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Artificial Intelligence and the Past, Present, and Future of Democracy

Modern democracy is an ongoing experiment, and in many ways, we should be surprised that it has worked at all.

—David Stasavage[1]

3.1 INTRODUCTION: RULE OF THE PEOPLE

A distinctive feature of recognizably democratic structures – an intrinsic rather than comparative advantage – is that they give each participant at least minimal ownership of social endeavors and thereby also seek to inspire people to recognize each other as responsible agents across domains of life. Arguments for democracy highlight possibilities for emancipation, indispensability for human rights protection, and the promise of unleashing human potential. Concerns that defenses of democracy must overcome include shortsightedness vis-à-vis long-term crises, the twin dangers of manipulability by elites and susceptibility to populists, the potential of competition to generate polarization, and a focus on process rather than results. Winston Churchill, speaking as Leader of the Opposition in the British Parliament in November 1947, commented on democracy as follows:

> No one pretends that democracy is perfect or all-wise. Indeed, it has been said that democracy is the worst form of Government except all those other forms that have been tried from time to time; but there is the broad feeling in our country that the people should rule, continuously rule, and that public opinion, expressed by all

[1] Stasavage, *The Decline and Rise of Democracy*, 296. For a political-theory idealization of modern democracy in terms of two "tracks," see Habermas, *Between Facts and Norms*, chapters 7 and 8. The first track is formal decision-making (e.g., parliament, courts, agencies). The other is informal public deliberation, where public opinion is formed.

> constitutional means, should shape, guide, and control the actions of Ministers who are their servants and not their masters.[2]

Often quoted (in various degrees of accuracy), these lines express the sentiment that arguments for democracy must be balanced against the aforementioned concerns, and this balancing involves comparing democracy with "all those other forms that have been tried from time to time."

Democracy means "rule of the people." While it is broadly praised, there is much disagreement about how to understand democracy as a political ideal and about how best to translate the ideal into collective decision-making. In the contemporary discussion, three ways of understanding "rule of the people" stand out. First of all, *procedural understandings* emphasize possibilities for changing rulers through political competition. What matters about democracy, based on such views, is that there are peaceful ways of which all citizens can avail themselves to change the government. Secondly, there are *populist* views, which stress the value of institutions that capture "the will of people." Popular rule, then, is the ultimate political value. Thirdly, there are *liberal* views, which differ from both of these.

In contrast to procedural views, liberal views emphasize the inherent value of both popular rule and individual participation. But in contrast to populist views, liberal democracy constrains popular rule through basic liberties and other demands of justice often codified in constitutions. Such demands are protected even against the popular will. Thereby, liberal democracy also creates space for separation of power, judicial review, or other checks and balances.[3] Rawls's public-reason conception of the political domain, with its accompanying theory of justice, falls in this camp. After all, one hallmark of the Rawlsian view is a distinctive view of the nature of citizenship (and its importance): Civil and political rights are strongly protected (especially against majoritarian decision-making), and public reason delineates a sphere of interaction among citizens that is set apart from ways in which comprehensive doctrines enter their lives. This liberal view is the contemporary understanding of the ideal of the rule of the people that I endorse and use here.

Democratic theorists typically have not focused much on the *materiality* of human affairs: the ways these affairs critically involve artifacts, devices, and systems. They have seen democracy as a set of ideas and human practices. By contrast, the materiality of human affairs has been a distinctive theme in Science, Technology, and Society Studies (STS), especially in the work of Bruno Latour, one of its most visible exponents. Latour has long insisted that no entity matters in isolation but instead attains meaning through numerous, changeable relations. Human activities tend to depend not only on more people than the protagonists who stand out, but also on nonhuman entities. Latour calls such multitudes of relations *actor-networks*

[2] https://api.parliament.uk/historic-hansard/commons/1947/nov/11/parliament-bill

[3] On different understandings of democracy, see Gutmann, "Democracy."

and refers to the ways in which these various components of such a system affect each other as *translations*.[4]

Specialized AI has much potential for changing the materiality of democracy by modifying how collective decision-making unfolds and what its human participants are like (how they see themselves, what relationships they have, what forms of human life their interactions bring about, etc.). Paying attention to the materiality of democracy is also a way of developing the point that the public-reason standpoint (which I take to be part of the liberal view of democracy) must acknowledge the *foundational* sense in which technology is political. (In this way the present chapter continues our discussion from Chapter 2.) Technology is political, that is, especially in the sense that the material underpinnings of democracy matter for how the democratic ideal translates into practices and can survive.

This chapter reflects on medium- and long-term prospects and challenges for liberal democracy brought on by AI. It does so in a historical perspective that emphasizes how its materiality – the way it is an actor-network – has always shaped the manner in which "rule of the people" has been implemented, and what ways of being human have opened up thereby. I begin by exploring the materiality of "early" (Section 3.2) and "modern" democracy (Section 3.3). Section 3.4 investigates whether technology and democracy are natural allies: that is, if anything about technological advancement distinctly favors or disfavors democratic governance. I argue that democracy and technology, specifically AI, are by no means natural allies. Instead, we need wise design choices to make sure AI strengthens democracy. Section 3.5 introduces a Grand Democratic AI Utopia, an imagined future in which AI is used at a large scale to make democracy work. Nobody has so far seriously proposed anything like this, but it is a scenario worth considering at a time when AI's possibilities are much discussed. As it turns out, we would be ill advised to be guided by such a utopia.

What, then, are the possibilities and challenges of AI for democracy (in its liberal understanding, which I adopt for contemporary discussions) in our digital century? Specifically, how should AI be designed to harness the *public sphere*, *political power*, and *economic power* to maintain democracy as a way of life? Sections 3.6–3.8 explore these questions. Not only can technology be harnessed to improve democratic politics, but in fact democracy generates certain problems that can only be solved through technology. Nonetheless, the insight that democracy and technology are not natural allies remains valid: It requires sustained efforts to make sure technology is not used to undermine democracy. This chapter brings in several themes that reappear later. For example, Chapter 11 looks at how superintelligences might eventually enter the political domain with humans, but that is not the perspective

[4] Latour, *Reassembling the Social*; Latour, *We Have Never Been Modern*. To be sure, and notwithstanding the name of the theory, Latour speaks of *actants* rather than *actors*, to emphasize the role of nonhuman entities.

we take here. This chapter explores how to combine democracy and technological innovation so that the latter advances the former.[5]

3.2 THE MATERIALITY OF EARLY DEMOCRACY

Contemporary representative democracies – typically located in territorial states rather than limited to individual cities – involve structures for collective choice that periodically empower relatively few people to steer the social direction for everybody. As in all forms of governance, technology shapes how this unfolds. Technology explains how citizens obtain information that delineates their participation (often largely limited to voting) and frees up people's time to engage in collective affairs to begin with. Devices and mechanisms permeate campaigning and voting. Technology shapes how politicians communicate, and how bureaucrats administer decisions.

This relevance of technology for democracy notwithstanding, political theorists typically treat democracy as an ideal without considering its materiality much. By contrast, a social-scientific perspective on democracy developed by David Stasavage makes it easier to focus on its materiality and thus subsequently on the impact of AI.[6] Stasavage distinguishes *early* from *modern democracy*, which differ in terms of how they secure the consent of the governed and thus implement the rule of the people. Both contrast with *autocracy*, governance without the consent of the governed. Once we see how Stasavage defines the two forms of democracy, we can readily capture the materiality of both. In other words, Stasavage provides an understanding of democracy that renders it straightforward to connect insights from Latour with democratic theory.

Early democracy was a system in which rulers governed jointly with either relatively small councils or larger assemblies whose members were independent from rulers and thus not directly subject to their whims. Such councils or assemblies provided information and assisted with governance. Sometimes councils were elite gatherings. Sometimes there was broad participation in assemblies or in procedures to select members. The rulers themselves might have been elected to or have inherited their position. Early democracy normally arose in smaller rather than larger polities, in polities where rulers depended on their subjects for information about what the subjects owned or produced (and so the rulers could not tax without such compliance) and where people had exit options and thus could put themselves

[5] On AI and democracy, also see Reich, Sahami, and Weinstein, *System Error*, chapter 8; Coeckelbergh, *The Political Philosophy of AI*, chapter 4. For possible uses of AI in the delivery of public services, see Margetts, "Rethinking AI for Good Governance." For some recent discussions of the some of the pressures on democracy in the digital age, see Runciman, *How Democracy Ends*; Applebaum, *Twilight of Democracy*; Weale, *The Will of the People*; Susskind, *The Digital Republic*.

[6] Stasavage, *The Decline and Rise of Democracy*.

and their assets physically beyond reach of their current rulers. Under such conditions, rulers had to involve at least parts of the population in governance. Early democracy as outlined here was common around the globe and not restricted to Greece, as the standard narrative has it.[7]

To be sure, what is special about Athenian and other Greek democracies is the *extent* to which they gave a voice to those not directly controlled by the ruling circles: They were the most extensively participatory among known instances of early democracy. To elaborate on that (and thereby to illuminate the materiality of early democracy), let us discuss Athens some more. In the sixth-century BC, Cleisthenes divided Athens into 139 *demes*, groups of people comprising 150 to 250 men (women playing no political role), which formed ten artificial "tribes." *Demes* in the same tribe inhabited different regions of Attica. Each tribe sent 50 men, randomly selected for a year, to the Council of Five Hundred to administer day-to-day affairs and prepare sessions of the Assembly, which included all citizens. This system fed knowledge and insights from all eligible men into collective decision-making without positioning anyone for takeover.[8]

To be sure, this governance system could work only because it enslaved people (and maintained a military to that effect) to do the labor needed to maintain the economy. Only in such a manner could parts of the population have time freed up to attend to collective affairs. Transport and communication also had to function to let the citizens do their parts in governance. The governance system likewise depended on a steady, high-volume circulation of people in and out of office to make governance impersonal, representative, and transparent at the same time. That flow, in turn, required close bookkeeping to guarantee that people were at the right place at the right time.

Such bookkeeping involved technical devices. These devices represent the material ingredients of democratic governance narrowly conceived (while a broader understanding of the materiality of Athenian democracy also involves topics such as production, transport, and communication). Let me mention some of these devices. The *kleroterion* (allotment machine) was a two-by-three-foot slab of rock with a grid of deep, thin slots gouged into it. Integrating some additional pieces, this

[7] To the extent that rule by as actual *demos* (populace) that is *distinct* from an aristocracy is the hallmark of democracy, many cases covered by Stasavage's definition would not count as democracies. After all, as Stasavage defines it, the hallmark of early democracy was that some of the people who were governed by the rulers needed to be involved in the governance process, but this does not mean that the whole demos was so involved. But while governance in ancient Greece was characterized by *demoi*, thus representing a democracy in this sense, the *demoi* included only subsets of the male population. In this way, they were "the people" *only* in contrast to the aristocracy, not by including anything approaching the totality of even the native adult population. To think of Greek democracy as a unique innovation also contradicts the evolutionary story of early bands of humans who succeeded because they were good at cooperating and had brains that had evolved to serve cooperative purposes; see, for example, Boehm, *Hierarchy in the Forest*.

[8] Stasavage, *The Decline and Rise of Democracy*, chapter 2; Ober, *The Rise and Fall of Classical Greece*, chapter 6; Thorley, *Athenian Democracy*, chapter 3.

sophisticated device helped select the required number of men from each tribe for the Council or for juries and committees where representation mattered. Officers carried around their allotment tokens, pieces of ceramics inscribed with pertinent information that fit with another piece at a secure location. That other piece could be produced if credentials were questioned. Athens was too large for all citizens to be personally acquainted. With speaking times limited during Council or Assembly meetings, a water clock (*klepsydra*) kept time. Announcement boards at central locations recorded decisions or messages. For voting, the Athenians used flat bronze disks as ballots. Occasionally, the Assembly expelled citizens whose prominence threatened the impersonal character of governance; these notorious *ostracisms* were recorded by citizens carving into potsherds the names of those whom they believed should be expelled.

Aristotle argued that citizens assembled for deliberation could display virtue and wisdom that no individual could muster, an argument for democracy (the "argument from the wisdom of the multitude") that resonated through the ages.[9] It took a particular mode of organizing the life of Athenian society (everyone who lived there, including the enslaved people) and certain material objects to make all of this work. That mode of organization and these objects were at the heart of early democracy in Athens; they served as systems and devices in actor-networks to operationalize consent of (some of) the governed in specific ways. What it meant to be a citizen in democratic Athens – and thus this way of being human – was defined by this actor-network that, accordingly, required a lot of more than a certain group of humans putting their heads together in assembly. While Athenian democracy flourished, the nature of that flourishing consisted in the multitude of actors (or *actants*) in that network translating each other's presence into something new. In particular, the life of specific humans could be translated into the life of citizens only in such ways.[10]

3.3 THE MATERIALITY OF MODERN DEMOCRACY

Let us turn to modern democracy. Modern democracy is representative, with mandates that do not bind representatives to an electorate's will. While early democracy as Stasavage understands it is not an exclusively European phenomenon, modern democracy is a European invention. Representatives have emerged from competitive elections under suffrage that has become increasingly universal over the centuries. Accordingly, participation in modern democracies is broad but typically episodic.

[9] Aristotle, *Politics*, 1281a39–b16. Also see Risse, "The Virtuous Group."

[10] For the devices, see Julian Dibbell, "Info Tech of Ancient Democracy," which explores museum literature on artifacts displayed in Athens: www.alamut.com/subj/artiface/deadMedia/agoraMuseum.html#3. See also Dow, "Aristotle, the Kleroteria, and the Courts"; Bishop, "The Cleroterium." For the mechanics of Athenian democracy, see also Hansen, *The Athenian Democracy in the Age of Demosthenes*.

The material conditions for the existence of modern democracies resemble those of early democracy: Such democracies emerge where rulers depend on subjects to volunteer information and where people have exit options. But modern democracy is possible in large territories, as exemplified by the United States, and these territories' large sizes (and populations) generate two legitimacy problems.[11] First, modern democracy generates distrust since "state" and "society" easily remain abstract and distant (the distant-state problem). Second, there is the problem of overbearing executive power (the overbearing-executive problem). Modern democracies require bureaucracies to manage day-to-day-affairs. Bureaucracies generate their own dynamics (especially when not as firmly directed as they would be in tightly organized autocracies). Where heads of state are elected directly, executive power might become personal power, which also unleashes dynamics of its own. Eventually, citizens might no longer see themselves as governing.[12] The distant-state and overbearing-executive problems are so substantial that, for Stasavage, "modern democracy is an ongoing experiment, and in many ways, we should be surprised that it has worked at all."[13]

Modern democracy also depends on material features to function (and, ideally, to solve these problems). Consider the United States in 1787/88, Alexander Hamilton, James Madison, and John Jay – under the collective pseudonym "Publius" – published eighty-five articles and essays known as the "Federalist Papers" to promote the constitution. Hamilton calls the government the country's "center of information."[14] "Information" and "communication" matter greatly to Publius: The former term appears in nineteen essays, the latter in a dozen. For these prominent advocates of this trailblazing system of representational democracy, the challenge is to find structures for disclosure and processing of pertinent information about the country.

Publius thinks members of Congress would bring information to the capital after aggregating it in the states. But at the dawn of the republic, the vastness of the territory posed a formidable challenge to gathering and conveying information.

[11] Hélène Landemore has argued that modern democracy erred in focusing on representation. Instead, possibilities of small-scale decision-making with appropriate connections to government should have been favored, which is now more doable through technology. See Landemore, "Open Democracy and Digital Technologies"; Landemore, *Open Democracy*.

[12] Howard Zinn has a negative take specifically on the founding of the United States that would make it unsurprising that these legitimacy problems arose: "Around 1776, certain important people in the English colonies (. . .) found that by creating a nation, a symbol, a legal unity called the United States, they could take over land, profits, and political power from favorites of the British Empire. In the process, they could hold back a number of potential rebellions and create a consensus of popular support for the rule of a new, privileged leadership;" Zinn, *A People's History of the United States*, 59.

[13] Stasavage, *The Decline and Rise of Democracy*, 296. For a political-theory idealization of modern democracy in terms of two "tracks," see Habermas, *Between Facts and Norms*, chapters 7 and 8. The first track is formal decision-making (e.g., parliament, courts, agencies). The other is informal public deliberation, where public opinion is formed.

[14] Cooke, *Federalist*, 149.

One historian described the government's communication situation as effectively a "quarantine" from society.[15] Improvements in postal services and changes in the newspaper business in the nineteenth century brought relief, creating the central role of media in modern democracies. Only such developments were able to turn modern democracies into actor-networks where representatives no longer labor in de facto isolation.[16]

"The aim of every political constitution is or ought to be first for rulers to obtain men who possess most wisdom to discern, and most virtue to pursue the common good of society," we read in Federalist No. 57.[17] To make this happen, democracy requires voting systems, in addition to a political culture where the right people seek office. In the United States, the design of these systems has been left to states. Typically, the orderliness of what they devised in terms of assigning people barely resembled that of the *kleroterion*.

"Ballot" comes from the Italian word *ballotta* (little ball). In voting systems designed by American states in the early days of the republic (and more locally already before there even was a republic), ballots often were small and round: They included pebbles, peas, beans, and even bullets.[18] Paper ballots gradually spread, partly because they were easier to count. Initially, voters had to bring paper and write down properly spelled names and offices. The rise of paper ballots facilitated that of political parties. Party leaders would print ballots, often in newspapers: long strips listing entire slates or pages to be cut into pieces, one per candidate. Party symbols on ballots meant voters did not need to know how to write or read, an issue unknown when people voted by surrendering small round objects or by voice.

In 1856, on the other side of the world, the Australian state of Victoria passed its Electoral Act, detailing the conduct of elections. Officials had to print ballots and erect booths or hire rooms. Voters marked ballots secretly, and nobody else was allowed in polling places. The "Australian ballot" gradually spread, typically against much resistance. Officially, such resistance arose because secret voting (naturally) eliminated the public character of voting that many considered essential to honorable conduct. But the real issue was that secret voting made it hard for politicians to get people to vote for them in exchange for money. And to be sure, such ballots meant that voters had to be able to read, making voting harder for immigrants, formerly enslaved people, and uneducated poor individuals. In 1888, Massachusetts

[15] Young, *The Washington Community 1800–1828*, 32.

[16] Bimber, *Information and American Democracy*, chapter 3. For the argument that, later, postal services were critical to colonizing the American West (and thus have been thoroughly political throughout their existence), see Blevins, *Paper Trails*.

[17] Cooke, *Federalist*, 384.

[18] I follow Lepore, "Rock, Paper, Scissors." Some of those themes also appear in Lepore, *These Truths*, especially chapter 9. See also Saltman, *History and Politics of Voting Technology*. For the right to vote in the United States, see Keyssar, *The Right to Vote*.

passed the first statewide Australian-ballot law in the United States. By 1896, most Americans cast secret, government-printed ballots.

The "Australian ballot" was supposed to help with the creation of conditions under which citizens could cast their vote without interference and manipulation. The introduction of machines for casting and counting votes, which in the United States dates to the 1880s, was intended to serve the same purpose. However, machines too can be manipulated, or fail outright. The mechanics of American elections have remained contested, as of course their mechanisms too have been all along – that is, the ways in which the members of the various branches of government are chosen from among those who are eager or willing to take on the task of steering the social direction. The actor-network constitutive of a large contemporary territorial democracy – with all the systems and devices needed to convey information and maintain communication, produce things, maintain the infrastructure, select members of the government, and so forth – is substantially more complex than that of Ancient Athenian democracy. But here to, if we want to assess how this representative system is faring (e.g., in terms of how well it is dealing with the distant-state and overbearing-executive problems) and ponder what ways of being human it makes possible, we must talk about a very large actor-network. We must talk about how a whole range of actors (actants) translate the life of many human beings into the life of citizens in such a system.

3.4 DEMOCRACY AND TECHNOLOGY: NATURAL ALLIES?

Recall that the alternative to democracy is *autocracy*, governance without consent of the governed. More enduring autocracies typically develop a strong bureaucracy that gives their governance an efficiency and effectiveness with which consent-based systems have difficulties competing. Autocracy benefits from technological advances because these make control more effective. At the same time, modern democracy requires technology to solve its legitimacy problems. Careful design of the materiality of democracy is needed to solve the distant-state and overbearing-executive problems specifically. We should ask then: Does anything about technological advancement distinctly favor or disfavor *democratic* governance?

There is much evidence to dissuade us from the idea that technology and democracy are natural allies in any interesting sense. Often advances in production and communication undermined early democracy where it existed.[19] Technological improvements can easily reduce the advantages in information of subjects over rulers. For instance, once rulers have ways of assessing the fertility of land, they know how to tax it, and competent bureaucrats deploying state-of-the-art technology can facilitate this process. Agricultural improvements lead to people living closer together, which means bureaucrats can monitor them (and assess the value of assets). In the Ancient

[19] I continue to draw here on Stasavage, *The Decline and Rise of Democracy*.

world, innovations in writing, mapping, measuring, and agriculture made bureaucracies more effective, rendering autocracies with functioning bureaucracies more viable. Conversely, where progress in science and development was slow, survival of early democracy was favored: The conditions under which early democracy typically arose remained in place then. Deprived of technology and infrastructural background conditions that allow them to deploy bureaucracy to tighten control, rulers depend on cooperation from subjects.

Still, it would be an overstatement to say that "technology favors autocracy rather than democracy." Much depends on sequencing. In China, the democratic alternative to autocratic rule has never gained much traction. In recent decades, beginning with Deng Xiaoping, the country has made enormous economic strides under an autocratic system with a competent bureaucracy. Under Xi Jinping, China now aggressively advertises its system, and AI has started to play a major role in it, especially in surveilling its citizens. Indeed, the impact of technology has been to entrench and enhance autocratic rule, not to bring China to the democratic side.[20] Similarly, and this is the good news, entrenched democracies are unlikely to be undermined by technological advances (parallel to how the entrenched autocracy in China is unlikely to be undermined by such advances).

As far as AI and its impact on contemporary democracies are concerned, these broad historical lessons indicate that, in principle, entrenched democracies today could make good use of AI to enhance their functionality. Thereby, AI could become a key part of the materiality of contemporary democracies, much as China has made it a key part of its autocratic system of rule. But it should also be clear that it will require intense efforts to put technology to work for democracies. The remaining sections of this chapter discuss AI specifically in this regard once we have completed the present discussion.

Yuval Noah Harari has recently looked at the relationship between democracy and technology from a somewhat different perspective.[21] He argues that historically, autocracies have faced handicaps around innovation and growth. After all, since in autocracies power is exercised without the need to obtain their consent, the governed will not typically feel empowered to bring about change. In the late twentieth century especially, democracies outperformed dictatorships because they were better at processing information by leaving that task to a decentralized myriad of actors that did feel empowered to put available information to good use.

[20] The success of the Chinese model has prompted some philosophers to defend features of that model, also in light of how democracies have suffered from the two legitimacy problems; see Bell, *The China Model*; Bai, *Against Political Equality*; Chan, *Confucian Perfectionism*. For the view that China's Communist Party will face a crisis that will force it to let China become democratic, see Ci, *Democracy in China*. For the argument that different governance models emerge for good reasons at different times, see Fukuyama, *The Origins of Political Order*; Fukuyama, *Political Order and Political Decay*.

[21] Harari, "Why Technology Favors Tyranny."

Accordingly, Harari thinks the state of technology in the late twentieth century made it inefficient to concentrate information and power. Harari echoes Friedrich August von Hayek's "Knowledge Argument" for laissez-faire capitalism. Hayek argued that centrally planned economies could never match the efficiency of markets. Any single agent, including governments or social planners, could possess only a small fraction of the knowledge held across society.[22]

To be sure, Harari's perspective is consistent with what we took from Stasavage: Harari is concerned with efficiency and economic growth, whereas Stasavage explores the conditions under which different types of rule emerge. Notwithstanding certain differences in outlook, especially in interpreting historical evidence, Stasavage and Harari agree that – as we progress further into the twenty-first century – AI offers possibilities to governments that undermine the conditions that make democracy more viable than autocracy. As far as Hayek's Knowledge Argument is concerned, Harari insists that at this stage AI might altogether alter the relative efficiency of democracy versus autocracy. Nondemocratic government becomes more viable at least as an economic model to the extent that AI would make central planning specifically and autocratic governance generally more viable.

Recall that "modern democracy is an ongoing experiment, and in many ways, we should be surprised that it has worked at all."[23] Existing democracies might not be in imminent danger. But we must ensure that individuals matter to politics in modern democracies in ways that solve the distant-state and overbearing-executive problems, and this can only happen via technology. Only through the right kind of deployment of modern democracy's materiality can consent to governance be meaningful and make sure that democratic governance does not mean quarantining the leadership, as it did in the early days of the American republic. Much as AI helped to move Chinese Communist Party rule into the twenty-first century, so it could help democratic states to update their systems. More concretely, and in ways we discuss in later sections, AI could help twenty-first-century democracy to solve those two legitimacy problems. But given what history teaches about how technology strengthens autocracies, democrats must be vigilant vis-à-vis autocratic tendencies *from within*. Once autocratic government is a live option, its viability could increase through technological means, especially AI.

To highlight technology's dystopian potential for democracy – in the spirit of technology being political in the *enframing* sense – let us revisit Ellul. Chapter 4 of his *Technological Society* ("Technique and State") explores the impact of technology specifically on governance. Ellul mentions Lenin as the inventor of political technique, the ways in which technological thinking has been applied to the political domain.[24] One might have wanted to nominate Machiavelli as an early

[22] Hayek, "The Use of Knowledge in Society." See also Hayek, *The Road to Serfdom*.
[23] Stasavage, *The Decline and Rise of Democracy*, 296.
[24] Ellul, *The Technological Society*, 232.

master of manipulation and propaganda. But much beyond Machiavelli's time, possibilities of influencing people were limited – simply because people were hard to reach in ways that would influence their thinking. Only the technique of the modern era enabled Lenin, Hitler, and others to enlist large numbers of people for their causes. In the twentieth century, the possibilities of state propaganda increased enormously.

Eventually, as Ellul continues, the state as a whole is inextricably intertwined with the advancement of technique, and then also with the corporations that produce the machinery and everything else that comes with it. But then the state can no longer represent its citizens when their interests conflict with the development of technique. The state has too much of a vested interest in technique and completely depends on it to function, and so must prioritize it above all else. And in such ways it is then technique that determines what happens in society, and it does so without being influenced by anything else that happens in society (which is Ellul's harrowing thesis of the autonomy of technique). Individuals are no longer even taken seriously *as* individuals, and instead are treated collectively as masses (a phenomenon he calls "massification"). The pursuit of justice does not go anywhere, and in a technocratic system, any normative aspirations for the future generally fall on deaf ears.

In the meantime, we end up with a division of labor between technicians, experts, and bureaucrats – the standard bearers of technique – on the one hand, and politicians who (at least ideally) seek to represent the people and who are ultimately accountable on the other. "When the technician has completed his task," Ellul writes, "he indicates to the politicians the possible solutions and the probable consequences – and retires."[25] The technical class understands the technique but has no accountability. For the technician, Ellul continues,

> the state is not the expression of popular will, or a creation of God, or the essence of humanity, or a modality of the class war. It is an enterprise with certain services which ought to function properly. It is an enterprise which ought to be profitable, yield a maximum of efficiency, and have the nation for its working capital.[26]

In his most chilling metaphor, Ellul submits that the world that technique is in the process of creating is "the universal concentration camp."[27]

In contrast to Ellul, recall from Chapter 2 how Winner distinguishes two ways for artifacts to have "political qualities."[28] First, devices or systems can be strongly, perhaps unavoidably, tied to certain patterns of power. Winner's example is atomic energy, which requires certain elites to provide and protect energy sources. Second, devices or systems might be means for establishing patterns of power or authority,

[25] Ellul, 258.
[26] Ellul, 264.
[27] Ellul, 397.
[28] Winner, "Do Artifacts Have Politics?"; Winner, *The Whale and the Reactor*.

but the design is flexible: Such patterns can turn out one way or another. An example is traffic infrastructure, which can assist many people but can also keep parts of the population in subordination, say, if they cannot reach suitable workplaces. Much as in the design of traffic infrastructure, careful attention would have to ensure that technology advances democratic purposes. Along these lines, Joshua Cohen and Archon Fung – in reviewing deterministic viewpoints that see technology as clearly favoring or disfavoring democracy – conclude that

> the democratic exploitation of technological affordances is vastly more contingent, more difficult, and more dependent on ethical conviction, political engagement, and good design choices than the technological determinists appreciated.[29]

This perspective offers hope in ways in which Ellul's rather extreme view does, of course, not. Careful design of the materiality of democracy is needed to solve the distant-state and overbearing-executive problems – and to keep democracy flourishing as a way of life in an era of technological innovation. The historical record does not have to make us pessimistic in this regard. But in light of the technological innovation all around us, the only way for us to rebut Ellul is to put our best efforts into using technology for democratic innovation.

3.5 THE GRAND DEMOCRATIC AI UTOPIA

We have so far looked at the materiality of democracy in historical perspective (Sections 3.2 and 3.3) and asked at a rather abstract level if democracy and technology are natural allies in any interesting sense (Section 3.4). For the remainder of this chapter, our gaze is directed at the future, and we are asking how AI might change the materiality of democracy. That is, we are asking whether AI can help solve the distant-state and overbearing-executive problem and overall maintain democracy as a way of life within the confines of a liberal understanding of democracy as introduced in Section 3.1. In a first step, let us consider a *Grand Democratic AI Utopia* as one way of giving us guidance (at least long-term) to how democracy could benefit from the arrival of AI.

We are nowhere near deploying anything like what I am about to describe, and for all I know, no serious scholar or activist currently asks for it. However, futurists Noah Yuval Harari and Jamie Susskind touch on something like this.[30] Moreover, more assertively James Lovelock thinks cyborgs could guide efforts to deal with

[29] Fung and Cohen, "Democracy and the Digital Public Sphere," 25. Or as computer scientist Nigel Shadbolt says, addressing worries that "machines might take over": "the problem is not that machines might wrest control of our lives from the elites. The problem is that most of us might never be able to wrest control of the machines from the people who occupy the command posts"; Shadbolt and Hampson, *The Digital Ape*, 63.

[30] Susskind, *Future Politics*, chapter 13; Harari, *Homo Deus*, chapter 9.

climate change.[31] And in discussing future risks, Toby Ord explores how AI might assist with our existential problems.[32] With technological innovation, our willingness to integrate technology into imageries for the future will only increase.[33] Such thinking is appealing because our brains evolved for the limited circumstances of small groups in earlier stages of *Homo sapiens* rather than the twenty-first century's globally interconnected world. Our brains were able to create this world but might not be able to manage its existential threats. So, it might well only be a question of time until some techno-optimists propose the large-scale involvement of AI in our collective-choice processes. Perhaps they will do so as a way of transferring Aristotle's aforementioned "argument from the wisdom of the multitude" – according to which a group might display virtue that no individual features – into the context of twenty-first-century representative democracies.

One might envisage something like this. AI knows everyone's preferences and views, and provides pertinent information to make people competent participants in governance. AI connects citizens to debate views, bringing together not only like-minded people on occasion but also (or more so) those of dissenting persuasions to make them hear each other. Monitoring everything, AI instantly identifies fraud and corruption. It flags or removes biased reporting and misleading arguments. It gathers votes, which eliminates challenges in people reaching polling stations, vote counting, and the like. AI improves procedural legitimacy through greater participation, while the caliber of decision-making increases because voters are well informed. AI calls for elections if confidence in the government falls below a threshold. Voters no longer merely choose one candidate from a list. They are consulted on multifarious issues, in ways that keep them abreast of relevant complexities, ensure that their views remain consistent, and so forth. More sophisticated aggregation methods than simple majoritarian voting are used.[34]

Perhaps elected politicians are still needed for some purposes. But by and large, AI reproduces certain features of early democracy for the twenty-first century while solving modern democracy's distant-state and overbearing-executive problems. AI resolves relatively unimportant matters itself, consulting representative groups for other matters to ensure that everything gets attention without swallowing too much time. In some countries, citizens can opt out of this AI-driven collective choice system. Others require participation, with penalties for those with privacy settings that prohibit integration into the system. Nudging techniques – to get people to do what is supposed to be in their best interest – are perfected for smooth operations.[35]

[31] Lovelock, *Novacene*.

[32] See Ord, *The Precipice*, chapter 5.

[33] So the upcoming discussion treats this Grand Democratic AI Utopia as a *sociotechnical imaginary* of a sort explored in Jasanoff and Kim, *Dreamscapes of Modernity*.

[34] For a discussion of majority rule in the context of competing methods that process information differently, also Risse, "Arguing for Majority Rule."

[35] Thaler and Sunstein, *Nudge*.

AI thereby voids previously prevalent issues around lack of inclusiveness. Privacy settings protect data, within the limits set by what is needed to make this whole collective choice system operational. Bureaucracies are much smaller because AI delivers public services, evaluating experiences from smart cities to create smart countries. Judges are replaced by sophisticated algorithms delivering even-handed rulings.[36] These systems can be arranged such that many concerns that might arise about the functionality and place of AI in human affairs are resolved internally. In such ways, enormous amounts of time are freed up for people to design their lives meaningfully.

Again, it is just possible that something like this might become more prominent in debates about AI and democracy. But right away, we should be wary of letting such scenarios guide our thinking, certainly if our ideal of what rule of the people means is what the liberal approach captures. To be sure, AI might develop in such a way that eventually intelligent machines have moral status, which would also raise the question of whether superintelligences might themselves be part of our political processes. Chapter 11 explores these matters, but they arise for a state of technological development that is not currently in place. In this chapter we focus on the view *from here*.

So here is why we – especially advocates of the liberal understanding of contemporary democracy – should be wary. To begin with, what makes imagining a future along such lines appealing is that it holds out the promise that either there is a *most* intelligent solution to many of the challenges in collective choice that we have so far experienced, or that at least there is a set of improvements across the board that make our collective choices *more* intelligent than what we have managed to implement so far. In other words, what is appealing is the idea that there is a one-dimensional kind of intelligence we can isolate as a kind of *pure* intelligence whose realization would dominate any collective choice system we have created so far and can be handed over to artificial devices. But recall from Chapter 1 that intelligence research does not even accept that there is only one kind of intelligence.[37] So the idea that there could be collective choice mechanisms that in terms of intelligence plainly *dominate* what humans have done so far is likely illusory.

Allowing algorithms to engage judgments and decisions as sketched above also harbors distinctive dangers. One is that, instead of investing in education to improve

[36] For the argument that "rule by automation" can enhance ideals of freedom and equality in democracies because it can make decision-making in public affairs more even-handed, see Sparks and Jayaram, "Rule by Automation." For the opposing viewpoint that algorithmic communications can be a threat to democratic participation when persons are operating in environments that are no conducive to political sophistication, see Christiano, "Algorithms, Manipulation, and Democracy." For the argument that "automated Influence" broadly conceived causes a crisis of legitimacy, see Benn and Lazar, "What's Wrong with Automated Influence." For the argument that relying on algorithmic systems is procedurally unjust in contexts involving background conditions of structural injustice, see Zimmermann and Lee-Stronach, "Proceed with Caution."

[37] See, for example, Gardner, *Frames of Mind*.

the practical reasoning of citizens (by making them more knowledgeable and better at reflecting on competing possibilities), we invest in building a system that facilitates collective decision-making.[38] That is, instead of making *people* better (also and especially in their role as citizens), we invest in making *systems* better. Ideally, of course, we would invest in both: The Grand Democratic AI Utopia would presumably work best if it helped us coordinate and aggregate the reasoning of wise, prudent, and knowledgeable individuals. But the danger is that, once such an AI-system is in place, a human tendency to delegate things *to the machine* would likely kick in, to the detriment of furthering human capacities.[39]

A second danger is that designing such a system inevitably involves large-scale efforts at building state capacities, which are subject to hijacking and other abuse. Another theme to recall from Chapter 1 (in addition to the research on intelligence) is that, at the dawn of the digital era, we also find Orwell's *Nineteen Eighty-Four*. Technology empowers people to do things, and the more people can do already, the more technology empowers them. Twenty-first-century governments with their already unprecedented capacities to penetrate the lives of their citizens are given ever more powerful tools through technological innovation. The government of Oceania in Orwell's dystopian novel uses those advancements to control the minds of the people subject to them. We should keep that warning firmly in sight: What would also be illusory here is to think that in the hands of governments, AI tools ostensibly designed to help with collective decision-making would *only* be used to bring out the collective will with greater clarity.

In conclusion, the Grand Democratic AI Utopia should not guide our thinking about how AI might enter our democratic processes. But what then are the possibilities and challenges of AI for democracy in this digital century? Sections 3.6–3.8 explore this question in a more focused way than our investigation of the Grand Democratic AI Utopia has allowed us to do. That is, we continue to ask how AI should be deployed to solve the two legitimacy problems of representative democracy and overall maintain democracy as a way of life within the confines of a liberal understanding of democracy; but we now ask specifically how to harness the *public sphere*, *political power*, and *economic power* to those ends.

3.6 AI AND DEMOCRACY: PUBLIC SPHERES

Public spheres are actor-networks intended to spread and receive information or opinions about matters of shared concern beyond family and friendship ties.[40] Prior

[38] For the argument that human practical rationality will suffer if we deprive ourselves of opportunities to practice decision-making by turning decision-making over to intelligent machines, see Eisikovits and Feldman, "AI and Phronesis."

[39] See also Helbing et al., "Will Democracy Survive Big Data and Artificial Intelligence?"

[40] For a classic study of the emergence of public spheres, see Habermas, *The Structural Transformation of the Public Sphere*. For how information spread in different periods, see

to the invention of writing, public spheres were limited to people talking. The flourishing of that early kind of public sphere depended on the availability of places where people could speak safely. The printing press mechanized exchange networks, dramatically lowering the costs of disseminating information or ideas. Eventually, newspapers became so central to public spheres that the press and later the media collectively were called the "fourth estate."[41] The press understood as private enterprise is the only such business mentioned in the US Constitution, which underscores both its importance for public life and the significance of legal regulation for its functionality in the service of citizenship.[42] After newspapers and other printed media, there was the telegraph, then radio, film production, and television. Eventually, leading twentieth-century media scholars coined certain slogans to capture the importance of media for contemporary life. Most famous among them were Marshall McLuhan in announcing that "the medium is the message" and Friedrich Kittler in stating that "the media determine our situation."[43]

"Fourth estate" is an instructive term. It highlights the relevance of the media and the deference for the more prominent among them, as well as for particular journalists whose voices carry weight with the public. (Walter Cronkite, an American broadcast journalist who served as anchorman for the *CBS Evening News* for about twenty years, was often referred to as "the most trusted man in America";[44] Cronkite died in 2009, and a dozen years after his death it is hard to imagine that it would ever become customary again to refer to anyone in that fashion.) But the term "fourth estate" also reveals that media have class interests of sorts: Aside from legal regulations, journalists have demographic and educational backgrounds that generate agendas. The ascent of social media, enabled by the internet, profoundly altered this situation, creating a public sphere where availability of information and viewpoints was no longer delineated by the "fourth estate." Big Tech companies have essentially undermined the point of referring to media that way.[45]

In the Western world, Google has become dominant in internet searches. Facebook, Twitter, and YouTube offer platforms for direct exchanges among individuals and associations at a scale previously impossible. Archon Fung refers to the

Blair et al., *Information*. For the development of media in recent centuries, see Starr, *The Creation of the Media*. For reflections on how communication is affected by the digital age, see O'Neill, *A Philosopher Looks at Digital Communication*.

41 This term has been attributed to Edmund Burke; see Schultz, *Reviving the Fourth Estate*, 49.

42 I take that thought from Minow, *Saving the News*, p. 1, 148. Minow frames her whole discussion in terms of that thought, mentioning at the very beginning and at the very end of her book.

43 McLuhan, *Understanding Media*; Kittler, *Gramophone, Film, Typewriter*.

44 See, for instance, this article in *Wired* from July 17, 2009: "TV News Icon Walter Cronkite Dies at 92," www.wired.com/2009/07/tv-news-icon-walter-cronkite-dead-at-92/

45 For an assessment of social media in the historical context of media in the United States, see Minow, *Saving the News*.

kind of democracy that arose this way as "wide aperture, low deference," in which a much wider range of ideas and policies is explored than before and traditional leaders in politics, media, and culture are no longer treated with deference but ignored or distrusted.[46] And not only did social media generate new possibilities for networking, but they also created an abundance of data to predict trends and target specific people with messages. The 2018 Cambridge Analytica scandal – arising from the British consulting firm obtaining the personal data of millions of Facebook users without their consent, to be used for political advertising – revealed the potential of data mining, especially in locations where elections tend to be won by small margins.[47]

Digital media have generated an online communications infrastructure that forms an important part of the public sphere. The size and importance of this part will only increase. The communications infrastructure consists of systems and paraphernalia that make our digital lives happen, from the hardware of the internet to institutions that control domain names and the software that maintains the functionality of the internet and provides tools to make digital spaces usable (browsers, search engines, app stores, etc.).

Private interests dominate our digital infrastructure. Typically, engineers and entrepreneurs ponder market needs, profiting from the fact that ever more of our lives unfolds on platforms optimized for clicks and virality. News is presented to appeal to certain users, which creates echo chambers and spreads a plethora of deliberate falsehoods (*dis*information, rather than *mis*information) to reinforce the worldviews of those users. Political scientists have long lamented the ignorance of citizens in democracies and the resulting poor quality of public decision-making.[48] Even well-informed, engaged voters choose based on social identities and partisan loyalties.[49] Digital media reinforce these tendencies. Twitter, Facebook, YouTube, and competitors seek growth and revenue. Also, attention-grabbing algorithms of social media platforms (whose operations nonetheless often remain unnoticed or opaque) can sow confusion, ignorance, prejudice, and chaos. Such AI tools represent artificial *un*intelligence.[50]

[46] For the emergence of digital media and their role for democracy, see Fung and Cohen, "Democracy and the Digital Public Sphere." For the formulation I attribute to Fung, see, for example, this podcast: www.hks.harvard.edu/more/policycast/post-expert-democracy-why-nobody-trusts-elites-anymore

[47] Jungherr, Rivero, and Gayo-Avello, *Retooling Politics*, chapter 9; Véliz, *Privacy Is Power*, chapter 3.

[48] Brennan, *Against Democracy*; Caplan, *The Myth of the Rational Voter*; Somin, *Democracy and Political Ignorance*.

[49] Achen and Bartels, *Democracy for Realists*.

[50] Broussard, *Artificial Unintelligence*. For critical takes on the role of digital media in democracies, also see Foer, *World Without Mind*; McNamee, *Zucked*; Moore, *Democracy Hacked*; Taplin, *Move Fast and Break Things*; Bartlett, *The People vs. Tech*.

Having a public sphere where viewpoints can be articulated authentically and authoritatively recently became much harder through the emergence of *deepfakes*. Bringing photoshopping to video, deepfakes replace people in existing videos with someone else's likeness. They are named after their usage of deep learning technology, a branch of machine learning that applies neural net simulation to massive data sets. Currently their reach is mostly limited to pornography, but their potential goes considerably beyond that. For decades video has played a distinguished role in inquiry. What was captured on film served as indisputable evidence, in ways photography no longer could after manipulation techniques became widespread. Until the advent of deepfakes, videos offered an "epistemic backstop" in contested testimony.[51] Alongside other synthetic media and fake news, deepfakes might help create no-trust societies where people no longer bother to separate truth from falsehood. Chapter 6 discusses these phenomena in detail.

What is needed to counteract such tendencies is the creation of what Ethan Zuckerman calls "digital public infrastructure."[52] Digital public infrastructure lets us engage in public and civic life in digital spaces with norms and affordances designed around civic values. Designing digital public infrastructure is like creating parks and libraries for the internet. Instead of outsourcing the public sphere to the highest bidder, these spaces are devised to inform us, are structured to connect us to both people we agree with and people we disagree with, and encourage dialogue rather than simply reinforcing perceptions. As part of the design of such infrastructures, synthetic media must be integrated appropriately, in ways that require clear signaling of how they are put together. In addition, people would operate within such infrastructures in ways that protect their entitlements as knowers and knowns, entitlements captured in terms of epistemic rights (which we discuss in Chapters 5 and 7).

One option for putting in place a digital public infrastructure is to create a fleet of localized, community-specific, public-serving institutions to fulfil the functions in digital space that community institutions have fulfilled in physical places for centuries. There must be some governance model for this fleet to serve the public. Wikipedia's system of many editors and authors or Taiwan's digital democracy platform provide inspiring models for decentralized participatory governance.[53] Alternatively, governments could create publicly funded nonprofit corporations to manage and maintain the public's interest in digital life. Specialized AI would be central to such work, regardless of which of these options is chosen. After all, it would be through the use of such AI that such digital public infrastructure would be

[51] Rini, "Deepfakes and the Epistemic Backstop." See also Kerner and Risse, "Beyond Porn and Discreditation."

[52] See Zuckerman, "What Is Digital Public Infrastructure?"; Zuckerman, "The Case of Digital Public Infrastructure." See also Pariser and Allen, "To Thrive Our Democracy Needs Digital Public Infrastructure."

[53] Regarding Taiwan, see Leonard, "How Taiwan's Unlikely Digital Minister Hacked the Pandemic."

up to the technological standards to which people have gotten accustomed in other domains.

Properly designed digital public infrastructures (supported by specialized AI) could be like Winner's inclusive traffic infrastructure and help solve the distant-state and overbearing-executive problems. The information and connection provided by these digital spaces would mitigate the notion that society is abstract and distant. And to the extent that these spaces draw citizens into the public realm their increased involvement also means that citizens can see themselves as governing, and thus push back against an overreaching executive branch.

3.7 AI AND DEMOCRACY: POLITICAL POWER

The Chinese social credit system comprehensively gathers information about individuals with the assistance of sophisticated electronic tools and brings that information to bear on what people may do in many domains of life. As far as the use of AI for the maintenance of power is concerned, this system illustrates how autocratic regimes avail themselves of technological advances.[54] In addition, across the world, cyberspace has become a frequent battleground between excessively profit-seeking or outright criminal activities and overly strong state reactions to them, which generate tools that also help authoritarians oppress political activities.[55] While most mass protests in recent years – from Hong Kong to Algeria and Lebanon – were inspired by hashtags, coordinated through social networks, and convened by smartphones, governments have learned how to respond to such movements. They control online spaces by blocking platforms and disrupting the internet.[56]

In his 1961 farewell speech, US president Dwight D. Eisenhower famously warned against the acquisition of unwarranted influence "by the military-industrial complex" and against public policy becoming "captive of a scientific-technological elite."[57] Those interconnected dangers would be incompatible with a flourishing democracy. Eisenhower spoke only years after the Office of Naval Research had partly funded the first Summer Research Project on AI at Dartmouth in 1956 (discussed in Chapter 1), with the military-industrial complex claiming a stake in this technology developed by the scientific-technological elite.[58]

Decades later, the 2013 Snowden revelations showed what US intelligence could do with tools easily classified as specialized AI. Phones, social media platforms, email, and browsers serve as data sources for the state. Analyzing metadata

[54] For a recent take, see Reilly, Lyu, and Robertson, "China's Social Credit System: Speculation vs. Reality." See also Dickson, *The Party and the People*.

[55] Deibert, *Black Code*; Deibert, *Reset*.

[56] Fung and Cohen, "Democracy and the Digital Public Sphere." For the theme of power in the context of digital media, also see Susskind, *The Digital Republic*.

[57] For the speech, see www.ourdocuments.gov/doc.php?flash=false&doc=90&page=transcript

[58] Crawford, *Atlas of AI*, 184. Obviously in 1961, AI is not what Eisenhower had in mind.

(who moved where, connected to whom, read what, etc.) provides insights into operations of groups and individuals. Private-sector partnerships have considerably enhanced the capacities of law enforcement and military to track people (using facial, gait, and voice recognition), from illegal immigrants at risk of deportation to enemies targeted for killing.[59]

Where AI systems are deployed as part of the welfare state, they often surveil people and restrict access to resources rather than providing greater support.[60] Secret databases and little-known AI applications have had harmful effects in finance, business, education, and politics. AI-based decisions on parole, mortgage, and job applications are often biased. Such practices readily perpetuate past injustice. After all, data inevitably reflect how people have been faring so far. Thus, they reflect the biases, including racial biases, that have structured exercises of power.[61] Decades ago, Donna Haraway's "Cyborg Manifesto," a classic at the intersection of feminist thought and the philosophy of technology, warned that the digital age might sustain white capitalist patriarchy with the "informatics of domination."[62] These practices have prompted observers to call societies that make excessive use of algorithms "black-box societies."[63] But democratic ideals require reasons and explanations in some way. If algorithms do things humans find hard to assess, it is unclear what would even count as relevant explanations.[64]

Of course, digital technologies can also strengthen democracy. In 2011, Iceland produced the first-ever "crowdsourced" constitutional proposal in the world. In Taiwan, negotiations among authorities, citizens, and companies like Uber and Airbnb were aided by an innovative digital process for deliberative governance called vTaiwan. France relied on digital technologies for the Great National Debate in early 2019 and the Convention on Climate Change between October 2019 and June 2020, experiments with deliberation at the scale of a large nation.[65] Barcelona has become a global leader in the smart city movement, deploying digital technology for matters of municipal governance.[66] The Smart City Index, created in 2019 to provide a global ranking of smart cities, speaks to how much innovation goes on in this movement across the world.[67]

Let me mention some more examples of how digital technologies have strengthened democracy. An Australian nonprofit eDemocracy project, Open

[59] Crawford, chapter 6. See also Véliz, *Privacy Is Power*.
[60] Eubanks, *Automating Inequality*.
[61] Benjamin, *Race After Technology*; Benjamin, *Captivating Technology*; Noble, *Algorithms of Oppression*. See also D'Ignazio and Klein, *Data Feminism*; Costanza-Chock, *Design Justice*.
[62] Haraway, *Manifestly Haraway*, 3–90. For the informatics of domination, see Haraway, 28.
[63] Pasquale, *The Black Box Society*. See also Broussard, *Artificial Unintelligence*; O'Neil, *Weapons of Math Destruction*.
[64] On this, see Vredenburgh, "The Right to Explanation."
[65] Bernholz, Landemore, and Reich, *Digital Technology and Democratic Theory*.
[66] Preville, "How Barcelona Is Leading a New Era of Digital Democracy."
[67] "Smart City Observatory."

Forum, invites politicians, senior administrators, academics, businesspeople, and other stakeholders to engage in policy debates. The California Report Card is a mobile-optimized web application promoting public involvement in state government. As the COVID-19 pandemic ravaged the world, democracies availed themselves of digital technologies to keep people connected and serve as key components of public health surveillance. And while civil society organizations frequently are no match for abusive state power, even investigations limited to open internet sources can harvest the abundance of available data needed to pillory abuse of power. The best-known example is the investigative-journalism group Bellingcat, which specializes in fact-checking and open-source intelligence.[68]

Let us wrap up this discussion about political power. One striking fact about the American version of modern democracy is that, when the preferences of low- or middle-income citizens diverge from those of the affluent, there is no correlation between policy outcomes and preferences of less advantaged groups.[69] In such cases, the policy preferences of such people are either actively de-prioritized, or these people are not seriously represented to begin with because the lawmakers do not have their interests in mind (and certainly not at heart). As far as political power is concerned, the legitimacy of modern democracy is therefore evidently questionable.

To improve upon that status quo, democracy could be strengthened considerably by well-designed AI. The digital public infrastructure discussed in the context of the public sphere can be enriched to include systems that deploy AI for improving citizen services across the board. Analyzing databases can give politicians a more accurate image of what citizens need. The bandwidth of communication between voters and politicians can increase immensely. Some forms of surveillance are necessary, but democratic governance requires appropriate oversight. Presumably it takes broadly based democratic grassroots movements to hold politicians accountable for realizing the democratic potential of such technologies without generating too many new challenges.[70]

3.8 AI AND DEMOCRACY: ECONOMIC POWER

The contemporary ideal of democracy typically includes egalitarian empowerment of sorts. But economic inequality threatens any such empowerment. This threat has implications for contemporary democracies, which frequently have capitalist economies. As Thomas Piketty has argued, capitalism generates inequality over time because, roughly speaking, owners of shares of the economy benefit from economic output and growth more than people living on the wages the owners

[68] Higgins, *We Are Bellingcat*. Also see Webb, *Coding Democracy*.
[69] Bartels, *Unequal Democracy*; Gilens, *Affluence and Influence*.
[70] On AI and citizen services, see Mehr, "Artificial Intelligence for Citizen Services and Government."

willingly pay.[71] A worry about democracy across history (and much on the mind of Publius) has been that the masses would expropriate the elites. But in capitalist democracies, we must worry about the opposite. It takes sustained policies around taxation, transportation, design of cities, health care, digital infrastructure, pension and education systems, and macro-economic and monetary policies to curtail economic inequality. The Rawlsian liberal view of democracy, for one, insist that economic inequalities be curtailed: Such inequalities are justifiable only to the extent that they are needed to benefit everyone, including the least-advantaged (and similarly for other liberal views of democracy).

One concern about AI is that, generally, the ability to produce or use technology is one mechanism that drives inequality, enabling those with requisite skills to advance – which in turn enables them not only to become well-off but also to become owners in the economy in ways that resonate across generations. Technology generally and AI specifically are integral parts of the inequality-enhancing tendencies Piketty identifies. One question that arises here is how these tendencies play out for those who are not among the clear winners. AI profoundly transforms jobs, at least because aspects of many jobs will be absorbed by AI or otherwise mechanized. These changes also create new jobs, including at the lower end, in the maintenance of hardware and the basic tasks around data gathering and analysis.[72]

On the optimistic side of predictions about the future of work, we find visions of society with many traditional jobs gradually transformed, some eliminated, and new jobs added – in ways creating much more leisure time for average people owing to increased societal wealth. On the pessimistic side, however, many who are unqualified for meaningful roles in tech economies might be dispensable to the labor force. Their political relevance might eventually amount to little more than that they must be pacified if they cannot be excluded outright. Lest this standpoint be dismissed as Luddite alarmism ("at the end of the tunnel, there have always been more jobs than before"), we should note that economies where data ownership becomes increasingly relevant and where AI absorbs many tasks could differ critically from economies organized around ownership of land or around ownership of factories. In these two earlier scenarios, large numbers of people were needed to provide labor; in the second case, to act as consumers as well. Elites could not risk losing *too many* laborers. But this constraint might vanish in the future, and then it might only be a small step from workers becoming economically redundant to them being politically entirely excluded.

To be sure, a lot does depend on how questions around control over and ownership of data are resolved; the relevance of these questions for our future economy cannot be overstated (a subject we discuss in Chapter 9). As Shoshana

[71] Piketty, *Capital in the Twenty-First Century*.

[72] On these topics, see, for example, Susskind, *A World Without Work*; West, *The Future of Work*.

Zuboff has argued, the importance of data collection for the economy has become so immense that the term "surveillance capitalism" characterizes the current stage of capitalism.[73] Surveillance capitalism as an economic model was developed by Google, which to surveillance capitalism is what Ford was to mass production. Later the model was adopted by Facebook, Amazon, and others. Previously, data were collected largely to improve services. But subsequently, data generated as byproducts of interactions with multifarious devices were deployed to develop predictive products and designed not only to forecast what we will feel, think, or do, but ultimately also to control and change these behaviors, always for the sake of monetization. Marx and Engels identified increasing commodification as a basic mechanism of capitalism (though they did not use that very term). Large-scale data collection is the maximal version of commodification: Such collection commodifies all our lived realities.

In the twentieth century, Hannah Arendt and others diagnosed mechanisms of "totalitarian" power, the state's all-encompassing power.[74] Its central metaphor is Big Brother, capturing the state's omnipresence. Parallel to that, Zuboff talks about "instrumentarian" power, exercised through use of electronic devices in social settings for harvesting profits. The central metaphor here is "Big Other," the ever-present electronic device that knows just what to do. Big Brother aimed for total control, Big Other for predictive certainty (that is, the advice given will always be followed because the needs are accurately anticipated). Chapter 8 has more to say on this subject.

Current technological innovation is disproportionately driven by relatively few large companies, which the futurist Amy Webb calls "the Big Nine": in the United States, Google, Microsoft, Amazon, Facebook, IBM, and Apple; in China, Tencent, Alibaba, and Baidu.[75] The Chinese companies are busy consolidating and mining massive amounts of data to serve the government's ambitions. The American ones implement surveillance capitalism, embedded into a legal and political framework that, as of 2022, shows little interest in developing strategic plans for a democratic future and thus shows little interest in doing for democracy what the Chinese Communist Party did for its system – upgrading it into this century. The EU is much more involved in such efforts. But none of the Big Nine is based there (though, to be sure, increasingly many smaller AI companies are), and economic competition in the tech sector seems to be to a rather disproportionate extent between the United States and China ("disproportionate" – that is, even vis-à-vis the large sizes of these two economies).

[73] Zuboff, *The Age of Surveillance Capitalism*. See also Véliz, *Privacy Is Power*; Hoffman, *Your Data, Their Billions*; Ghosh, *Terms of Disservice*.

[74] Arendt, *The Origins of Totalitarianism*.

[75] Webb, *The Big Nine*.

To avert the pessimistic side of the predictions about the future of work in ways that strengthen democracy, both civil society and the state must step up, and the enormous power concentrated in Big Tech companies needs to be harnessed for democratic purposes. It is hard to see how that can be done unless the Big Tech companies are either dismantled entirely (beyond simply breaking each of them into several smaller operations that would still each be humungous by any historical standards) or treated and thus regulated as public utilities alongside enterprises like phone companies. They have too much power and autonomy to be made to reorient their purposes toward democracy simply by means of self-regulation.[76]

3.9 CONCLUSION

As we bring about the future, computer scientists will become ever more important, including as experts in designing specialized AI for democratic purposes. That raises its own challenges. Much as technology and democracy are no natural allies, technologists are no natural champions of or even obviously qualified advisers in democracy. No one has expressed this standpoint as dramatically as Ellul. But one does not have to go to such lengths to see the challenges here. As Arendt stated, any scientific activity,

> since it acts into nature from the standpoint of the universe and not into the web of human relationships, lacks the revelatory character of action as well as the ability to produce stories and become historical, which together form the very source from which meaningfulness springs into and illuminates human existence.[77]

Democracy is a way of life more than anything else, one that greatly benefits from the kind of action Arendt mentions (an understanding of action we revisit in Chapters 10 and 11). And yet modern democracy critically depends on technology (and thus on the scientific activity that produces it) to be the kind of actor-network that solves the distant-state and overbearing-executive problems. Citizens in democracies must not rely on tech experts in hopes that they will make sure technology is used to advance rather than undermine democracy. Technological advancements must be widely debated in democratic politics, and citizens should take an active interest in these matters.

[76] On the theme of treating Big Tech companies as public utilities following the model of telephone companies and railroads, see Minow, *Saving the News*, chapter 4. One argument one might make in this regard is that if indeed we think of Big Tech companies parallel to telephone companies, then there should be no serious content moderation (either via company-self-regulation or via state intervention) – parallel to how conversations over the phone are monitored only under exceptional circumstances. But since communication on social media involves different dynamics (which allow some people to build an enormous number of followers), more substantial regulation is called for in the case of social media than it has been for telephone companies.

[77] Arendt, *The Human Condition*, 324.

Technology must be consciously harnessed to become like Winner's inclusive traffic infrastructure. Otherwise, democracy as a way of life – and the manner of being human that comes with leading such a life – is under threat from technological advances. A flourishing democratic culture, along the lines of what we have discussed under the headings of public sphere, political power, and economic power, is not only required to make sure further technological innovation strengthens democracy as time goes by. It is also arguably a prerequisite for humanity to keep technology under control so that we can avoid the more dystopian scenarios we have already encountered. As it has always done, the materiality of democracy both reflects and (over time) determines what kind of democratic citizenship is possible to begin with, and thus ultimately what ways of being human are available in future democracies. So there is a great deal at stake when it comes to the ways in which democratic cultures integrate technology.

As Life 2.0 progresses, our questions will change. As innovation keeps happening, societies will change. Innovation will increase awareness of human limitations and set in motion different ways for people to deal with those limitations. If Life 3.0 emerges, new questions for governance will arise. Will humans still exercise control? If so, will there be democracies, will some people or countries subjugate everybody else, or will there be yet other forms of order? Will it be appropriate to involve new intelligent entities in governance, and what will those entities have to be like for the answer to be affirmative? If humans are not in control, what will governance be like? These are questions we address in Chapter 11. For now, let us turn to other questions that are already very much upon us.