the teens that I study see, especially black and brown urban youth. For starters, their Twitter feed doesn't have links; this is often shocking to journalists and digerati whose entire stream is filled with URLs. (2015)

boyd has also written about the class dimension of what users did on the earlier-generation platforms MySpace and Facebook (2009). Discussing the declining fortunes of the once thriving MySpace, she observes:

> It wasn't just anyone who left MySpace to go to Facebook … What happened was modern day "white flight." Whites were more likely to leave or choose Facebook. The educated were more likely to leave or choose Facebook. Those from wealthier backgrounds were more likely to leave or choose Facebook. Those from the suburbs were more likely to leave or choose Facebook. Those who deserted MySpace did so by "choice" but their decision to do so was wrapped up in their connections to others, in their belief that a more peaceful, quiet, less-public space would be more idyllic. (2009)

boyd's attention to these dimensions and patterns of people's use of digital media recalls our insistence in Chapter 3 on the way digitally networked populations are always embedded and embodied in geographic and social space.

The need to recall our assessments of the role and consequence of today's greatly augmented public spheres to the empirical circumstances, the purposes, and the social differences of the populations engaged in them echoes Burchell's call to 'dephilosophize' debates around communication and the public sphere (2003, p. 120)—that we need to be wary of claims that political liberation is advanced through the ideal of public reason. For the World Wide Web these claims surfaced as 'email and the Internet herald[ing] a new renaissance of "participatory democracy"' (Burchell 2003, p. 12). Burchell argues the risk of becoming fixated on an ideal of communication has bedeviled digitally enhanced public spheres. Attention to what is actually publicly communicated, and to what ends is needed, to more effectively consider the relations between communication processes and the political domain.

Although the ideal of the public sphere, and the doctrine of the will of the people, are elements *within* democracy, understood as a technology for decision making, as working parts they are not sufficient to *describe* democracy. This argument repeats our earlier point about the romantic populist view of democracy. The problem with anchoring democracy in the fictional entity of the people is what it produces: a forgetting of those aspects of populations with which a technology of democracy needs to grapple—the social divisions and differences of class, gender, sexuality, 'race'/ethnicity/cultural affiliation, generation, religion, region, district, and so on. These differences mark populations and bear on the politics by which they are governed and the resources they have to negotiate this politics. How does the communicative abundance of contemporary media environments resource populations?

Given our earlier remarks about the formation of individuals' interests and the matter of what frameworks or rationalities they have available to them, we are brought back to consider our current media environments and what it means to have the kind of communicative abundance they provide, in relation to the kind of politics that can be formed and pursued. Do these environments help us at least lean in the direction of a more rather than less democratized world? However we phrase it, we come up against the chimera of seeking a general answer to media–politics relations, and what they mean for how we are governed today.

One Rationality

Recognizing this predicament leads us to a different effort. Let us trace the fortunes of one rationality—implicated in a current politics, apparently gathering momentum—and consider how its rise to prominence might partake of some of the features of the communicative abundance Keane says has shaped contemporary politics. Placing our focus at the level of a rationality, a framework, is guided by our understanding that how individuals' interests are formulated, as conditions for their possible decisions and actions, in turn depends on the discursive means available to them (Hindess 1989). We see these means being made available and, at least in some cases, compellingly available, in ways that have been outlined by Latour, the writer on whom we drew in Chapter 2 regarding the power of paperwork in governing. The rationality we have in mind to trace is a political economy rationality of wealth inequality. This rationality addresses the financial matter of "wealth" in terms of distributional politics, treating economic activity, actors, and relations as social rather than purely technical—part, in other words, of economy understood as 'a system for organizing and carrying on many social conflicts' (Stretton 2000, p. 11). Before discussing the popularization of this particular rationality, we briefly revisit how Latour can help us.

From the vantage point of his own concern with "modern" scientific culture, and in trying to define what is specific to it, Latour describes how the dominance of scientific, "civilized" populations rests on the use of inscriptions (Latour 1990). Attending closely to material inscriptions—small unassuming elements such as diagrams or maps sketched in a notepad—he eschews the grand causes of consciousness, human nature, or economic infrastructure that are routinely invoked to explain the progress of civilization. Among Latour's aims in taking inscriptions seriously is to show how 'someone convinces someone else to take up a statement, to pass it along, to make it more of a fact' (1990, p. 24). His point is that this work of persuasion can only be understood if we attend to the inscriptions or the artifacts that are deployed in a rhetorical situation. Inscriptions persuasively present the arguments, propositions, or assumptions that make up a rationality—a particular, socially organized way of knowing the world and making sense. Latour regards these inscriptions, for example, the lists and charts that enable us to "know" "the economy," as having the qualities of being 'immutable mobiles' (1990, p. 26). As immutable sets of signs—that is, as stable and

reproducible—they can be mobilized (presented, combined, read) to convince other people somewhere (that is, other people than the ones who made up the lists and charts) that, in this example, *this* is in fact "the economy" and *this* is how it must be "known."

Latour's analytic is useful for considering how media are routinely engaged in an art of persuasion because they are used to offer inscriptions to large and regular audiences. Phrases such as "the common man" or "White Australia" were once such inscriptions; "shareholder value," "a post-truth age," or "Make America Great" are current examples. Such media-circulated inscriptions, being immutable but mobile, stable but able to be taken to many and varied audiences, enable 'the mustering, the presentation, the increase, the effective alignment, or ensuring the fidelity of new allies' (1990, p. 24). These outcomes occur not through inscriptions per se, but through the cascading or flow of ever-simplified inscriptions, producing 'harder facts' (1990, p. 35). As Latour puts it, 'inscriptions allow *conscription*' (1990, p. 50). Latour does not describe inscriptions and their use to necessarily condemn this conscription. His is an empirical exercise, demonstrating the constitutive role of rhetorical artifacts in relations of power and of domination. His description is of how particular groups, organizations, professionals, and others, propagate their "hard facts," the elements of their particular rationality. Highlighting the aspect of *cascading* inscriptions to bring a rationality to predominate is the particular feature that interests us at this point. We utilize it to consider the political economy rationality of wealth inequality.

Cascading captures the sense of movement, speed, and continuing momentum applicable to the inscriptions of this rationality of wealth inequality and how these have circulated over 7 or 8 years, and with increasing pace in the last 3 or 4 years. These inscriptions include most obviously "inequality," "fairness," "the rich," "the 1%," and "the 99%." This rationality has, in an apparently short space of time, been given attention and publicity, affect, organization, and modes of address that have enabled politicians in the US and UK to assemble sizable publics for redressing wealth inequality within revived social democratic agendas. Although both Jeremy Corbyn, leader of the British Labour Party since 2015, and Bernie Sanders, independent US Senator and candidate for the Democratic presidential nomination, suffered respective defeats in the 2017 UK election and the 2016 Democratic primary, their electoral showings have been treated by the two politicians, their strong membership base, as well as many commentators, as effective victories for a new kind of politics.

On this basis, Sanders, despite losing to Democrat presidential nominee Hillary Clinton, continued through 2017 to barnstorm the country in the wake of Democrat turmoil over President Trump's victory, addressing crowds in 15 states in 10 months. His rousing of activists at The People's Summit, a 3-day event in Chicago, was indicative: 'we have the enthusiasm, we have the momentum … we have the energy to transform America' (Sanders 2017). A magnet for a diverse left-wing coalition, Sanders has brought the support of collectives such as The People for Bernie. His name itself now functions as an inscription of a left-wing, grassroots, transformative ambition—an argument for the need and possibility of social justice, economic democracy, and a people's platform. The People for Bernie website describes exactly the cascading of this inscription:

> As of this writing (Dec. 2016) we generated billions of digital expressions in support of Bernie Sanders, his allies, and movements we support (#NoDAPL, #BlackLivesMatter, Climate Justice, #TPP, Robin Hood Tax, and so many more…). This translates into money, volunteers, cultural influence, coalition building, votes and direct action. (People for Bernie, n.d.)

In the UK, the argument that wealth inequality is socially unjust also continued to be imaginatively embedded through Corbyn's post-2017 election appearances, for example, at the Glastonbury Music Festival, before huge crowds and a captivated youth audience. Corbyn's adoption of permanent campaign mode, touring marginal seats, is networked through peoplesmomentum.com, a grassroots campaigning platform skillfully combining social media with tried and tested strategies of political organizing. While Corbyn's and Sanders' respective electoral campaigns have added their own inscriptions (Corbyn's 'For the Many, not the Few,' and Sander's 'Not Me. Us'), in Australia, the Opposition Labor Party leader, Bill Shorten, began to speak about 'one tax system for all' (ABC 2017) and has been continually asked by interviewers if he is borrowing from the Corbyn–Sanders playbook.

This snapshot indicates how, suddenly, in the space of a few years, either a socialist or, more likely, a transformative social democratic rhetoric has come to the center of political news and discussion in Britain, the US, and Australia. As a mobilizing rationality this development is most notable in the case of Anglophone countries because it is in these places that deriding social democracy as a literally unthinkable relic of

the mid-twentieth century has been most normalized. Our point is not at all to spotlight individual politicians, although neither do we want to neglect or diminish the elements of affect and ability to draw 'the political circle' that makes up their 'political talk' (Latour 2003, p. 153). It is more to ask the question about the apparent suddenness of this rhetoric and rationality. How is it in the last 3 or so years that long-lived political economic arguments—they are not new—have become effectively communicable? How is it that it is *only* so recently that they have been made seemingly contagious? What has been involved in the cascade that Latour points us to consider, conscripting allies and forming "wealth inequality" as a hard fact?[3] To answer this question we assemble the following observations.

Cascading "Wealth Inequality"

Most immediately part of this cascade has been the response to the 2014 English translation and publication of Thomas Piketty's *Capital in the Twenty-First Century*, or, to abbreviate, C21.[4] Consisting of more than 700 pages of economic description and analysis, the book stayed on the *New York Times* hardcover best-seller list for 22 weeks. This order of response marked the breakthrough into general, sustained media attention of academic work on income and wealth inequality. The magnitude and rigor of the research underlying the substantial volume earned loud praise from high-profile economists-cum-public intellectuals Paul Krugman and Joseph Stiglitz (Bajaj 2015). The research was the outcome of a 15-year collaborative exercise in data gathering, undertaken to overcome the 'dialogue of the deaf' that characterized opponent parties' debating of the distribution of wealth (Piketty 2014, p. 3). Piketty announces in the book's Introduction that the empirical research was the only way of 'Putting the Distributional Question Back at the Heart of Economic Analysis' (Piketty 2014, p. 15).

The ambition to return economics to the historically earlier and conceptually broader rationality of political economy is therefore clear. And in successfully bringing inequality to the heart of economic knowledge—a disciplinary knowledge whose neoclassical orthodoxy strengthened through its renewal in the 1980s and 1990s (Thompson 1997)—C21 did something far outweighing the achievement of a book such as *The Spirit Level: Why Equality Is Better for Everyone* (2009). The initial public success of this earlier book—'unexpected' according to its social scientist writers Wilkinson and Pickett (2014)—was

rapidly overtaken by a concerted attack from the political right on *The Spirit Level*'s evidence and argument (Booth 2010). One such rebuttal was Snowdon's *The Spirit Level Delusion: Fact-Checking the Left's New Theory of Everything* (2010). In the coverage that ensued, Snowdon was quoted as saying '"I don't think people outside the intelligentsia worry about inequality … The working class don't worry about how much Wayne Rooney is earning"' (in Booth 2010). This remark was Snowdon's poke at an alleged elitism around the topic of inequality: that social scientists' concern with inequality and social justice was unable to penetrate beyond an already primed audience. If this was a rhetorical strategy on Snowdon's part, nevertheless *Spirit Level*'s impact was modest compared to the 'astonishing dimensions' of C21's success (DeLong et al. 2017, p. 1). In terms of disciplinary cut-through, it was bringing the concept of inequality deep into *economics* that commanded a more pervasive and viral attention.

The effort to challenge the established boundaries and concerns of economics was of course not that of Piketty alone nor just that of his co-researchers. Heterodox economists in the academy were working on inequality before Piketty published C21. In 2003, for example, a new *Journal of Economic Inequality* was launched, the editor noting that as well as inequality having become something of a fashionable topic, '[r]emarkable also is the fact that economists have tended to adopt the sociological term of "social exclusion" to take a broader view of poverty in rich countries' (Silber 2003, p. 3). The journal announced its purpose as redressing the *status* of academic research into inequality: such research was long in train but it would be brought together out of the subfields of labor economists on wage inequality, those working in the field of public finance on income inequality, and newer interest from experts in economic development.

So why the particular success of C21? Here are some "little things" to add to the 15 years of collaborative data gathering. Aiding the success of Piketty's book, both the title, *Capital…*, as well as the figure of the author helped to secure attention. The title enabled the easy sobriquet 'the modern Marx' (*The Economist* 2014), and the dubbing of Piketty as 'a rock-star economist' (Tett 2014) became a repeated trope. In January 2015 the moral stance of Piketty in refusing the Hollande Government's Legion of Honour amplified the author-effect (e.g., Penketh 2015). As all marketing officers for publishing houses know, it helps to have an author with moral authority and independence, the print culture norms of authorship discussed in Chapter 2.

Another factor was the visualization of inequality that C21 made available. The book's use of simple charts was instrumental in allowing the popularization of its argument. These charts show the U-shaped dip in inequality levels in the middle of the twentieth century and their near inexorable rise in especially Anglophone economies since the 1980s, back up to 1920s levels. As Latour says of paperwork more generally (1990, p. 44), the optical consistency of the charts brings together traces of many different places and times and, accumulated on the one surface, these inscriptions can be mobilized with ease and on a large scale, used to present a view of things that can dominate debate and action.

As already mentioned, the many different places and times inscribed in the charts is a result of the wider collaborative research on which C21 draws, giving the book its global scale and Piketty's 'modest Francocentric project' its international scope (Piketty 2014, p. vii). In addition, the collaborative project, running for now over 15 years, has generated not only voluminous academic literature, but from 2011 an online database of the top income share series for a large number of countries. In 2015 this World Top Incomes Database became The World Wealth and Income Database, shifting the perspective to include the growing significance of inherited wealth, and in 2017 the website was launched as the more user-friendly WID.world to provide 'convenient and free access,' 'with the objective of reaching yet a wider audience of researchers and general public' (wid.world).

The World Wealth and Income Database 'relies on the combined effort of an international network of over a hundred researchers covering more than seventy countries from all countries,' and the resulting Country Graphs invite users to '[f]ollow the evolution of inequality within countries' (wid.world). Remarking on the deployment of the charts in C21 and how they have 'reshape[d] the entire inequality debate,' Cassidy writes

> [f]or a long time, that debate was almost entirely focused on what was happening to median incomes … thanks to Picketty et al., the remarkable gains of those at the very top can't be avoided. And this means that the issues of politics and redistribution can't be avoided either. (2014)

Taken altogether, the various elements noted here resulted in C21 attracting sustained attention and assembling credible allies for its reshaping and public staging of the debate. Bill Gates, for example, 'felt compelled

to read Thomas Piketty's *Capital in the Twenty-First Century* after reading several reviews and hearing about it from friends.' His 2014 blog post 'Why Inequality Matters' encouraged his audience to read the book (unsurprisingly, he also encouraged a different policy solution—a progressive tax on consumption rather than on capital).

Focusing on the reception of Piketty's book is just one way to trace the increasing circulation of a rationality of wealth inequality, a political economic way of seeing a key feature of the contemporary world. Our potted account obviously hardly scratches the surface of how *Capital in the Twenty-First Century* was read, and nor is it aimed at doing justice to other contributors to the building of the inequality debate: to begin to do so we would need to describe the role of organizations such as Oxfam[5]; the efforts of the various Occupy movements in 2011, and their generation of "the 99%" meme; and before them Los Indignados in Spain earlier in 2011; and again feeding into these movements the surprise publishing success in late 2010 of Stéphane Hessell's political pamphlet *Indignez vous!*, with its rousing cry to young people from an elderly wartime French resistance hero.[6] We could not ignore the occasion of the 2007–2008 Global Financial Crisis, its economic impacts and the politicians' response of bank bailouts and austerity measures; and the work of journalists and commentators such as Dan Hind who, in the immediate wake of the GFC called out and refused the many obfuscatory explanations of the crisis ('the madness of crowds, the mysterious movements of markets, our evolved nature,' 'the crisis-as-extreme-weather-event,' 'blaming Alan Greenspan,' and blaming 'all of us'), and shouted instead the politically wrought, underlying, population-wide conditions of the debt crisis[7]; and the rapid syndication of such journalism, the work of bloggers, the media work of think-tanks; and, among other celebrity figures, the election of a pope with 12 million followers who tweets '@Pontifex: Inequality is the root of social evil' (29 April 2014). Our effort in beginning with the phenomenon of *Capital in the Twenty-First Century*, and what is in effect the inscription 'Piketty,' is nothing more than an attempt to sketch some of the obvious propellants of the cascading through communicative abundance of this political economy rationality of wealth inequality that, at the time of writing, has been given effective organization in the arena of electoral politics in several countries.

Our suggestion is that this effective political organization has been possible because of some degree of success in resourcing populations with a way of making sense, assessing situations and formulating

interests, that runs counter in an important way to the shaping of populations, the formation of persons and their social relations since the 1980s. The late twentieth-century attributes and dispositions of individuals and populations are part of the world achieved through national legislation, electoral results, measures taken by international authorities to discipline countries to liberalized policy settings, as well as policies at the organizational levels of work, education, family, and health. These attributes and dispositions have been organized through a finance rationality, and through practical mechanisms of continuous performance review, responsibilization and audit; mechanisms that apply, relay, and instill norms of enterprise and financial efficiency and purpose. The outcomes of all these things, in who we are and how we live—valuing choice, enjoying personal freedom, calculating cost benefit around our use of time and energy—is the legacy of a style of governing that did not and will not simply wash away with the faltering of the economic project of neoliberalism in 2007–2008 (Thompson 2011). But arguably the newly public rationality of wealth inequality has been used to sweep together previously inchoate resistances to a neoliberal rationality of financialization and its social, economic, and cultural consequences. So too, of course, have differently inflected right-wing populist rationalities.[8]

How We Are Governed: Resistances and Renegotiation

What does the nascent potential of a social democratic agenda organized around a rationality of wealth inequality mean for how we are governed? Is it of any consequence? How does it meet up with, cut into, or remain within a dominant way of being governed? How does our attention to something more immediately current, local and political sit against our longer-drawn attention to forms of governing populations? Let us quickly revisit what we outlined in previous chapters as we sought to reposition how we consider communication media.

In those chapters we pulled together and synthesized descriptions of the use of diverse communication technologies as indispensable to political technologies—the techniques and knowledge, assembled in relatively durable patterns, used to negotiate relations of power between people, not confined to those of the domain of formal politics. We spoke first of political technology in Chapter 2 where we noted a new political technology of individuals in Western Europe that was inseparable from particular

communicative practices and relations. While these practices and relations may not have originated in print culture, their formative consequences could be massively augmented by the use of print technology, thereby increasing the authority and powers of the filing bureaux caring to know individuals and populations, as well as enabling a cascade of disparate materials available for individuals to use and pattern their behavior; to engage in self-government. We noted examples of the formation of self involved in the introduction of English, or the study of Literature, in popular schooling in Britain from the nineteenth century and earlier in India, as part of colonial rule. We described a contemporary formation of selves that was engaged in by some individuals in rich countries as they took on the conscience and concerns of ethical investors; how the "practicing of the books," the routines of conscientization, is now performed online as well as through the use of print and broadcast materials, and used by people to problematize their relations to investment, to inspect their values and those of fund managers, and to scrutinize news about the activities of investment destinations and their consequences for people and the planet.

Across Chapter 2 we traced this government of people as individuals, focusing on the intertwined uses of successive communication technologies, as useful history lessons for thinking the present. In Chapters 3 and 4 we argued these help us understand the distinctive and intensified forms in which we, and our lives, have been shaped in the late twentieth and early twenty-first centuries, with its accumulation of media now joined by a second installation of digital technology. We have described this technologically wrought individualization as taking the form, from around the last half of the twentieth century, of a mobile privatization of social relations, and noted how this has intensified with efforts to govern digitally networked populations. A mobility first widely offered to and experienced by national populations through mass ownership of automobiles (all those private movements on roads communicating places of work and leisure) and through the forms of address and programming on broadcast radio and television, was promoted and amplified by popularly available digital networked communication technology in the form of the World Wide Web and more recently again through the ubiquity of mobile devices. The mobility and freedom associated with these various technologies has been firmly tied to a sense of self anchored in the private world of individual interests, dreams, and relations with self, family, and friends, a source of primary reference set against formal, public realms of existence. Williams' concept of mobile privatization is

marked by its Anglocentric or at least Western hue but it has, nevertheless, been used to plausibly describe recent history in China where the appearance of television in most rural households in the 1990s contributed to 'the formation of transnational subjectivities among Chinese peasants' (Sun 2002, p. 23).

The period of mobile privatization names the intensification of the much longer running focus on the individual, and on the individual as a subject of interest, 'as the source of interest,' as having interests that are held to be 'a form of both immediately and absolutely subjective will' (Foucault 2008, p. 273).[9] The assumption that the interests of the individual issue solely from within marks the rationality at the heart of this liberal technology, but ever more so with its development in the liberalized finance technology of the late twentieth century.

The paradox is that these interests are not, as we have discussed in relation to the formation of individuals' interests, wholly or immediately subjective or psychological but instead culturally communicated. To come full circle, this means that those interests are open to change, to intervention by the cultural communication of a counter rationality. If the government of populations has historically taken the dominant form of a liberal technology acting on the freedom of the individual—although never entirely eclipsing the exercise of disciplinary and sovereign forms of power[10]—are there possible renegotiations of this liberal style of governing?

The question immediately requires some qualification. In calling it a liberal style of government, centered on individuals and on steering individual conduct, we need already to include not only the person formation entailed in self-government but also the standardized individuality produced to manage targeted populations, achieved through the accumulation of data and extraction of information about members of populations by different kinds of organizations. In other words, a liberal style of government is not monolithic. The liberal project to both *require* self-governing individuals, and to provide the conditions within which it is possible to develop the necessary capacities for self-governing, pursues the defining liberal objective of limiting the role of the state: a "letting be" of individuals across the spaces of civil society—the family, the school, the workplace, the clinic. But this has been organized in different ways. Sometimes this requirement and the freedom to self-govern have been negotiated with a concern for the social conditions within which individuals find themselves and for the individual as a subject of an extended repertoire of rights and social obligations, as in the social liberalism of the mid-twentieth century.

A more recent negotiation has involved remaking the norms for social subjects, to those engendering the empowered, choosing, and autonomous subjects of the late twentieth-century project of advanced liberalism. This autonomy and empowerment has been accompanied by individualized forms of governing to control behaviours or states of being that are deemed problematic (such as substance abuse or unemployment), and to manage individuals where norm-governed conduct (such as compliance around achieving output targets) is considered too uncertain or inefficient a strategy in increasingly automated regimes of production. Can these styles of governing, through either the freedom or the target of the privatized, mobile individual, change again? To return to our earlier question, does a renewed social democratic agenda and an apparent commitment to reviving public good orientations have any purchase on how mobile privatized populations are governed, and on how they govern themselves?

Put another way, does or will this agenda constitute an effective governing project, which might compete with and force a renegotiation of longer-standing patterns of governing populations? If a renewed social democratic and public interest agenda "takes," in terms of people's self-formation, how does this intersect with the distinctive elements of twenty-first century forms of governmentality—the explosion of identification codes, organizational archives, and applications such as lifelogs that have accompanied ubiquitous computing? How negotiable is the intensification of forms of knowing people, knowing their conduct across expanding domains of life, and the resulting subjectification and objectification of individuals in a style of massified individualism (particularly apparent in new, ever more finely grained marketing, electoral, and security knowledge and techniques)? There is at least the matter to consider of the path dependence of the historical uses of communication technology that have helped secure a mobile privatized way of being. Are digital technologies, in particular, inexorably linked to privatized outcomes in this regard? The case of the recently initiated global democratic movement, MiVote, indicates how this might be a necessary question.

MiVote is a platform developed by the Melbourne, Australia-based Centre for the Future. Using blockchain technology to disintermediate and decentralize voting and representation on policy issues, MiVote initially announced it would register as a political party, but in July 2017 reported that it realized its plan to decentralize democracy and redesign it for the twenty-first century meant moving beyond political parties:

'there's no one party that can represent you in your diversity' (mivote.org.au). MiVote would instead be 'the technology platform that enables every individual on earth to make their own decision about whether or not they want to represent their community with democratic principles' (Jacoby 2017). With diversity residing within the individual and seen to be jeopardized by a social organization like a political party—putting to one side the Centre for the Future's commitment to 'design and realize a world that works for everyone'—does this not recall the governing by community that consists of a bunch of "I"s?[11]

So is the political economy rationality of wealth inequality the basis for a possible politics able to challenge the governing liberal technology organized around freedom and autonomy? This has no other status than that of a question at present. The world is eventful, the political resourcing of populations is highly contingent, and if Dean, following Foucault, is right, a socialist art of government has not yet been invented (2009, p. 5).[12] But we want to ask the question nevertheless, not to join in predicting the future, but to conclude by raising the issue of the relation between politics and governing.

Politics and Governing

Politics is the ongoing negotiation, the struggle, over power, over who can do what—'the reciprocal action of parties opposed to one another' (Hirst 1988, p. 274)—and government is the stabilization of power relations in a particular form of life; where a governing technology has solidified relations of power, and made them—and the ways of doing things of which they are a feature—historically durable and normalized. Our take on the government of populations is that we need not only to consider stabilized forms of power but also have in view the fractious, fluid, more temporary politics.[13] This contention underpins our interest in concluding a book that has been primarily concerned to argue the role of communication technologies and practices in the constitutive governing of populations by turning, in this chapter, to questions of contemporary politics. It is where we would always have ended, even if our writing had not coincided with a period of considerable political flux and renewed attention to politics and the state as necessary players in what had been, in Western democracies at least, increasingly depoliticized, business-led, economics-driven, financialized worlds. In this context we have traced a little of the fortunes of a revived social democratic politics around

inequality, to consider the possibility of its cohering a project to govern populations again as sociable strangers. This would be different from a neoliberal project of governing populations as a community—a bunch of "I"s—and different again from a populist project of governing populations simply and starkly as "the people," united by all whom they are not. In various places throughout this book we have suggested how these different projects are in play and how they all bear on the formation and reformation of who we are and what we do.

The prospect of returning to a social "we" in any dominant way would seem a long stretch, although of course just such a potent collectivity was painstakingly achieved in the face of considerable obstacles in the past: a case in point is the improbable building of a constituency for social democracy in early twentieth-century, conservative, rural, fragmented Sweden (Amin and Thrift 2013, pp. 24–28). But the idea of a simple "return" is fanciful. The conditions of that earlier achievement and others like it have changed, and one of the significant changes is how people are addressed, as their activities are embedded in digitally networked environments that have settled in during a period of financialization shot through with assumptions about the autonomous subject of interest. Although dissatisfaction has grown with the barriers to the great majority of people being actually able to approach, let alone maximize their (acquired) financial interests, building a different, socially connected, and socially committed subject is a harder task. It is faster to shape an angry and fearful subject fixated on other populations as scapegoats for these disappointments. The inventions and organization required to build collectives for more open politics need to include, we can nevertheless assume, environments in which different mixes of media operate 'as an active means of being together and bringing together but that does not automatically assume commonality of purpose' (Amin and Thrift 2013, p. 133).

For our part we wish to finish where we began this chapter, by returning to the issue of democracy. Democracy as a political technology is always associated with particular objectives and political agendas, but it is also a possible way to differentiate styles of governing—asking to what degree they admit of more, or less, democratic arrangements of power relations. This question arose in our consideration in Chapter 4 of the health of populations as a key objective around which people have historically been and are presently governed by medical authorities and practices of various kinds. Arguably, previously dominant hierarchical

power–knowledge relations between doctor and patient have been shifted to some degree, at least for those members of populations with the cultural capital to equip themselves and to use much more widely digitally distributed medical and health information. Relations of power and knowledge within medicine have not disappeared, and the medical norms through which we are governed perhaps saturate our lives more thoroughly than ever, but this governing includes greater possibility than in previous periods for some people to make some of the decisions concerning their own bodies. With this in mind, we conclude by briefly considering one last governing project: the World Economic Forum's scenario for how we, as global citizens, are imminently being formed in the fourth industrial revolution, or Industry 4.0, or "4IR."

Graphically rendered in an online video (WEF 2016), the scenario centers around the meshing of physical, digital, and biological systems, and of their outcomes in artificial intelligence, networked digital technology, the domain of neurobiology, and future cities. The presentation is decidedly upbeat; it is a powerful kind of futurology in which an ever-modernizing world answers all kinds of interesting challenges with technology and rational, consensual thinking; and it is a take on the fourth industrial revolution that inscribes it as both a fact and a field of possibility. Not least, it is authored by an organization that can garner attention and effectively cascade its propositions (for example, through its annual agenda-setting Davos summits).[14] As a project for the future arrangement of world economies, populations, and resources of all kinds the 2016 WEF scenario offers a cosmopolitan stakeholder approach,[15] which seeks to reassure that globalization can coexist with equity and human and planetary well-being. Explicit in its propositions are that what is changed, in this very close or already present future, is us. 'One of the features of this fourth Industrial Revolution is that it doesn't change what we are doing, but it changes us' (WEF 2016). As one of the thought-leaders featured in both the early and concluding stages of the video says, there is 'responsibility at every level of society … to adapt to these technological challenges and changes which are redefining what it means to be human, what it means to work, what it means to be completely embedded in this world' (WEF 2016). The words are those of Jon Kabat Zinn, a professor of medicine and authority on mindfulness.

The choice of Kabat Zinn, of world renown in how the mind works, is an arresting element in this video. So too is business manager Stewart Wallis from the New Economics Foundation arguing for a new economic

model, 'a shift to a new system that will allow us to meet the basic needs of every human on the planet, that will live within planetary limits, that will be fairer, and that will be focused as its key goal, not on growth, per se, but on maximizing human well-being.' The picture, then, is of a benign and fair future. But the visualizing of a world of AI environments and bodies digitally remade, the summoning up of 'inside our own heads [as] the most complex arrangement of matter in the known universe' (Kabat Zinn in WEF 2016), cannot perhaps help remind of less sanguine accounts of similar technologies and their significance for the most intimate dimensions of our selves. These are the stories currently circulating about automation, imminent job destruction for millions, and the replaceability of our individual capacities. More importantly, the WEF visualization of 4IR resonates with developments already well in place in the corporate and public world, where neurobiological knowledge about the pre-personal domain in which humans swim—the field of instinctual behaviour, and communicable emotions that are distinct from but connected to intellectual reasoning and decision making—has been embedded for some time in the push for continual innovation in marketing, product design, and political campaigning (Thrift 2006). The talk in the WEF video is of responsibility—'at every level of society, from the individual and the personal, to the institutional to the global'—but, should the video not completely persuade, perhaps it is because this universalism nevertheless prompts the question: what decisions can we make, about which directions are taken, about which we must then take responsibility? The concerted promotion of the project for the fourth industrial revolution brings into focus the democratic question: what choices do we have in the directions being taken to remake us?

The question here is not about imagining an escape from being governed per se. That would conflate all we have written into a generalized critique of government, worryingly similar to the political vocabulary of liberalism. Instead, it is about what rationalities we agree to be governed by, and whether there is room and allowance for some meaningful agreement, and that is why a lengthy consideration of democracy and what it is, as a principle of organization, is important. If we use democracy as one means of considering the kinds of governing with which we are faced, we do so as naming a political technology, with its own rhetoric (of participation, civility, decision making), which is not quite the rhetoric of democratization (of egalitarianism, of everyone, ordinary people, the public or the community) as it is regularly heard as part of a "digital age."

In terms of which rationalities among those on offer should be endorsed, here, the answer must necessarily vary according to who is answering the question. For us, the rationalities would be those organizing social relations in terms of less oppression, more justice, less inequality. We have indicated a concern for more social democratic, less privatized, policy in our discussion in Chapter 2 of employment policy history. With Amin and Thrift (2013), we would embrace an environmental rationality that encompasses more species and which takes into account that what it means to be human is always in formation, and can expand.

We hope that how we have presented and persisted with our understanding of what communication entails—rationalities, rhetorics, inscriptions, media practices, and sense-making of all kinds, techniques, technical inventions, technologies, audiences, users, composers, compilers, persuaders, applauders, institutional relations, infrastructures, materials allowing and inducing things, and people to be communicated—has made it evident that in considering the kinds of governing bearing on people's lives we have necessarily been considering the integral role of communication in how this is achieved, struggled with, maintained, altered. Again, our focus on communication technologies in this discussion may seem decentered. But, that is our initial premise: the need to keep sight of all the activities and artifacts we call "communication," avoid inflating their importance out of keeping with the moments of their production and use, and nevertheless grasp the consequences they have beyond the immediate instrumentality of these occasions.

Notes

1. Keane identifies more recent threats to monitory democracy in terms of 'media decadence' (2013), but continues to locate evidence of it (e.g., Keane 2017).
2. Keane argues that 'monitory democracy democratizes—publicly exposes—the whole principle of "the sovereign people" as a pompous fiction' (2009, p. 22).
3. A thumbnail example of Latour's conscription of credible allies—important in terms of Australian electoral politics—occurred around The Melbourne Institute's Economic and Social Outlook Conference (20–21 July 2017) where widespread publicity was given to the Federal Opposition Leader's speech on rising inequality. In a rejoinder on national radio, the Federal Treasurer claimed 'the accepted international definition of inequality shows "it hasn't got worse, inequality, it's actually

got better"' (RMIT ABC Fact Check 2017), sparking public contributions by various "allies" on both sides of the debate. The OECD's March 2017 economic survey was mobilized to support the Opposition Leader's claims, and fact checking found the Treasurer's position 'unjustified' (RMIT ABC Fact Check 2017); the Opposition Leader has so far been able to continue with his "hard fact."

4. The title is 'cited so often that it's boiled down to C21' (Coy 2017).
5. Their annual reports and media briefings strategically released ahead of the World Economic Forum's annual January agenda-setting meeting in Davos [for example, Oxfam's 2014 *Even It Up* report, which noted 'the debate about a wealth tax has been given new life through Thomas Picketty's recommendations in *Capital in the Twenty-First Century*, which gained widespread public and political attention' (16)].
6. 'I tell the young people … The worst possible outlook is indifference that says, "I can't do anything about it, I'll just get by" … ' in the face of 'the immense gap between the very poor and the very rich … and human rights and the state of the planet' (Hessell 2011, p. 7).
7. Hind was pinpointing in 2009 that 'in the rich, industrialized world, the percentages of GDP captured by all workers in the form of wages fell from 75% in the mid-seventies to 66% in the middle years of [the noughties]' (p. 9), an observation that took some years to become a staple story in news media (e.g., as a dawning explanation for Trump's popularity in 2016).
8. Corbyn's and Sanders' are clearly also a particular species of populism, bent more on social and cultural inclusion and reserving division for economic class.
9. The basis for economic's conceptualization of economic activity in the form of *Homo oeconomicus*.
10. In our present time, 'a polycentric, individualizing, enabling and networking form of governance [is] laid upon a centralized, totalizing, commanding and hierarchical form of territorial power' (Dean 2007, p. 77).
11. See Morton (2010, p. 127) cited in Amin and Thrift (2013, p. 133) differentiating collectivity from community. Collectivity is 'understood neither as a "bunch of 'I's nor [as] simply a modified version of 'alongsideness'".'
12. On the difference between ideological struggle and the art of governing, Dean has observed that simply having the principle, or objective, of social justice to replace that of freedom does not constitute a 'necessary technique of governing complex social and economic processes' (2009, p. 5).
13. Dean, in his substantial work on governing societies, notes that Foucault was not as concerned with defining "the political" as other theorists (2007, p. 12), and see Hindess (1998) for the shifting use of 'political' in Foucault's later works, which perhaps accounts for his referring to both political and governing technologies of power in overlapping ways.

Our interest is not in policing points of theory but in bringing together the shorter-term, local perspective of politics and the longer-term perspective of governing and to consider the possible connections between them: this against sidelining the topic of politics as some have done in focusing on governmental power beyond the formal political domain of legislatures, parties, and elections.

14. Which is not to say the arguments made by the WEF are necessarily persuasive: see the anti-globalization protests against its annual Davos meetings earlier this century and Quinn (2016) for indicative skepticism about the 2016 Davos agenda.
15. The insights of a veritable line-up of "thought leaders" are spliced together to speak about a relentless wave of technological and scientific development but a wave that seemingly has space for human intervention and input from architects and designers focused on planetary limits, bioethicists, medical scientists, educationalists, management scientists, and advocates for heterodox economics. The General Secretary of the International Trade Union Confederation is included, as are workers on a GM assembly line, teachers, the voices of indigenous people, individuals living with a disability, the founder of the WEF, the president of the International Committee of the Red Cross, the CEO of Microsoft, and the celebrity environmental activist Leonardo DiCaprio.

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P. Dearman et al., *Media and the Government of Populations*,
Palgrave Studies in the History of the Media,
https://doi.org/10.1057/978-1-137-34773-2