2

Personalisation and Digital Modernity: Deconstructing the Myths of the Subjunctive World

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2.1 INTRODUCTION

In this chapter, I will discuss the role of personalisation in a wider narrative of the development of democratic societies, that of *digital modernity*. Digital modernity is a species of modernity, in which the key values of modernity – rationality, progress and most of all the individual – are preserved, but with the twist provided by ubiquitous digital networks. One can be sceptical of the difference this makes, as much of the technology is unproven and many of its claims hyped,[1] but it is disingenuous to claim that digital modernity has left everything unchanged. It is qualitatively different from analogue modernity, even if many practices and assumptions have carried through from one to the other.

This chapter deals with *narratives* of how modernity plays out and is implemented by institutions and technologies, which are inevitably partial, and selective in what they foreground and ignore. It is misleading to think of global narratives about technology in society as true or false; rather they are convincing or unconvincing, inspiring or uninspiring. In this chapter, I do *not* endorse any of the narratives spelt out, while exploring their internal logic. The main point is that these narratives are found convincing by powerful people and organisations, sometimes because they serve their purposes and sometimes because they really do seem to explain the direction of travel. For that reason, they are politically influential and worth our attention and critique.

I begin by setting out the context of narratives of modernisation and modernity and follow that with a discussion of digital modernity, showing how personalisation is central to it. Section 2.4 will look briefly at the technologies of personalisation, before a final substantive section drills down a little further into the operation of digital modernity.

2.2 NARRATIVES OF MODERNITY

Modernity is a concept that emerged in sociology in the mid-twentieth century, trading on the intuition that a qualitatively different society had emerged from the medieval

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world following a number of major historical and economic developments, particularly in Western Europe and later North America and some mainly Anglophone colonies.[2] 'Modern' society had many advantages when it came to competition between societies, in terms of economics (and therefore prosperity), and technology and innovation (and therefore warfare). Key to modernisation was the Enlightenment, the period that roughly coincided with the eighteenth century, in which Western thinkers made the welfare of the *individual* a political value, applied *sceptical principles* to previously unchallenged authorities, and demanded *rational justifications* of policy.[3] Differential experience of Enlightenment was and is still expected to explain many of the inequalities and much of the diversity in social conditions across the globe, despite globalisation; witness the oft-regretted 'fact' that Islam never had its Enlightenment: 'For those whose idea of progress was so narrow as to consist only of what they themselves had experienced, and who were disposed to see repose and decay in unfamiliar societies, repose and decay was indeed what they saw.'[4] Certainly the concept remains ubiquitous:[5]

> However reluctant we are to make value judgements about other cultures, we nevertheless continue to apply the standard of modernization as a matter of course, at least in the economic measures of unit-labour costs and competitiveness. Every day we read about the 'backwardness' of the Southern European countries compared to the exporting countries of the North.[6]

Modernisation so understood is a process, and modernity is relative rather than binary; one society is *more* modern than another. Conceived in temporal, evolutionary terms, we can compare societies using the vocabulary of Habermas and Dirlik; one is more *advanced*, another more *backward*. Typically, societies become more advanced through time, but they can revert to a backward state (the growth in populism in the twenty-first century has been seen as such a reversion[7]). Conceived in spatial terms, we can compare *peripheral* societies (the provinces, rural areas, the developing world, edgelands) with the *centre* (cities, centres of excellence, creative hubs).[8] Again, change need not always be positive: economic or cultural shifts can result in somewhere becoming peripheral, as many worry about the United Kingdom following Brexit, which is sometimes described as the revenge of the periphery upon the centre.[9] These narratives, or myths, of modernity are naturally selective. They can be *descriptive*: societies are changing according to these patterns and processes. They can be *teleological*: this is the direction of travel and it is where we are bound to end up (Giddens wrote of modernity as an unstoppable 'juggernaut' in 1990[10]). Or they can be *normative*: these are the processes we *ought* to be fostering. The valorisation of modernisation itself is a vital tool for its own implementation; as policymakers, businesspeople, technologists, journalists and trade unionists subscribe to the myths, they are more likely to become true. And indeed modern societies were and are, by most standards, highly successful. Bourgeois democracies are, generally speaking, humane, secure, tolerant and prosperous, and by and large only academics and *avant garde* artists persist in adolescent rebellion against them.

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As the literature of modernity has extended, the basic Weberian narrative of expanding rationality has been amended in various ways. Firstly, modernisation plays out differently in different societies, and it is increasingly accepted that modernity is as diverse as the societies that host it.[11] However, in this chapter, I will bind the context to the wealthy capitalist democracies of Western Europe, North America and elsewhere. Secondly, the proliferation of the literature on modernity means that social commentators have intellectual resources to consider conditions of modernity, thereby introducing the complexities of reflexivity into modernity's trajectory.[12] In particular, from the perspective of the individual, modernity can be seen as a development in which the individual became the ontological unit of social analysis, displacing the pre-modern focus on communities and their health. As the individual emerges in social analysis, we begin to see accounts in which individuals are damaged or alienated by their position in society.[13] Such accounts add to our reflexive responses here. In particular, the clustering of individuals into social groups takes a more 'objective' turn in modernity; as well as the groups with which individuals readily identify (such as kin groups and those centred on religious practice and belief), more objective analyses can focus on the similarities between people based on broad attributes such as gender and class. These analyses postulate similarities and commonalities of interest of which individuals often have to be persuaded, leading to the evolution of the major ideologies characteristic of modernity, such as socialism, Marxism, feminism and nationalism.

Thirdly, technology has also played a part in lightening modernity's touch, for instance with Bauman's concept of liquidity,[14] which contrasts 'heavy', 'solid', hardware-focused modernity and 'light', 'liquid', software-based modernity, nodding to the technological context. Thanks to Lyotard's conception of postmodernism,[15] many have assumed that we have entered a postmodern period. However, it is interesting to note that Lyotard's *The Postmodern Condition* was originally written in 1979 as a report for the *Conseil des Universités du Québec*, about the effects that technology would have on knowledge production in the exact sciences, and so is centred not on the literature and art whose criticism first prompted the use of the term 'postmodern', but rather on exactly the digital technologies under discussion in this chapter. Lyotard, writing at the beginning of the age of digital technology, was admittedly not an expert on the technologies he wrote about, and may have mistaken signs of a transition within modernity for signals of its demise. Nevertheless, much in *The Postmodern Condition* is consistent with the technologically enabled modernity we are beginning to understand now, and although his chosen term 'postmodernism' is a misnomer, we can credit Lyotard with being one of the first to spot a nascent *digital modernity*.[16]

2.2.1 *Digital Modernity*

Digital modernity is that species of modernity that emerges when communication is supercharged by always-on networked linking using digital technology, resulting in

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the migration of many interactions online, which not only creates exponentially positive network effects, but also allows the capture and reuse of data as a resource. The data itself can then create a rich picture of the world, while simultaneously fuelling increasingly accurate machine learning or artificial intelligence (AI) to reason about it. So dramatically has internet usage increased that at the time of writing around 50 per cent of the world's population can be considered to be 'online' in some sense, and therefore visible to the technology.

Digital modernity is a narrative or myth (once more, descriptive, teleological or normative) about how this data-driven technology affects society and how the future is unfolding in our present. Versions of the myth suggest that humans are becoming informational beings, or 'inforgs',[17] as a result of a fusion of the physical, digital and biological,[18] our human knowledge and skills to be augmented and connected by vastly more efficient artificial systems.[19] Infrastructure will give us access to a vast range of cultural and personal goods;[20] our familiar notions of work, production and value will be reshaped and free markets and private property destroyed.[21] Professions will be transformed.[22] Widespread change, of conflict, of politics and of our own identities, will be driven by increasingly active and global citizenries.[23] Data will provide immeasurable insight into what activities will produce the best results,[24] but not why.[25] On the downside (for not all these narratives are positive), superintelligent AI might turn out to exceed our own by orders of magnitude, and might develop survival drives of its own; perhaps it may even begin to disregard human interests and pursue a different set of goals.[26] To reiterate, this chapter does not endorse these narratives, but their cumulative rhetorical power should not be underestimated.

2.2.2 *Digital Modernity across Time and Space*

How will these play out? It is helpful to contrast digital modernity with what we might call 'analogue' modernity, i.e. the rational, bureaucratic modernity of the twentieth century, and with pre-modernity, non-rational, non-industrialised societies where local and community considerations are paramount.[27] Temporally, in Europe, the sixteenth century is usually marked as the rough point at which the first modern societies emerged.

On the linear scale where modernity implies advance, and pre-modernity backwardness, digital modernity stands for even further advance. In digitally modern societies, innovation happens routinely, almost at will,[28] and existing social processes are disintermediated and rendered more efficient.[29] Disruption is the order of the day in a world of continuous Schumpeterian creative destruction,[30] where the incumbent and the intermediary are always under pressure from entrepreneurs and startups. Once a system has disrupted and displaced another, it is itself ripe for disruption.[31] In this world, to be advanced is to be a disruptor, and therefore *to exist is already to be backward*.

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In space, modernisation marginalises the periphery and privileges the centre. As modernity goes digital, acquaintance is no longer rationed in any sense by geography, and the most productive connections can be sought rationally through search, matching digital doubles or avatars, quantified selves rather than flesh and blood people.[32] Smart cities are designed and optimised using data,[33] and smaller environments instrumented and controlled via the Internet of Things.[34] Space collapses into *cyberspace*, in a famous early description: 'A graphic representation of data abstracted from the banks of every computer in the human system.'[35] Policy depends on the state of an individual's or an environment's data, not on the thing itself. The virtual world affords opportunities for order and rationality, and the most that hapless reality can achieve is *to get closer to the perfection of the algorithm and the data*.

In terms of how it treats individuals, I noted above the shift from the social to the individual as we move from the pre-modern to the modern. This shift continues as we enter the digitally modern, to the data about the individual; the individual is treated as an inforg.[36] Furthermore, the social groups in which an individual is understood to be participating become even less intuitive to the individuals concerned – rather than the large interest groups theorised by the great nineteenth-century ideologies, they become temporary and data-relative, depending on which clusters make sense to machine learning algorithms. The group becomes contingent, fluid and determined by the data.

I earlier suggested that Lyotard's discussion of postmodernism was better understood as his spotting the green shoots of digital modernity. We see here at least one of the misleading parallels and characteristic distinctions between postmodernity and digital modernity, which is that, although both treat the individual as a construction, digital modernity is far more specific about the mechanics of and constraints on that process, as well as the roles of technology and knowledge within it. It is therefore, I would suggest, a far more valuable conceptual scheme than postmodernism, although this is a topic well beyond the scope of this chapter.

In the remainder of this section, I will briefly consider some of the central aspects of the digital modernity narrative.

2.2.3 *The Emergence of Personalisation*

Modernity prizes the uniqueness of the individual, and the individual's reason outweighs tradition and practice as the provider of justifications for acting. Kant's essay 'What is Enlightenment?'[37] expresses this exactly, in its opening sentence 'Enlightenment is man's release from his self-incurred tutelage', and in the 'motto of enlightenment' *sapere aude!*, 'Dare to be wise!'. Individuality is expressed in modernity via *choice*: democracy, free markets, freedom of association, freedom of conscience, romantic love (as opposed to arranged or dynastic marriage), choice of career, freedom of speech and freedom from censorship and so on. The world

presents itself to us, and we choose the aspects of it that we wish to consume or pursue at that time. No doubt we are constrained by earlier choices and the choices of others, but in principle our preferences at the point of choice are paramount.

Digital modernity preserves individuality as a central value, but expresses it differently. The data accumulated by the digital infrastructure can be used to make recommendations, tailor choices and target marketing, with sensitivity to an individual's past behaviour and tastes, and current location, as well as records of comparable individuals. Hence individuality is now expressed through *personalisation*: rather than being presented, the world is moulded around the individual, so that everyone gets a different experience, adapted to his or her own preferences.

Let us take the example of association, the people with whom a person has significant contact. In pre-modern societies association is often given or imposed. Extended families, kin, tribes, villages and guilds were important social groups. Association was drastically constrained by geography. Under modernity, one had far more choice over those with whom one associated, and many traditional groupings declined in importance.[38] Under digital modernity, on the other hand, recommendation has increasingly come to govern, if not determine, association. Apps are routinely used to suggest people to date, marry, go to bed with, befriend, employ or boost careers.[39]

Personalisation is a central mechanism for the implementation of the values of digital modernity. A critique of the latter, then, will of necessity involve a critique of the former, which will be the business of the following sections of this chapter (and indeed of the other chapters in this volume).

2.3 CRITIQUES OF DIGITAL MODERNITY AND PERSONALISATION AS ITS CORE MECHANISMS

2.3.1 *Abandoning Privacy and Authentic Choice*

Because the chief mechanism for expressing individuality under modernity was choice, it was essential for those choices to be considered, uncoerced, autonomous and authentic – in other words, that they *did* express individuality rather than being manipulated. For this to be the case, some real or metaphorical space into which individuals could withdraw and reflect was needed, insulated from commercial, family, religious, ideological, economic or political pressures. In other words, the need for privacy is baked into the ideals of modernity,[40] and it is no coincidence that the high point of rational, bureaucratic modernity, the long twentieth century, is the period in which principled privacy protection was constructed as a set of rights, regulations and tools for individuals to police their private space, beginning with the detection of a right to be let alone in common law,[41] via statements of rights to privacy at the mid-century, and culminating in the EU's General Data Protection Regulation of 2018.

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Digital modernity shifts its stance on privacy radically. Because choice is now the prerogative of the data infrastructure which constructs the personalised world, the rationale for principled privacy protection falls away – the guarantors of authentic choice are no longer necessary. Indeed, the change is more drastic still, because for personalisation to be an effective expression of individuality, the requisite algorithms must have sufficiently specific input about the individual.[42] Privacy is now not only not required, but it will impede the implementation of the ideals of digital modernity. It is unsurprising therefore that privacy has become a major ideological battleground as digital technology flourishes.

2.3.2 *Social Grammar: The Subjunctive World*

The neglect of autonomy can be given further context by understanding the structural aspects of narratives of society and technology that restrict or constrain categories of relevant phenomena, the judgements made about them and the types of narrative that are characteristic of the societies in which they occur, because they support expression of the key normative assumptions. We can call these structural aspects a society's *social grammar*, because they govern ways in which meaningful social actions are understood to be composed from smaller-scale behaviours and cognitive states, analogously to the way that a linguistic grammar governs how sentences and other meaningful units can be constructed from words and clauses. The governing tense or moods of social grammar in the triad of social narratives we are concerned with in this chapter reflect the shrinkage of time and space from pre-modern to modern to digitally modern. As the reference points for moral, social or practical narratives become less expansive, social grammar adapts to accommodate them.

Under pre-modernity, the governing grammatical tense is *eternal*. Traditions and practices are treated as if they had always been in place (although of course they had to appear at a point in time, and evolve, this is not how it appears from the inside), and innovation is neither sought nor welcomed. A reason for doing something is that 'we've always done it this way'. Practices and institutions are understood to be in tune with social, religious and metaphysical conditions, and though they adapt as those conditions change, the conditions themselves are usually understood as being eternal (for example, pre-modern societies have often seen the growth and spread of universal religions), and so the significance of change, evolution and adaptation are played down.

Meanwhile, modernity is a *present tense* narrative; today's choices based on current preferences are what count, with no requirement for consistency, rationality or coherence. Reason is part of the Enlightenment ideal, but it does not determine preferences; the Enlightened individual applies his or her reason to the job of achieving preferences. (As David Hume put it, reason is and ought only to be the slave of the passions.) It may well be the case that one has, for example, second-order

preferences about the preferences one has (one may wish to give up smoking, based on rational evaluation of the medical evidence, a second-order preference with which one hopes to override first-order preferences to smoke a cigarette in a particular context), but it is the individual's job to manage his or her first- and second-order preferences.[43] As arch-modernist Henry Ford said, 'history is bunk'; there is no requirement on the individual to refer to past practices or others' behaviour to express his or her preferences; one can buy what one wants now, vote for whomever one supports now, join whatever groups one wishes to associate with now (and act differently tomorrow). Ethicists such as Kant did argue about the conditions which would apply to, say, good or rational behaviour, and some Kantian principles inform some of the social structures and institutions that have grown out of modernity, in order to support ethical or rational behaviour over the unethical or irrational. However, in modern societies, Kantian interventions on the large scale tended to be seen as excessively paternalistic, and the expression of individuality came to be seen as requiring rejection of 'normal' conventional feeling.[44] Rational choice economics, and the notion of revealed preference, evolved to express the present tense world; one prefers to perform action A, and so one As. The evidence for one's preference for A is precisely the performance of A.[45]

However, digital modernity has a different rationale. One is not supposed to choose what one prefers; one instead chooses from a diminished list which nudges one towards *what one would have chosen if only one had known all the relevant facts*. But the data infrastructure has far more of the facts than the individual, with the gap growing all the time. The infrastructure is a better judge of what the individual should prefer, and so the infrastructure quite properly makes the choice.[46] The grammar is therefore in *subjunctive mood*, the grammatical verb form that expresses events that have not (yet) happened – in this case, choices that should be, but have not yet been, made. The subjunctive world that digital modernity creates is the context for the valorisation of personalisation.

2.4 THE TECHNOLOGY OF PERSONALISATION

The implementation of personalisation is naturally less well honed than the narrative suggests. The technology is less effective, the algorithms less seamless and the data less reliable. In particular there are many issues with data quality and bias, in a world where most data is gathered for specific reasons and in particular economic interests.[47]

An application which generates its own data within a walled garden, such as Amazon, can design the knowledge representation to allow cross-referencing and linking. However, the trade-off is that a walled garden covers only a small part of someone's life in Amazon's case, it will be biased towards commercial interactions. The full power of digital modernity assumes linkage of heterogeneous datasets to create a rich avatar of the individual. This will require a great deal of data cleaning,

such as aligning ontologies, assessing relative quality across datasets and so on.[48] The alternative is a walled garden so massive that it takes in social, commercial, governmental and leisure, as with the Chinese app WeChat.[49] It has been argued that China has an advantage in the development of AI technologies because of the relative centralisation of its data.[50] However, the inherent decentralisation of the data infrastructure across different organisations with few incentives for data sharing will tell against the ability of anyone to assemble an overarching picture with ease.

Secondly, 'personalisation' is something of a misnomer, as other chapters in this collection point out. Machine learning can basically perform four operations: clustering (dividing a set of objects into groups, minimising in-group diversity and maximising between-group diversity), association (as in 'people who liked X also liked Y'), feature prediction (suggesting missing values for individuals' attributes) and anomaly detection (such as spotting unusual uses of a credit card). 'Personalisation' is actually classification of the individual based on a retrospective view that will tend to downplay the importance of speculative choices, ignore second-order preferences, maximise social conformity (especially if collaborative filtering is used) and stand in the way of character development; it is not obvious how it could operate differently. As is implicit in the previous section, one would expect it also to suppress autonomy, which is no longer a means to an important end in the subjunctive world of digital modernity.

2.5 PERSONALISATION, HARMS AND CONSTRAINTS

Personalisation, therefore, may be described in other ways – in terms of the classification of the individual against pre-existing behaviours and categories, using data that may be incomplete, inaccurate or biased in certain ways, and algorithms whose power may be hyped. However, another way of critiquing the idea of digital modernity is to consider certain social constructs or practices as they evolve through the pre-modern/modern/digitally modern triad. This provides an alternative perspective on how far digital modernity constitutes a genuine progression, and how far personalisation advances individual well-being (or sacrifices collective benefits).

Let us consider how the values of the three narratives translate into different understandings of harms, discipline (or governance) and remedies. In the pre-modern era, moral value is often seen as a social phenomenon, and so harm looks like damage to social stability, harmony or cohesion. Discipline is usually couched in terms of prohibitions and rituals, on commandments of what we must do to preserve social harmony. These are not always strict rules, and include etiquette of various kinds, designed to regulate relations with the environment.[51] Finally, remedies tend to revolve around protections where harms can be anticipated, management of common resources, and community help for those in trouble. Protective institutions and practices did not necessarily develop because they were economically efficient, but sometimes as responses to random forces (such as the weather, or

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the ideas of a king or priest); sometimes in response to cultural beliefs and values; and sometimes following conflict over how resources should be distributed.[52] Much would depend on the power and status of those harmed, whether they themselves would be able to shape the institutions, and whether they were the victims of perceived unfairness (for instance, if the gods were deemed to have been offended by some action or omission). In many circumstances, harm itself can be the evidence for such offence.[53] The creation of protective institutions might be the outcome of conflict, but once in place they promote predictability and reduce perceived risk. Such institutions might resolve conflicts, if not necessarily fairly or justly (consider an institution such as serfdom), and they would often host a nexus of valuable practice and training to reproduce that practice (as with a medieval guild), thereby providing ongoing social benefits as well as a measure of insurance for participants.

The locus of harm under modernity, by contrast, is the self, including the freedom or autonomy of the individual. The classic statement of how to address harm is Mill's harm principle, from *On Liberty*, that 'The only purpose for which power can be rightfully exercised over any member of a civilized community, against his will, is to prevent harm to others.'[54] And because modernity ushered in a notion of universal risk, risk can be pooled using insurance to spread the burden of preparation.[55]

In the subjunctive world of digital modernity, what matters is less the self and its autonomy, than the well-being of the avatar, measured against the data. Harm takes the form of exhibiting risk factors, below-average performance and dragging down national averages. Ethical considerations apply to people as inforgs, who flourish in an information environment (the infosphere), which itself is a moral patient. Information ethics induces a change of perspective, from considering information as epistemological to treating it ontologically.[56] The result is a curious hybrid of the public space where pre-modern societies focused their attention, and the private space of the self where modernity's concerns lie. The constructed 'self' in the digitally modern avatar is created partly from data about the public, rejecting the modern self in impatient terms reminiscent of Richard Sennett: 'Masses of people are concerned with their single life histories and particular emotions as never before; this concern has proved to be a trap rather than a liberation.'[57] Sennett's argument for bringing aspects of a formal public culture into social relations, although it makes little use of technology, sounds a little like the starting gun for digital modernity. Because 'every self is in some measure a cabinet of horrors, civilised relations between selves can only proceed to the extent that nasty little secrets of desire, greed or envy are kept locked up.'[58]

Let us consider an example. In medicine, the behaviour of the overweight, smokers, drinkers and the sedentary is measured against averages, benchmarks and standards in *in silico* models (computer simulations), rather than any parameter directly relevant to them. Targets are used to manage risk. Missing the targets

increases the risk of certain events occurring, although the meaning of this is rarely unpacked (or communicated to the patient). The datafication of medicine has been evident for a while, generated by 'the development of such disciplines as probability statistics, increased focus on risk management and health promotion, with recent developments in computer technology as the factor responsible for the escalation seen [since the 1990s]'.[59]

Whether the (mere) improvement of a person's medical data, even given the promise of personalised medicine via genomics, mobile technologies and *in silico* integration of patient-specific data, can realistically, or ought to, be divorced from the subjective experience of the individual, who may create meanings, relationships and ways of life that do raise specific technically defined risks (for instance, going to the pub, or enjoying the camaraderie of a cigarette on the steps outside the office) is surely a moot point.[60] Personalised medicine is designed to afford disease prevention among healthy persons through detection and elimination of risk factors, although this itself creates counter-risk, such as overdiagnosis and overtreatment. Such manipulation of the avatar also takes place in a social context (ranging across the personal goals and habits of the patient, the norms of the social groups of which he or she is a part, the degree of medicalisation in society as a whole, and values which may conflict with the degree of sociotechnical control that personalised medicine implies) which is usually ignored, because it is silent in the data,[61] and the model can be difficult and abstract for the patient to contextualise or convert into action to address health problems.[62] In all, the notion of harm as the exhibition of risk factors in a patient's data is a transformation of, rather than an unalloyed improvement in, earlier notions of illness.

Treatment of such data harms is to manipulate behaviour in order to produce more favourable data. As noted earlier, the best that reality can do according to digital modernity is approach the perfection of the algorithm and the data, but this can lead policymakers to reason that they may legitimately strongarm the physical and social world into providing better data. Because of generally low levels of data literacy,[63] many paternal interventions, such as nudging[64] or setting targets, must therefore go beyond Mill's original principle. Scotland, for instance, has a national walking strategy,[65] while the United Kingdom has a loneliness strategy,[66] policy interventions that would have appeared baffling in the pre-data days when government involvement could not have been judged on the fluctuations of parameters of data.[67] Individuals' decisions about how to get from A to B, or whether, when and with whom to interact, were considered to be their own affair, and not things that could be aggregated into reflections of a population's merit (so that, for example, Scots could beat themselves up because they walk less than Italians or South Africans).

Mill's original principle referred to the harm caused to others by an individual's actions, under the conditions of modernity which assume that the most important harms are to individuals. Under digital modernity, the *avatar* is now the locus of

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harm, and as social networks and connections are central to the calculation of the well-being of such avatars, one individual, by generating poor value data, can adversely affect the well-being of others. Every person who drives rather than walks drags down total mortality data, and thereby lowers life expectancy of every avatar; the effects of loneliness are apparently equivalent to smoking fifteen cigarettes a day, and thus similarly threaten the length of life predicted for every citizen.[68]

Given this revision of Mill's principle, the maintenance of impressive national statistics showing how well citizens' avatars are flourishing becomes a matter of national policy, however difficult they are to understand in intuitive terms. For example, a recent report in the *Lancet* that South Korean life expectancy was projected to become the highest in the world[69] was taken by many as an important Korean policy success, while also baffling one journalist critical of South Korea's inequalities and poverty.[70] Yet the crunching of the healthcare data led only to adjustment of parameters that are extremely remote from any actual lived experience. The *Lancet* article's headlines were generated, for example, by the discovery that 'There is a 90% probability that life expectancy at birth among South Korean women in 2030 will be higher than 86·7 years . . . and a 57% probability that it will be higher than 90 years.' In other words, there is a 57% probability that the mean length of life for the hypothetical cohort of girls born in South Korea in 2030 will exceed 90, if they are all exposed to mortality rates as projected from the present (and, since we do not know the mortality rate for people in the present, since they are all necessarily alive, this parameter itself must be inferred from the mortality rate for even older cohorts). How meaningful this is depends on how seriously one takes risks from, say, climate change, or the continued existence of a fanatically hostile and well-armed state immediately on the Northern border, which could affect mortality rates in highly unpredictable ways. However, under digital modernity, we can see that the actions now, of people with only a remote connection with the 2030 birth cohort, could still drag down life expectancy for that cohort by adversely affecting estimated mortality rates (by smoking, being lonely, driving instead of walking, or other dastardly derelictions of duty to the avatar). The avatars of currently non-existent individuals will have a shorter projected life, and we can see how a version of Mill's harm principle taking into account the harms caused to avatars by adverse data generated by individuals, could indeed legitimise the paternalistic nudging and other interventions discussed above. We start to see the emergence of the 'therapeutic state' predicted by Michael Oakeshott many years ago.[71]

Of course, not all the data that goes into the construction of an avatar is pooled across entire societies in this way (although the avatars of future citizens must surely depend on data about those in the present and past). We might avoid the paternalism of the revised Mill's principle, at least with respect to present citizens, by disaggregating data to produce *personal* risk profiles. However, paternalism does not thereby disappear, because with personalised risk, the pooled insurance model of harm mitigation is less sustainable. Against the principle of equality underlying pooled insurance is placed a principle of merit – the data can show whether you

brought illness or accident upon yourself via bad diet, bad driving or bad behaviour.[72] New notions of fairness come into play, depending on whether the data one generates is sufficiently similar to the data generated by others. While policyholders are assumed to be personally in control of their diet or driving style or lifestyle, the data infrastructure provides real-time feedback to disincentivise bad behaviour, so their decisions (e.g. to order extra fries or drive beyond the speed limit) come with a price tag. This illustrates how autonomy looks increasingly irrelevant in the subjunctive world, whatever the balance is between data focused on or generated by the individual, and population data generated by others.

Anti-discrimination laws may attempt to preserve the model of pooled insurance against this neoliberal notion of personal responsibility, but they are not magic bullets; they are likely to come under pressure when they promote arguably unjust outcomes or moral hazard.[73] Actuarial examples in particular are data-driven. It is illegal in the EU to set insurance premiums that are discriminatory on grounds of gender even though, based on the actuarial data, it is cheaper to insure women as they are involved in fewer accidents. There is an associated cost to refusing to discriminate here on grounds of gender, which will ultimately be paid by women, and we may argue about the justice of this outcome, as women are in effect subsidising men's poor driving. In a wider sense, producing fair, accountable and transparent machine learning (FAT-ML, the topic of an already large annual conference supported by the ACM),[74] may have the perverse effect of removing incentives to behave in socially positive ways, such as paying one's debts, taxes or bills, not going to prison, not making insurance claims, and making complex plans for saving and expenditure across decades (such as pensions, mortgages, or paying for children's education), when those positive behaviours (or their opposites) are disproportionately associated with particular social groups, especially those delineated by gender or ethnicity, because of prior structural factors that themselves are discriminatory, and so cannot be discriminated for.

It is also worth noting, finally, that these considerations also apply to aspects of policy that do not rely on personal data, and hence where personalisation does not feature prominently. For example, statements made by Greta Thunberg or Extinction Rebellion[75] about the dangers and catastrophic effects of climate change are characteristically digitally modern in their focus on the effects exhibited by *models* of the global climate system. Their rhetoric concentrates on motivating direct action by supporters on the basis of climate models, eschewing the characteristically modern dilemmas of how to manage the uncertainties contained in such models,[76] and of how to express the advice implicit in such models to policymakers in actionable terms.[77] In the subjunctive world, we *should* work to get carbon emissions down, if only we were acquainted with the relevant models, and our choices that we *should* make about driving, flying or otherwise consuming resources can be read off the model. They are not legitimate choices expressing individuality made in the context of carbon taxes, carbon prices or other economic signals, but rather the model tells us what we should choose.

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The characteristics of digital modernity are detectable in this radicalised discourse, with profound consequences for individuals (if Extinction Rebellion's demands, such as reducing greenhouse gas emissions to net zero by 2025, are to be adopted[78]), even though data about individuals is not used for construction of climate models/avatars, and even though there is no personalisation of the choices that individuals should make in this particular policy area, and those demanding action on climate change give little or no thought to the issue of expression of individuality. However, as is usual under digital modernity, the model's health is taken to be the important trigger for action.

It is interesting that in this area, it is rebels and protestors who embrace digital modernity, whereas the state and those in power do not. This is perhaps because of the economic cost of adjusting the global economy to improve the health of the model. In the medical case, it is cheap for authorities to embrace digital modernity, because they have sufficient power and resources to enforce personalisation in medical and other contexts. In the case of the environment, a digitally modern approach tells the state and large corporations something they don't want to hear.

2.6 CONCLUSION

Digital modernity brings with it many benefits, and the democracies that host it are beacons of well-being and tolerance. We should resist the temptation to launch into a jeremiad, although the technology and the narrative are likely to play out differently in societies with less of a tradition of liberty.

However, it seems clear that, while digital modernity preserves the focus on the individual, the sidelining of autonomy and privacy as values, and the decoupling of ideas of harm and remedy from the lived experience of the individual, are both concerning. Many complex social processes are being disrupted and disintermediated by networked technology, with humans being removed from the loop. This may result in an increase in some notion of 'efficiency', but threatens to destroy a lot of social capital, as the world becomes less familiar and navigable.

The shift from choice to personalisation as the mechanism for expressing individuality undermines the individual's control and understanding. Whether the promised delivery of greater benefits in the subjunctive world is sufficient compensation is a moot point. How the shift can be slowed or prevented will require an intense interdisciplinary effort involving law, politics, technology and economics, for several years to come.[79]

NOTES

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