Should We Automate Democracy?

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Abstract (143 words)
This chapter reviews and evaluates different ways in which digital technologies may affect democracy. Specifically, the chapter develops a framework to evaluate democratic practices that is rooted in the tradition of deliberative democracy. The chapter then applies this framework to evaluate proposals of how technology may improve democracy. The chapter distinguishes three families of proposals depending on the depth of the change that they affect. Mere changes, such as automatic fact checking on social media, *augment* existing practices. Moderate reforms, such as apps that enable and reward participation in local government, *facilitate* new practices. Radical revisions, such as using artificial intelligence to replace parliaments, are *constitutive* of new practices often replacing existing ones. This chapter then concentrates on three radical revisions — Wiki democracy, avatar democracy, and data democracy — and identifies meaningful benefits in the first and deep problems in the latter two proposals.

1 Introduction

Prognostications about how technological innovations will radically transform democracy are not in short supply. According to some, a techno-democratic revolution might be just around the corner. This chapter is a guide to this revolution. Technology might make it possible to replace members of parliament with algorithms. Would that be a good idea? Or what if AI could predict what the best legislation would be — how should such predictions be reflected in the legislative process? Finally, Wikis or chatbots could be used to facilitate discussions. What would be lost?

This chapter guides through these (and other) normative questions — that is, the chapter primarily addresses what the technological revolution of democracy *should* be, not

what it is or could be. I proceed by surveying existing ideas, suggestions, or proposals and then subject some of them to the larger question: What is their potential to improve democracy? I approach this question by checking how well the proposals comport with democratic norms.[1] Institutionally, I concentrate on the legislative side of democracy and the relation between citizens and legislators.[2] How technological innovations in the legislative process should be evaluated is comparatively under-explored, given how centrally the legislative process features in democratic theory. To start somewhat foundationally, I begin with the question: What is democracy and what are democratic norms?

2 Democratic norms

Democracy is, centrally, a system of making collective decisions on matters of public concern in a way that gives each individual a fair and equal opportunity of influence over decisions (Christiano 1996; 2008; 2018; Kolodny 2014). Although different theories of democracy differ in how they understand 'fair and equal opportunity of influence', theories that see democracy as a forum and not only a market — following the image of Elster (1989) — generally agree that this equality of influence only comes about by realizing a broader social ideal. This democratic social ideal includes values such as freedom, community and equality, as well as rights and liberties concerning privacy, free expression, or religion. An ideal democracy affirms these values and liberties in practices of participation, deliberation, and association engaged in by citizens who see themselves and others as free and equal. Examples of participation are voting, signing a petition, attending a public hearing, or submitting a freedom of information

[1] For the purposes of this chapter, I understand 'technology' to mean mostly software — apps or web-based services — that implement functions by relying on a dense digital network infrastructure (such as community participation apps, Wikipedia, or quadratic voting – more on each below) or on data and statistical and machine learning techniques (such as the forms of data-driven democracy that I discuss towards the end).

[2] This chapter largely ignores how technology may affect the work of public service agencies and government departments, courts, or informal deliberations offline and online. Unfortunately, it thereby also ignores how introducing automation in one realm may affect another, for example, automating the legislative process may affect public administration. For a systematic review with a broader institutional aperture see Fung et al. (2013). For a framework to evaluate digital technologies in the public sphere see Cohen and Fung (2021). On the use of technology in government see Chen and Ahn (2017) and for frameworks to evaluate practices of public administration see Bozeman (2007), Zacka (2017), Nabatchi (2018), and Heath (2020).

request. Examples of deliberation are debates in parliament, political advertisements, and discussions, even intemperate ones, on Twitter. Association, finally, can come in forms as diverse as contributing to the work of a labour union, joining a spontaneous effort to clean up a public park, and trade organizations facilitating vocational training (Cohen and Rogers 1993). These practices — participation, deliberation, and association — are social practices that need not always be political in nature (Gould 1988; Talisse 2019). For the purposes of this chapter, these practices will take centre stage because it is at this level of practices where digital technologies intervene.[3] Because these practices are partly constitutive of a living democracy, I call them 'democratic practices'.[4]

It is important to keep in mind that democracy is not just procedure. If democracy were just procedure — say, for example, if democracy consisted in the expression and aggregation of preferences across some range of issues — then technology could augment democracy relatively easily. Anything that lubricated or expanded the democratic gearbox of aggregation would improve democracy. To improve democracy understood as a procedure, you would call an engineer.[5]

But only augmenting the gearbox will not do. Democratic practices comprise more than aggregation. The social ideal of democracy includes norms that govern how people participate, deliberate, and mobilize for democracy. This social ideal forms a substantive theoretical commitment of this chapter and has been contested on grounds of both its desirability and its tenability.[6] I take it for granted that, in the words of Elster (1989), the idea of democracy comprises not just a market but also a forum.

The idea that democracy is a forum and not a market shapes how the question of whether digital technologies can enhance democracy is to be approached. Democratic values and norms need to be in clear view in order to evaluate on their basis how technology affects the forum of democracy from a normative perspective.

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[3] I largely set aside questions of justification and authority.

[4] To be clear, these practices as such, unless governed by democratic norms, are not sufficient for democracy and are even compatible with living under authoritarianism.

[5] Nevertheless, procedures and the integrity of elections are important to democracy.

[6] See Cohen (1997) for an argument, and Talisse (2019, 50–67) for an accessible motivation of deliberative democracy.

Conduct in the forum of democracy can be more or less democratic. In discussion, a colourful invective might be delightful and rhetorically effective, but it generally is not considered good democratic practice. Likewise, politicians blocking fellow citizens on Twitter is bad democratic practice. We have thus at least some grasp of democratic norms and use them to evaluate conduct in the forum of democracy. For the purposes of this chapter, I concentrate mostly on norms of participation and deliberation. Specifically, I highlight two norms of participation, two norms of deliberation, and one of association.[7] I will draw on these norms when discussing different proposals of digital democracy.

First and foremost, participatory practices include the *norm of egalitarian participation* (Rawls 1971, sec. 36; Cohen 1989; Christiano 1996, chap. 2; 2008; Wilson 2019). To further the ideal of fair and equal influence, citizens and organizations ought to take steps to overcome marginalization and subordination, for example, by speaking up against hate speech. The norm of egalitarian participation hence includes a demand for inclusion. Similarly, voting laws that effectively hinder nameable groups from participating do not live up to the norm of egalitarian participation. Instead, the norm of egalitarian participation would require extending participation in underserved and under-participating groups. Finally, the norm of egalitarian participation also implies an injunction against market-allocated forms of participation, such as buying votes or influence, and requires instead that practices of participation are governed by non-market mechanisms.

Second, participatory practices include the *norm of civic motivation*. Broadly, the norm of civic motivation requires that citizens recognize and pursue some shared end.[8] This norm plays a role in legitimizing democracy in that the norm indicates or motivates

[7] For similar accounts see what Rawls (1971, secs. 71–72) calls 'the morality of association' and 'the morality of principles', what Christiano (1996, 187–90) calls 'the standards of citizens' democratic activities', what Talisse (2019), inspired by Rawls [personal correspondence], calls 'civic friendship', and what Peter (2021) calls 'epistemic norms of political deliberation'.

[8] Many theorists motivate a similar norm: For Rawls (1971, sec. 1) '[a]mong individuals with disparate aims and purposes a shared conception of justice establishes the bonds of civic friendship'. Mansbridge (1983) advocates for a unitary democracy based on friendship. Cohen (1989) describes the motivation of deliberators as being shaped by 'a commitment to the deliberative resolution'. Cohen and Rogers (1993, 289; 1995, 38) describe a norm of 'civic consciousness'. Christiano (1996, 178) writes that 'citizens can be expected to … choose the aims of the society … *with an eye to the society as whole*' [all emphases mine].

citizens' esteem of democracy even if democracy leads to outcomes that these citizens 'regard as morally flawed' (Talisse 2019, 145; cf. Rawls 1971, sec. 72). The norm applies not only to citizens but also to practices. Practices should be such that they cultivate in citizens a certain intrinsic motivation to participate in democracy and non-political cooperative projects more broadly. Citizens should be disposed to take part in such projects even if doing so does not serve their self-interest, is not fun and easy, but is instead fraught with struggles and even conflicts. Hence, citizens can be criticized if they take part in democratic practices for the wrong reasons. For example, you will violate the norm of civic motivation if you vote because you were offered money to do so, if you base your decision of who to vote for on contempt, or if you knowingly share untruthful or hostile content on social media out of a desire to stir up conflict or cause confusion.[9]

Third, deliberative practices include the *norm of reasonableness*, which stands in the spirit of reciprocity and requires citizens to critically reflect on their own views in an understanding of the evidence and to put their views forward in light of what can be justified to others (Cohen 1989; Rawls 1993, 48–54; Christiano 1996, 188; Talisse 2019, 147). At a minimum, the norm of reasonableness rules out seeing others as lesser or as commanding fewer liberties.

Fourth, deliberative practices include a *norm of deliberative transformation*. Citizens should approach any deliberation with an open mind; that is, with attitudes that are revisable and not firm (cf. Peter 2021). Any democratic citizen who is unwilling to change their mind in response to compelling reasons can be criticized in accordance with the norm of deliberative transformation. Moreover, the norm of deliberative transformation requires that citizens actually engage in their reasoning with the reasoning of others about matters of public concern (cf. Talisse 2019, 147).

For the purposes of this chapter, I concentrate on two dimensions of deliberative practices. First, deliberation can be *horizontal*, that is, between epistemic peers. All citizens who do not hold an office and who do not speak with a particular expertise are peers and deliberate horizontally. One important case of horizontal deliberation is between members in a legislative or deliberative body. Second, deliberation can be *vertical*, that is, between citizens and their representatives, office holders, or others who hold a

[9] In this sense, an obligation to vote might be undemocratic if citizens voted mainly or only because of a fear of repercussions.

particular expertise. Vertical deliberation hence occurs across the lines drawn by a political division of labour in a society.

Vertical deliberation presents a challenge. Representatives act as trustees, that is, they might change their mind after deliberating with their peers. Having changed their mind — and perhaps their vote — on some legislation, representatives will have to explain themselves to the citizens whom they represent. This can be a challenge as citizens have themselves not taken part in the deliberation that led to a change of mind. A vertical division of political labour through trustees hence seems to conflict with equality (Christiano 1996, 126–27). This challenge is characteristic of what can be called the Burkean aspect of political representation, following Edmund Burke's contention that political representatives should pursue and represent impersonal interests and not the opinions of their constituents (Pitkin 1967, chap. 8). In other words, this challenge of vertical deliberation arises from the fact that representatives are trustees, who, in contrast to delegates, have discretion to substitute their own judgment for those who they represent (Christiano 1996, 213).

Finally, associative practices include a *norm of identification*. Each member of an association — be it a tenant's association, a parent–teacher conference, or a party — should see themself approvingly as a member of that association.[10] This norm reflects the voluntariness of the association as well as, in part, the member's motivation to take part (it hence overlaps with the norm of civic motivation). This norm, as the others, formulates an ideal of a practice and not a political obligation. The norm cannot be obligatory because a member of an association may not identify with the association for good reason, for example, because of its oppressive structure or unjust treatment of its members. The norm instead identifies a pattern of behaviour that is constitutive of a good democratic society, that furthers democratic values and liberties, and that free and equal citizens can expect of one another at least to some degree.

[10] This self-conception needs neither be present in one's awareness nor need it be central to one's identity.

Participatory norms	***Summary***
Egalitarian participation	Overcome marginalization and promote inclusion in participation, e.g. by speaking up against hate speech
Civic motivation	Cultivate a certain intrinsic motivation to participate in democracy
Deliberative norms	
Reasonableness	Reflect on views with an understanding of relevant evidence and in light of what can be justified to others in the spirit of reciprocity
Transformation	Approach any deliberation with an openness to revising your views
Associative norms	
Identification	Members of associations should see themselves approvingly as such

Table 1: Summary of some democratic norms

The social ideal of deliberative democracy, on which the analysis in this chapter is based, is not the only game in town. So-called minimalist or aggregative democratic theories are alternatives (Przeworski 1999; R. A. Posner 2003). The motivation to forefront a deliberative conception of democracy is twofold. First, in discussions of digital ethics outside of academia, this is a conception of democracy that may not receive the same amount of attention as its minimalist counterpart does. Avatar democracy and data democracy seem to be distinctively guided — or misguided — by minimalist conceptions of democracy that see democracy as chiefly a procedure for collective decision-making (Morozov 2014, 128–38). Second, a deliberative conception of democracy may offer plausible accounts for what is lacking in the some of the proposals of how technology may improve democracy. If the evaluation of the different proposals sounded plausible, then this speaks for the plausibility of the framework that deliberative democracy provides.

This social ideal often awkwardly comports with reality, but this does not mean that this ideal is unrealistic. Of course, the ideal is by no means self-fulfilling or self-perpetuating, but empirical research suggests that people are willing and capable of participating in high-quality deliberation, that deliberation counteracts polarization and populism, and that deliberation promotes considered judgment (see Dryzek et al. 2019

for an overview of different findings).[11] Neither is this ideal romantic. To the contrary, this ideal of democracy has powerful considerations in its favour.[12] The ideal allows for a peaceful and engaging coexistence while arranging for large advantages for all as well as reconciling freedom and equality. Admittedly, this ideal — or rather its name — has been co-opted and weaponized by campaigns of racism and imperialism. But this history and on-going potential for abuse, rather than being a point against the ideal, illustrates the urgency to articulate it clearly.

3 How technology could improve democracy

Technology can affect democracy in different ways. We can distinguish, very roughly, three broad families of potential technological reforms of democracy by the depth of the change they affect. Some technologies or proposals augment, and in the best case improve, existing practices; these are the *mere changes*. Other technologies affect something essential about existing practices or they reform or facilitate new practices; these are the *moderate reforms*. Finally, *radical revisions* constitute entirely new practices of social power replacing at least some of the existing democratic practices.

The effects of technological reforms of democracy can be hard to predict. Whether something will be a mere change, a moderate reform or a radical revision is often not obvious upfront. My intent in proposing this distinction, together with the evaluative framework of democratic norms, is that these distinctions may clarify thinking and benefit foresight when reasoning about what shape such reforms might take. Below I discuss some mere changes that have become normalized, moderate reforms that have been tried; and some radical revisions that are confidently advanced (See Table 2 for an overview). I selected examples that appeared either well-explored in the literature or popular in their reception, or both.

3.1 Mere changes

Technology could — and does — change the three kinds of democratic practices of deliberation, participation, and association. I merely mention a few examples here

[11] But for an opposing view see Theiss-Morse and Hibbing (2005).

[12] Some see the ideal as romantic in the sense that it presupposes a mistaken theory of human behavior or human nature (eg. Theiss-Morse and Hibbing 2005, 242). But insofar as human nature is on display in actual circumstances, empirical evidence about actual behavior holds out the hope that the ideal is realistic.

because the promise, and the overpromise, of technology to improve democracy has been discussed at greater length in the existing literature (e.g. Shane 2004; Coleman and Blumler 2009; Hindman 2009; Diamond 2010; Morozov 2011; 2014; Tufekci 2017; Strandberg and Grönlund 2018).

First, technology might change deliberation. For example, technology can gather, rank and present evidence relevant for discussion. On social media, technology can check stated facts, flag hate speech, or help communicate legislative decisions effectively. This could improve deliberation by supporting the norm of reasonableness (by exposing citizens to relevant content) and the norm of egalitarian participation (e.g., by suppressing hate speech); but such technologies might also worsen the political culture by offering the affordance to strive for a mistakenly clean and perfect ideal of politics when politics is, instead, always messy and fraught. Fact checking, for example, seeks to counter hypocrisy, mendacity, and ambiguity. But hypocrisy, mendacity, and ambiguity might be important features of a political culture premised on compromise (Morozov 2014, 116–24). At any rate, many such technologies are already in use. Newsfeeds and recommender systems on social media or news aggregators operate in a way that affect existing deliberative practices, for better and worse. Other such technologies are still fantasy. A chatbot might help representatives scale up communicating bidirectionally, and hence more personally and engagingly with their constituents. Such technology could explain to citizens why their representative supported a proposal, it might garner constituents' attitudes towards legislative priorities or ask for the reasons why someone did not vote in the last election and it would hence support the norm of deliberative transformation in its vertical dimension.

Second, technology could also change participation through apps that allow citizens to give regular and fine-grained feedback on legislative proposals, recommender systems that pick out and highlight to citizens petitions, or AI systems that identify citizen input during public consultations as novel, detailed, or otherwise relevant. Moreover, technology could, and in some places has, improved voting infrastructure, by making it more accessible, for example, through ballots with multimodal inputs and outputs, or voter guides designed for individuals with aphasia or early stage Alzheimer's disease.[13] Many applications and relevant case studies on how technology can help participation have been reviewed and discussed elsewhere (Hindman 2009; Nabatchi and

[13] These examples are taken from a working paper series of the Information Technology Laboratory of the US National Institute of Standards and Technology (NIST 2012).

Mergel 2010; Fung, Russon Gilman, and Shkabatur 2013; Simon et al. 2017; Fuller 2020).[14]

Finally, technology could change mobilization and, more broadly, associative practices in a democracy or in authoritarian regimes. The WTO protests in Seattle in 1999 were built on an email listserv infrastructure (Eagleton-Pierce 2001). Since then, several authoritarian regimes have come under pressure with the help of 'liberation technologies'. Examples are the 2001 protests in Manila against Philippine president Joseph Estrada, the 2004 Orange Revolution in Ukraine or the 2005 Cedar Revolution in Lebanon (Diamond 2010, 78). Social media has played a role in facilitating the Arab Spring, the Gezi Park and Occupy protests (Howard and Hussain 2011; 2013; Tufekci 2017), notwithstanding disagreement over its causal role (Howard and Hussain 2013, 24; Lim 2018, 95). This illustrates the potential of these technologies, at least for short-term mobilization. But although social media help citizens find others with similar interests, views or needs — again, for better or worse — social media are 'tilting dangerously towards illiberalism' by offering regimes means of surveillance and control (Shahbaz and Funk 2019). Digital movements are too easily defeated with their own weapons.

To be sure, these technologies for deliberation face problems of privacy and security, inclusion (Schlozman, Brady, and Verba 2018, chap. 6), and the problem that technology transplants practices from face-to-face interactions to a digital environment that is less hospitable for these practices to succeed (Lim and Kann 2008; Morozov 2014). For example, social media might allow for the near-instantaneous mobilization but, because it cannot recreate the same circumstances of communication, it might at the same time positively hinder a movements' long-term viability (Tufekci 2017). More generally, technologies that were meant to further democratic rights, such as social media furthering speech and expression, may have the opposite effect or even be used by authoritarian regimes to curtail these same rights (Morozov 2011). These examples illustrate the range in which technology can change and potentially improve democratic practices without fundamentally changing the practices themselves and without changing their socio-political circumstances.

[14] See also participedia.net for a collection of cases and methods of online and face-to-face participation.

3.2 Moderate reforms

In contrast to mere changes, moderate reforms, as I call them, facilitate new practices of deliberation, participation or association. Examples of moderate reforms are apps for participatory budgeting, or systems that reward citizens for participation. Whereas mere changes are already under way and in widespread use in many places, whether moderate reforms can take root — even if they have frequently been tried — is, so far, less clear. I start with an example that has been discussed prominently and that exhibits noteworthy features that are shared by many such reforms.

At the end of 2009, the town of Manor in Texas started rewarding citizens for suggestions of how their town can be improved. The reward came in virtual tokens of 'innobucks'. Citizens received innobucks for suggesting ideas, for commenting on proposals and for the eventual implementation of an idea. These innobucks could be exchanged for discounts in local stores, appetizers in restaurants or ride-alongs in police cars. Moreover, each participating citizen's innobucks balance was displayed on a public online leader board (Towns 2010; Newsom 2013, 213–14).[15]

Innobucks incentivized, quantified and — more generally — gamified participation. 'Gamification' refers to the use of designs and mechanisms familiar from game development outside of games. Collecting points and displaying scores are examples of gamification, so are badges that can be earned, achievements that can be unlocked, or levels that can be completed (Lerner 2014).[16]

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[15] Although innobucks survived for only a couple years (from around 2009-11), Gavin Newsom features them prominently in his 2013 book on how to 'reinvent democracy' using digital tools. The Twitter account of the organization that ran innobucks had already gone dormant (in 2011) and their website had shut down (in early 2012, according to the Wayback Machine) — some time before Newsom's book was published.

[16] Although gamification is associated with computer games, gamification can be used to reform participation without the use of technology (Lerner 2014; Gordon and Baldwin-Philippi 2014; Newsom 2013; Gastil and Richards 2017). A participatory budget meeting, for example, can be run like a casting show, or voting boxes can be designed to respond with a pleasing 'plonk' and a visual feedback to acknowledge that ballot has been cast. More generally, gamification includes formulating and balancing conflict dynamics with feedback loops (e.g. the participatory budgeting game show), multimodal presentation (e.g. the voting box sound), to provide just-in-time information, defining clear goals and objectives as part of a narrative and showing progress towards these goals in with the collection of points, reflected in status indicators, badges or level upgrades (Lerner 2014).

Moreover, innobucks also commodified participation not only in their function as tender but likely also in their social valorization. Giving out rewards as points and displaying the score publicly constructs a measure of 'good' behaviour that may easily morph into a measure of social reputation. In fact, some authors make such a social scoring the intended aim of quantified participation and envision a 'democracy machine' that would connect different participatory apps — each along the lines of what I described as mere changes above — 'to give people credit for anything from attending town meetings or reporting for jury service to joining a protest or doing policy advocacy' (Gastil 2016, 20; Gastil and Richards 2017, 761). Others approach social scoring instead as a mechanism of social coordination that could be put in the service of emancipatory or socialist ends (Morozov 2019).

Innobucks are just one example of a general class of technological proposals that involve the gamification, quantification, and commodification of participatory and associative practices. These proposals have at least three potential problems.

First, the technology might be abused. Social reputation scores can be put in the service of an authoritarian state. China's initiatives towards a so-called 'social credit score' can be seen as efforts to reform participation by commodification (Liang et al. 2018). More generally, because technological solutions create data and define standards of behaviour unilaterally, such solutions inherently carry immense privacy risks and potential for abuse. The line between the quantification of democracy and the implementation of authoritarianism is thin. But the problems begin far short of authoritarianism. Instead of the state exerting authoritarian power, data help corporations and private actors to exert market power. Data measuring social participation and interaction is used already today to regulate access to material goods and services such as insurance, employment, and housing.[17] This surveillance practice historically dates from the post-war period when it successfully solved a problem of information asymmetry that financial lenders faced because they did not know a borrower's creditworthiness. By now, however, with the availability of more data, this practice has evolved into a 'new system of consumer surveillance and control' that 'overwhelmingly favors lenders and other corporate actors—including the state—at the expense of consumers' (Guseva and Rona-Tas 2019, 354).

[17] One example is Lenddo (www.lenddo.com), which 'uses non-traditional data to provide credit scoring'. According to a product fact sheet, these non-traditional data include data from telecom providers, browsers, social networks, e-commerce and financial transactions (accessed August 21, 2020).

Second, the gamification of participation often involves the creation of incentives for participation. Gamification seeks to make participation in politics fun and feel rewarding. But this approach has several problems. For one, such constructed incentives might crowd out intrinsic motivation of citizens and render citizens' relation to collective goods transactional.[18] When even reporting a pothole gets rewarded with innobucks, citizens may expect a reward for any participation. This threatens the norms of civic motivation as immediate psychological rewards and considerations of vanity or self-interest become salient instead of an appreciation of a shared end. Moreover, gamification risks pretending that conflicts and division — elements that might be inseparable from politics — do not exist by 'badgering people to become engaged because politics is fun and easy', when, instead, people should be asked to 'become engaged because politics is dreary and difficult' (Theiss-Morse and Hibbing 2005, 245; Morozov 2014, 296–309).

Third, because of problems associated with the digital divide and unequal participatory inclusion by socioeconomic status, not everybody will have access to the reforms equally. If participation requires technology, such as an up-to-date device or high-speed internet access, some might not be able to afford it. Moreover, even as new technologies have become increasingly affordable and widely used, these technologies 'have not severed the deep roots that anchor political participation in social class' (Schlozman, Brady, and Verba 2018, 128). The technological reforms of democracy hence may have a built-in mechanism of exclusion that is antithetical to the fair opportunity aspect of the norm of egalitarian participation. Given persisting inequalities, technological reforms may entrench such inequalities further.

These three problems — of privacy and power, of crowding out civic motivation, and of threatening equal participation — are more general and not specific to the innobucks project. The innobucks project can illustrate these problems that may affect a significant range of similar technological reforms of participation. Of course, other such reforms of democratic practices raise likely yet further and different problems. Whereas innobucks, since it was an initiative that aimed at participation, affected participatory norms of egalitarian participation and civic motivation, technologies that target deliberation are likely to affect deliberative norms. In particular, when technologies change

[18] Loh (2019) considers the related objection that gamification of participation is paternalistic or detrimental to citizens' autonomy.

how we relate to one another — if we see one another less as free and equal persons — then the deliberative norms of reasonableness and transformation may erode.

Before moving on, two other moderate reforms should be mentioned that I do not discuss in this chapter since each of them is explored at length. One is Liquid Feedback: a software that structures deliberations in a particular way to develop policy proposals in an inclusive fashion and that facilitates decision-making by allowing participants to pass on their votes to others (Blum and Zuber 2016; Behrens 2017; Bertone, De Cindio, and Stortone 2015). Another reform is quadratic voting, a voting procedure that allows voters to express the strengths of their preferences by giving voters 'vote credits'. The proposal is called 'quadratic' voting because the price of votes increases quadratically. One vote costs one vote credit, two votes cost four credits, three votes nine credits and so forth (Lalley and Weyl 2017; E. A. Posner and Weyl 2017; 2018, chap. 2; Levine 2020). Votes that are handed out but not used in one election can be used in a later election. Hence, voters can bank votes on issues that they care little about and then spend the votes later on issues about which they feel particularly strongly.

	Deliberation	*Participation*	*Association*
Mere changes technology augments existing practices	Fact-checking Identifying hate-speech Constituent-engagement chatbots	Online voting Recommending petitions Apps for participation	Online petitions Matching or clustering of citizens with similar interests or needs
Moderate reforms technology facilitates new practices	Liquid feedback	Incentivization Gamification Quadratic voting	Reputation scores VR interaction and role-taking
Radical revisions technology constitutive of new practices	Liquid democracy Wiki democracy Avatar democracy Data democracy		

Table 2: Overview of technological proposals to improve democracy distinguished by the depth of the change they affect. Proposals not discussed in this chapter in grey. Radical revisions affect all three families of democratic practices.

4 Three radical revisions of democratic practices

I discuss three proposals on how technology can improve democracy: wiki democracy, avatar democracy and data democracy (cf. Susskind 2018, chap. 13). Each of these proposals radically changes or even abolishes democratic practices. Wiki democracy integrates citizens more deeply into the legislative process. Avatar democracy does away with competitive elections of comprehensive representatives. Data democracy diminishes the role of voting as the procedure of legislative decision-making (see Table 3 for an overview). I look at each of these three proposals in turn.

	Distinguishing feature		
Proposal	Role of voting in legislative decision-making diminished	No competitive comprehensive elections	Deepened participation in legislative process
Wiki democracy			✓
Avatar democracy		✓	
Data democracy	✓		

Table 3: Overview of three radical technological revisions of democracy and what distinguishes them from one another

4.1 Wiki democracy

In some ways, Wikipedia is democratic. Every user has full rights to contribute and modify content — in a sense, Wikipedia is egalitarian. Authors interact and discuss directly and deliberatively, and they decide and adjudicate disputes by voting. Like a democracy, Wikipedia is a non-market form of social coordination. Access is free and contributions are unpaid and voluntary. In other words, Wikipedia is the paradigmatic example of a productive deliberative voluntary non-market large-scale collaboration (Wright 2010, 194–99). And Wikipedia has been very successful.

So perhaps what has worked for Wikipedia might work for democracy and democracies should be more like Wikipedia. In particular, Wikipedia is performing well in a respect in which democracy, or so some argue, is performing badly. Wikipedia solicits the expertise from diverse sources (Noveck 2009, 17; 2018). This expertise-soliciting aspect of Wikipedia could be fruitfully used to improve public administration and various opportunities for participation. For example, Beth Noveck (2009) describes the success of a collaborative platform, modelled after Wikipedia, that was used to support

the appraisal of patent applications to the US Patent and Trademark Office (USPTO) by allowing lay and professional experts to gather and rank prior art. More broadly, Noveck and others see Wikipedia as an inspiration for radically reforming participatory practices and the process in which policies and legislation get drafted (Susskind 2018, 243–46; Noveck 2009, 146–60; 2018). In fact, they take Wikipedia to be an object lesson to improve existing governance structures — although authors come from different traditions and seek to implement revision to different degrees. For example, some see Wikipedia as a way of putting a new form socialism into practice (Wright 2010, chap. 7). Others see Wikipedia as a model that could replace much of the executive, legislative, and judiciary branches of government altogether in an all-encompassing 'Crowdocracy' (Watkins and Stratenus 2016).

As a matter of democratic institutional design, we can distinguish different proposals in the spirit of Wiki democracy depending on what role remains for representatives in parliament. One extreme end would be the mentioned Crowdocracy: a form of direct democracy that runs legislative institutions as a massive collaboration and representatives could only be found in the executive (Watkins and Stratenus 2016). By contrast, the mildest form of wiki democracy would be civic juries, in which small groups collaborate Wikipedia-style to advise parliaments on specific matters though position papers (Noveck 2009, 152).

I will concentrate on wiki democracy as an intermediate model, that is, on a proposal that puts drafting and initiating legislation in the hands of citizens instead of representatives or legislative bodies. Wiki democracy of this form keeps representatives and parliaments where they are. Their role, however, will consist chiefly in structuring or overseeing the collaborative wiki-style drafting process of legislation and the on deciding the legislation.[19]

Here is how wiki democracy would work (Watkins and Stratenus 2016, chap. 6). A parliament would provide an online collaborative infrastructure on which citizens can work on legislative proposals. Citizens would be able to articulate reasons pertaining to the need for legislation, gather evidence, draft the legislative text, comment on the draft, and suggest revisions. Of course, or so do proponents of wiki democracy

[19] I concentrate on this form because it tracks closely the distinct strengths of Wikipedia when it comes to collaboration. Deciding about legislation would still be a matter of voting and hence be a conceptually different matter; it is not clear that Wikipedia is a particularly good model here.

concede, this process would have to be structured and coordinated in some way to be effective. In other words, the process would have to be granular and separated into different stages or 'chunks' to allow for an effective division of labour and the participating citizens would have to understand what they are expected to do at any given stage (Noveck 2009, 82,151). Specifically, to structure the process, Noveck suggests different mechanisms and design principles under the heading of 'visual deliberation' (Noveck 2009, 70–84): Participation should be 'group-based rather than individual', it should involve 'a reputation-backed system', 'provide feedback to participants, [and convey] a sense of belonging to a group and [foster] collaboration'. Moreover, the technology should 'mirror and reflect the work of the group back to itself' as a way of giving feedback and indicating progress (2009, 71).

In many ways, wiki democracy is well within the mainstream of democratic theory. For one, it can be seen as a form of direct, deliberative, and epistemic democracy. Wiki democracy aims 'bringing greater collective intelligence to bear to enhance the lawmaking processes' and thereby perhaps also 'enhance the legitimacy of lawmaking' (Noveck 2018, 360). The idea that including more views in a discussion can improve decisions is well-received in democratic theory (Mill 1859, chap. 3). As such, wiki democracy stands squarely in the tradition of instrumentalist justifications of democracy which recently have highlighted how mechanisms of collective intelligence can be used in democratic practices of deliberation (Landemore 2013).[20]

In theory, the effect of wiki democracy on democratic practices would likely be a positive one in supporting each of the four norms sketched above. Wiki democracy not only thrives on but will also support the norms of civic motivation and associative identification because contributions are voluntary and are not rewarded. Moreover, wiki democracy stands a chance of supporting the deliberative norms of reasonableness and of supporting the vertical aspect of the norm of deliberative transformation (at least for those who participate). Reasonableness is supported insofar as wiki democracy, being a discursive platform, relies on rational persuasion. Transformation

[20] Yet, proponents of wiki democracy often appear to cherish vaguely technocratic ideals dismiss deliberation (Morozov 2014, 133). Indeed, Noveck (2009, 37) objects that 'civic talk is largely disconnected from power' and that '[t]he reality of deliberation is that it is toothless'. About existing 'work at the intersection of technology and democracy' she complains that it 'has focussed on how to create demographically representative conversations. The focus is on deliberation, not collaboration; on talk instead of action; on information, not decisionmaking' (2009, 40).

may be achieved insofar as citizens take an active role in shaping legislative proposals, thereby gain an inside view, and hence, in contrast to those who did not participate on the wiki democracy platform, understand why some legislation turned out the way it did.

The open question of wiki democracy is then whether it will be successful in practice. There are good reasons to be sceptical. First of all, and very generally, writing legislation is a very different task from writing an encyclopaedia. The analogy between Wikipedia and wiki democracy hence does not hold. The same principles that worked for Wikipedia might not work for making law. Second, similar to edit wars on Wikipedia, content conflicts in wiki democracy may require power, hierarchy, or authority to be adjudicated and resolved (Morozov 2014, 125). This speaks against the egalitarian spirit with which wiki democracy was advertised. Finally, because participating in wiki democracy is voluntary and not rewarded, it encourages those to show up to participate who already show up today. That is, not only might people lose motivation because online collaboration is very hard to maintain over long periods, moreover, wiki democracy on its own is unlikely to overcome barriers of participation that already exist to broaden the circle of citizens who participate in formal channels of democratic input. You need the time, expertise, and perhaps fit into a certain editorial culture to be able to contribute. Whether wiki democracy succeeds in its stated aim of creating 'more diverse mechanisms for solving problems' (Noveck 2009, xiv) appears therefore doubtful. Instead, it seems more likely that getting citizens to show up for politics is an old problem that escapes technological solutions.

4.2 Avatar democracy

The idea that democracy can be automated is not new. In his science fiction satire *Franchise*, published in 1955, Isaac Asimov describes the US presidential election of 2008, in which the notion that every citizen can vote is unfathomable. In this fictional year 2008, an election consists of a single voter having to answer a few questions to a computer named 'Multivac' that then predicts which candidate would have been elected if people had voted and the computer determines the next president on that basis.[21] Multivac was built on the sentiment that voting, or representative democracy,

[21] Interestingly, in 1952 — a few years before Asimov's story got published — the similarly-named Univac computer made a prominent public appearance during US elections. CBS introduced Univac as 'our fabulous mathematical brain' that will 'help us predict this election' (quoted in Lepore 2020, chap. 1).

is not worth the trouble if the exact same outcome can be had in a more convenient fashion. The development started with electronic voting machines '[b]ut the machines grew bigger and they could tell how the election would go from fewer and fewer votes. Then, at last, they built Multivac and it can tell from just one voter' (Asimov 1955).

This weary sentiment about voting and representative democracy is still alive today. One recent proposal suggests replacing representatives in the legislature and politicians wholesale because turnout in elections is low and because 'people are tired of politicians' (Hidalgo 2018). Instead of having politicians and representatives, each citizen could send their own personal virtual delegate to a virtual parliament thereby combining software with the idea of 'bypassing politicians completely'. These virtual delegates, one for each citizen, would debate and negotiate over legislation, vote on bills and hence make law.[22] Similarly, another proposal envisions 'intelligent e-democracy bots' that 'receive as input the political preferences and epistemic views of their principals, and on this basis participate on their behalf in digital consultation processes, exploiting sophisticated AI algorithms' (Perez 2020). I call this idea *avatar democracy*.

Similar to Multivac, avatar democracy relies on the promise of data. Because the costs of acquiring, storing, and analysing personal data have decreased so drastically, each person may become accurately predictable as a political agent. In an avatar democracy 'you can provide your avatar with your reading habits, or connect it to your social media, or you can connect it to … psychological tests'. Citizens would be able to select an avatar training algorithm from a range of offerings on an 'open marketplace';[23] citizens would be able to 'audit the system', 'leave [the avatar] on autopilot' or 'choose that [the avatar] ask you every time they're going to make a decision' (Hidalgo 2018). In short, first you select an avatar algorithm, then you train it with data that you provide, then you supervise and audit it. In this extreme form, avatar democracy is a virtual direct democracy in which each citizen is represented by a software agent.[24] As

[22] Hidalgo also puts forward a different, much less radical, and much more general proposal, called 'augmented democracy', on which an avatar might be a 'twin' that acts as a deliberative interlocutor or assistant to improve citizens abilities to participate (see: https://www.peopledemocracy.com). I concentrate instead on avatar democracy, because it is a more original proposal that was prominently promoted through TED conferences.

[23] This marketplace need not be a form of commercial exchange. I am grateful to César Hidalgo for this clarification.

[24] The tension between 'direct democracy' and 'represented by a software agent' is something I discuss below.

such, the proposal abolishes competitive elections of comprehensive representatives in favour of an individual selection of automated representatives.

Some believe that some form of avatar democracy is 'probably inevitable' (Perez 2020).[25] Societies hence must urgently develop 'a new regulatory framework that would cope with a new political space' (ibid.). The alleged inevitability of avatar democracy endows the idea with considerable relevance and thinking around it with high urgency. — Such thinking, widespread as it might be, betrays technological determinism. On the assumption that there is instead a choice to be made, the question is whether avatar democracy would be a good idea.

What speaks in favour of avatar democracy? Avatar democracy is often presented as improving representative democracy. In contrast to direct democracy 'trying to bypass politicians, we [with this proposal] … automate them' (Hidalgo 2018). But avatar democracy at the same time positions itself as standing in the tradition of direct democracy. This element of direct democracy forms the basis an *indirect argument* for avatar democracy:[26] Whatever speaks in favour of direct democracy might speak in favour of avatar democracy. The argument is that direct democracy has always been more desirable than representative democracy, it has just not been feasible to implement. The animating sentiment seems to be that '[t]rue democracy would be direct, being based on unmediated, constant, and universal participation of all citizens in political matter. … [D]elegation of political power is a necessary if minor evil' (Floridi 2016).[27] But since technology now lets us avoid this 'minor evil' and makes direct democracy feasible, we should undertake steps to implement direct democracy. Compromise, for example, is one such necessary evil of representative democracy that direct democracy would avoid. As Hidalgo (2018) says, '[p]oliticians nowadays are packages, and they're full of compromises' but in the future 'you might have someone that can represent only you'.

[25] Hidalgo, in personal correspondence, makes clear that he does not want to be associated with this claim.

[26] The terminology is from Blum and Zuber (2016).

[27] To be clear, Floridi (2016) argues against this view and defends representative democracy.

In addition to this indirect argument for avatar democracy, there are several *direct arguments*. Specifically, the following four considerations have been put forth in favour of avatar democracy.[28]

First, in virtue of having no representatives, avatar democracy avoids the often-fraught relationship between citizens and representative. Today, citizens must trust that representatives will work in their interests and that representatives' word is reliable testimony when they explain decisions. Avatar democracy instead allows citizens to represent themselves. Furthermore, if we accept some additional assumptions about the value of individualism, avatar democracy has going for it that it empowers citizens to stand up and represent themselves in collective affairs.

Second, avatar democracy might improve representativeness and equality of influence. Those who have particular interests or concerns far outside those of the majority and who, accordingly, are otherwise given little room in legislative proposals might have their interests better represented and their ways of influence increased (Susskind 2018, 253). In terms of the democratic norms, avatar democracy would support the norm of egalitarian participation in its aspect of the inclusion of marginalized views.

Third, avatar democracy decreases the ways in which legislative decision-making can be subject to regulatory capture of different forms. It is far easier to influence legislation through material or cultural-social mechanisms when the number of legislators is small. When every citizen is a legislator, by contrast, it is much harder to influence legislation. Avatar democracy defends itself against regulatory capture by decentralization. Seen from the perspective of participatory norms, avatar democracy thereby again supports the norm of egalitarian participation (specifically, its aspect of inclusion).

Fourth, avatar democracy might improve deliberation by removing the need for political campaigning. Although, idealists might hope that campaigning improves the quality of deliberation and supports the mechanisms by which voters hold their representatives to account, campaigning might in fact distort, damage, and deprave deliberation. Individual targeting of political ads has made political messaging inconsistent, manipulative, and dishonest and it turned political campaigns into a huckster competition of

[28] At least three of the points below — all except the second point — are made by Hidalgo (2018).

outsized promises, historic dramatization, boasting, opportunism, and appeals to tribalism. Avatar democracy ends the need for campaigning, and it thereby removes the causes of these deliberative impairments. In terms of deliberative norms, the claim is that avatar democracy would improve the reasonability norm (through access to better information), and the norm of deliberative transformation (especially, its vertical aspect).

The joke of Asimov's story is, of course, that the 'election' in 2008 is an election in name only. A gearbox was substituted in place of a forum, as fraught and cumbersome as that forum might be. Is the same true for avatar democracy? What should we make of the case in its favour?

For starters, each of these premises in the indirect argument for avatar democracy — that avatar democracy, being an instance of direct democracy, inherits all its virtues — can be called into question. The underlying ideal of direct democracy might look less attractive on closer inspection. Perhaps there is something morally valuable about compromises. It should not be taken for granted that direct democracy is as such more desirable than representative democracy.

Moreover, avatar democracy is not actually a form of direct democracy. If avatar democracy were a form of direct democracy, then it would imply that the avatar is identical to the citizen because in a direct democracy each citizen represents themself. But because the avatar is not identical to the citizen, the citizens themselves do not deliberate and decide on legislation. Avatar democracy should therefore be seen as more akin to representative democracy and an avatar is better thought of as a representative.[29] This, in turn, effectively re-introduces the citizen–representative relationship that avatar democracy had aimed to overcome.

Because avatar democracy is a form of representative democracy, we would have to trust avatars just as we have to trust representatives today (cf. Susskind 2018, 250–53). Are avatars deserving of this trust? Avatar democracy faces one problem that also bedevils representative democracy; beyond that, avatar democracy faces two practical problems.

[29] Granted, avatar democracy is a limit case of representative democracy in that each citizen has their own personal representative.

First, avatar democracy brings the horizontal and the vertical aspects of the norm of deliberative transformation into conflict. Insofar as avatars change their view after deliberating with other avatars, they will on occasion vote in a way that contradicts how their citizens would want them to vote.[30] This is a problem also for representative democracies today. The general shape of the problem is this: Because representatives hold power, they need to explain themselves — this is a demand of legitimacy. But because representatives, especially after deliberation, have greater expertise, this demand is hard to fulfil. Optimism about solving this problem should be met with serious scepticism (Lafont 2015; Viehoff 2016). Satisfying the norm of transformation in its horizontal aspect risks undermining the norm in its vertical aspect. The claim that avatar democracy is immune to this general problem, rests on either on mistakenly seeing avatar democracy as a form of direct democracy, or on failing to see this fundamental challenge in representative democracy, or both.

In addition to this general problem of representative democracy, two practical problems arise for avatar democracy from the fact that citizens can select between different models of avatars that might be offered on an open marketplace.

First, selecting avatars comes with serious information asymmetries. Avatars might be like a car insurance in that you only relatively rarely get to find out how good the thing is that you bought. Whoever offers rarely used products such as car insurance, has little incentive to compete on the quality of the product. Some kind of quality control for avatar algorithms would then have to be ensured. But this problem is, in part, technical: an AI will have to be made explainable. This problem is also conceptual: standards for good explanations will have to be determined. Finally, this problem is institutional: it is not clear which, if any, recommendations or user reviews about avatar algorithms can be trusted.

Second, avatar democracy has significant risks of power and equality. Whoever offers avatars has likely political interests of their own and occupies a position that enables them to coax others in line with those interests. Those who make the avatars have power. They are likely able to influence or manipulate political outcomes by how they build or advertise the avatars. In this way, unless everyone were somehow able to

[30] This is the Burekean aspect of representation (cf. Pitkin 1967, chap. 8; Christiano 1996, 213). If an avatar were not to exercise judgment, avatar democracy would be a market and not a forum.

create their own avatar entirely independently, avatar democracy may suffer from a fundamental problem of unequal power.

4.3 Data democracy

Avatar democracy started from what looked like an eminently plausible idea: We have so many data that have proven valuable in various domains. These vast data could be put into the service of democratic practices. Given enough data and sufficiently advanced technology, 'elected officials will be able to ask voters what they want a thousand times a day and act accordingly' (Domingos 2015, 19). If these data were used in the legislative process, then 'policy would be based on an incomparably rich and accurate picture of our lives: what we do, what we need, what we think, what we say, how we feel. The data would be fresh and updated in real time rather than in a four- or five-year cycle' (Susskind 2018, 247).

Proposals to use more data in order to constrain or determine legislative decision-making are proposals for what I call *data democracy*. Data democracy comes in a variety of forms. In one extreme form, data determine legislation formally and 'political decisions would be taken on the basis of data rather than votes' (Susskind 2018, 247). This extreme form retains a parliament with representatives, but their role would be to supervise data analysis, amend proposals or correct errors by recalling legislation. On a less extreme form of data democracy, data constrain legislation only informally by systematically informing deliberation and decision-making in the legislature in real time.

Of course, legislative decision-making has always been based on data. A change in the vehicle code might come in response to data about traffic accidents, a stimulus package is drafted in response to economic data, and migration legislation often reacts to data about immigration numbers. Labels such as 'evidence-based policy' highlight that legislation is often 'based on data'.[31] So, how is data democracy different?

Data democracy consists of three core claims. First, data democracy says that new kinds of data ought to inform the legislative process. Second, data democracy seeks to vastly increase the amount of data used in the legislative process. Finally, and perhaps most importantly, data democracy demands that data constrain or even determine law-

[31] In the US, the Office of Management and Budget (OMB) formally restricts executive agency decision-making to comport to some form of evidence-based policy making.

making. The radical revision of data democracy is that it aims to move the legislative process away from deliberation and voting towards data-driven decision-making.

These core ideas may already be problematic. First, contrary to the perhaps widespread but naïve idea that 'data' are facts, data need cleaning, interpretation, and analysis. Hence, data do not 'speak' unambiguously and the directions into which data would 'drive' decisions depend on more than just data (Lyon 2016). Data-driven decision-making rests on value judgements that need to be subject at least to human oversight or guidance. Some proposals of data democracy make room for such a human element — a role that future politicians or representatives in parliament may play. Instead of deliberating and voting over legislative proposals, future representatives might deliberate and vote on issues of data cleaning, interpretation, and analysis. Second, this core idea of data democracy is decidedly technocratic to the extent that it portrays politics as something that needs to be overcome. We will see this technocratic temperament again when taking a closer look at proposals.

I will sketch two existing proposals of data democracy. One proposal, *deliberative data democracy* innovates on the first aspect, that is, it imports new kinds of data into the legislative process. Another proposal, *decision data democracy*, suggests that data should altogether replace human decision-making in the legislative process. This second proposal mostly innovates on the third aspect, that is, it demands a greater role for data in the legislative process.

4.3.1 Deliberative data democracy

One proposal for deliberative data democracy is due to Hiroki Azuma (2014) who proposes what he calls the 'General Will 2.0' by suggesting that new data should be included in the legislative process. Drawing on Freud's idea of the unconscious he says that data about 'the unconscious of the populace' should be collected to '[document] people's private, animalistic actions' and their 'private, bodily reactions' in a 'visualized collective unconscious' in order to 'demolish the limits of public, logical deliberation' (Azuma 2014, 144, 162, 171). Set aside for now what 'the unconscious' is and how it would be measured. Azuma proposes that a screen be set up in parliament that displays the populace's unconscious so that this unconscious provides feedback in real

time on deliberations in parliament with the aim that 'deliberation among politicians and experts ought to be limited by this very unconscious'.[32]

Azuma gives two main arguments in favour of deliberative data democracy or, as he calls it, 'unconscious democracy'.[33] First, deliberative data democracy improves perceived legitimacy because it instils a sense of ownership and participation. Azuma suggests that deliberative data democracy would 'restore some feeling of actual participation for the masses'. Citizens might look more favourably on legislation or even identify with legislation insofar as they know that their voices are heard, and their feelings are felt in parliament. In times in which the disconnect between citizens at home and politicians in DC or Brussels is felt acutely, this would be a valuable achievement. Stated with reference to democratic norms, deliberative data democracy might support to the associative norm of identification.

Second, data democracy might improve the quality of legislative debates by uncovering 'latent expertise languishing in obscurity' (Azuma 2014, 148). Similar to wiki democracy, this expertise-based argument squares well with existing ideas of epistemic democracy and the use of technology to further collective intelligence (cf. Landemore 2013). As such, data democracy has an instrumental argument on its side that follows the intuition that more data will lead to better outcomes. From the perspective of democratic norms, data democracy might strengthen the deliberative norms of reasonableness and transformation.

In sum, the general will 2.0 is a form of deliberative data democracy that draws on new forms of data — that representing the (collective) unconscious — and uses these to informally constrain the legislative process in its deliberations. It is '[t]he aggregate of animal murmurs giving direction to the elites' human and public debates' (Azuma 2014, 162). On the face of it, deliberative data democracy is entirely consistent with democratic norms and it promises to strengthen the deliberative norms of

[32] Although, to be clear, Azuma (2014, chap. 4) resists the characterization of his proposal as deliberative. He distinctly sees the general will 2.0 as novel form of politics in contrast to the deliberative tradition (e.g., Habermas and Arendt) and the antagonistic tradition (e.g., Schmitt).

[33] Although he develops these arguments specifically for his proposal, these arguments are worthwhile discussing insofar as they might have force in support of similar proposals of deliberative data democracy more generally. Azuma gives a third argument, which I do not discuss here, that deliberative data democracy avoids the latent threat of populism.

reasonableness and transformation through increased pooling of information and the norm of associative identification insofar as citizens believe that their unconscious is seen by parliament and thereby reflected in the legislative process.

But the proposal has several problems. First of all, what the collective unconscious is exactly and whether visualising it in parliament would deliver the advertised benefits is at best unclear. Citizens may not welcome laws or identify more closely with them only because additional data about collective sentiments is projected live above the hemicycle. Cynics would add that, in fact, not much changes at all: Already today politicians perform incessantly for 'popular opinion' driven by reactions on social media, focus groups, polls, and, occasionally, votes.

Second, if legislation were to follow the collective unconscious and the 'animal murmurs', the outcome might be anodyne at best and authoritarian at worst. A legislature that seeks to pacify popular emotions might resort to political triangulation to transcend partly politics and cleavages. Even worse, data democracy might make politics for the amygdala. Putting the collective unconscious at the centre of deliberation elevates instincts of homophily, fear, and aggression. Perhaps it can be very satisfying for a vast majority to marginalize, scapegoat, or oppress minorities. At any rate, it seems unlikely that elevating the unconscious produces good policy outcomes and improvements by the lights of deliberative norms. The questionable assumption in deliberative data democracy concerns its underlying Freudian view that data about the unconscious and the 'suppressed libido' is valuable in the ways Azuma envisions. Instead, it appears that the underlying Freudian impulses might deprave deliberation not enhance it. In terms of the democratic norms, deliberative data democracy would decrease reasonableness and transformation.

Finally, it should be troubling that Azuma is quick to discount the value of current democracies and leans towards the inevitability of data democracy and a minimal state. He writes that '[t]he world has become too complex. The state and deliberation have surpassed their service lives' (Azuma 2014, 206). Any future state will be 'something like a combination of street patrols and food rationing and health check-ups for its residents' (Azuma 2014, 198). Azuma shows no compunction in catering to such libertarian technocratic sentiments.

4.3.2 Decision data democracy

An alternative form of data democracy is put forward by the historian Yuval Noah Harari. Harari suggests that legislative decisions can be automated and be based entirely on data (2017, chap. 11). According to him, the political system of the future has neither parliament nor elections nor a government as such. All these functions can, will, and should be automated and be driven by data. Harari does not spell out how this would work in practice, neither does he motivate this as an improvement of democracy, but he at least offers a theorical motivation for this data-driven system of politics.

Harari's starting assumption is what he calls 'dataism', which comprises a methodological and an axiological claim.[34] The methodological claim of dataism is that every entity or system can be seen as a data-processing system, which entails that we should also see 'political structures as data-processing systems'. Seeing political structures in this way is increasingly widespread in political science, Harari argues. The axiological claim of dataism — that is, a claim about its ethical value — is that 'the value of any phenomenon or entity is determined by its contribution to data processing'. This is a radical teleological claim. But if we understand 'data-processing' liberally,[35] then we can account for the value of human life (humans process and produce vast amounts of data efficiently) and the value of non-human animals as well as the environment (non-human animals and the environment process and produce data and support human data-processing). Looking at democracies today through this lens of dataism, Harari identifies two problems with the status quo.

First, democracy, seen as a data-processing system, is faring increasingly badly, suggests Harari. This is because democracy and its constituting institutions 'don't process data efficiently enough'. He writes that 'because technology is now moving so fast, and parliaments and dictators alike are overwhelmed by data they cannot process quickly enough, … politics is consequently bereft of grand visions. Government has become mere administration'. In short, with its limited throughput and insufficient

[34] Harari later walks back his assumption of dataism. He calls dataism a 'dogma' the critical examination of which is 'the most urgent political and economic project'. He also clarifies that his aim is speculation, not prediction, and that he wants to 'broaden our horizons and make us aware of a much wider spectrum of options'.

[35] What exactly Harari means with 'data' and 'data-processing' is very unclear, however. He seems to subscribe to a naïve account of data criticized by Lyon (2016) as mentioned earlier.

processing capacity, democracy, in the eyes of dataism, has a desirability problem. Whatever democracy's promise may be — equal standing, equal influence, public justification, reform of citizens' characters, good policy outcomes, or maximizing welfare — democracy fails to deliver on this promise because of the influence of technology and because democracy is overwhelmed by the increasing demands on data-processing.[36]

Second, next to this desirability problem, democracy has a feasibility problem. According to Harari, some form of decision data democracy is inevitable. Democracy with its 'venerable institutions like elections, parties and parliaments might become obsolete' so that 'democracy might decline and even disappear' (Harari 2017, chap. 11). The basis for this prediction is the dataist argument we have just seen: Because democracy fails as a data-processing system, democracy fails to deliver on its promise and through some process of political change, a better system of collective decision-making and social coordination will be established.

In decision data democracy, citizens play no role at all beyond the data they generate. In this sense, as Harari admits, decision data democracy is no democracy at all.[37] At most, decision data democracy can be motivated out of the idea that political decisions satisfy citizens' actual desires and preferences. But this aggregative model of democracy fails to involve citizens in the right way (Kolodny 2014, 207). In terms of democratic norms, decision data democracy is likely to undermine almost all of the norms mentioned. It violates the norm of egalitarian participation in virtue of abolishing virtually all practices of meaningful participation and it violates the vertical aspect of deliberative transformation. This, in turn, raises a problem for the legitimacy of data democracy (Danaher 2016). Decision data democracy also does nothing to improve the operation of the deliberative norms of reasonableness and the norm of deliberative transformation in its horizonal aspect. Although an optimistic argument would have it that the good outcomes of data democracy will improve civic motivation and citizens'

[36] Harari's argument assumes that democracy is good for something but leaves open what exactly democracy is good for (welfare, equal standing, etc.). Insofar as none of the things that democracy might be good for contribute to data-processing, even this ecumenical assumption — that democracy is good for *something* — conflicts with the axiological assumption of dataism (i.e. only things that contribute to data-processing are valuable). In short, axiological dataism is incompatible with the value of democracy.

[37] I listed the proposal as a 'democracy' insofar as the project here investigates how technology might transform democracy.

identification, insofar as data democracy diminishes the respective participatory and associative practices, it seems more likely that data democracy stands also to undermine these participatory and associative norms.

5 Conclusion

Technology can help or hinder democracy. This chapter has described and discussed various ideas of how technology can do so. The overarching aim of this chapter has been to put forward a framework of how to think about technological democratic innovations. The framework extends existing thinking in democratic theory to practices that constitute a democratic society. I have distinguished between participatory, deliberative, and associative practices and I have sketched some important norms for each. Democratic participation is characterized by substantively egalitarian norms of access (inclusion and non-market relations) as well as a civic motivation of those who take part. Democratic deliberation is subject to a norm of reasonableness and to a norm of deliberative transformation (in a horizontal and a vertical aspect). And democratic association includes a norm of identification of those who join together under a shared end. In addition to guiding the examination of technological proposals, this framework may help more generally in evaluating any intervention that claims to improve democracy.

The visions of how technology may revolutionize democracy each fare very differently with respect to how they contribute to good democratic practices. Mere changes intervene in existing practices and often tend to have democratic norms in clear view and work to maintain them. Many existing so-called democracy apps are dedicated to the aim of improving reasonableness or facilitating horizontal or vertical deliberative transformation.

Moderate reforms seem instead to be animated by a sense of technological possibility as they import gamification design schemas and leverage civic motivation; but these interventions threaten, in particular, the norms of egalitarian participation and civic motivation. For example, when participation is rewarded with points, this not only bears risks to privacy and risks abuse, it also raises problems of equal access and it may crowd out citizens' intrinsic motivations and recognition of a shared end in favour of instrumental motivations in pursuit of individual advantage.

Radical revisions of democratic practices, finally, tend to be animated by a sense of technological necessity. Strikingly, proponents of each proposal, Perez, Azuma and Harari, suggest that their respective proposal — avatar democracy, deliberative data democracy, or decision data democracy — is inevitable. This fatalism is by itself a dubious claim, at least, insofar as it rests on some form of technological or material determinism. Moreover, some of the proposals, in particular avatar democracy and deliberative data democracy, come dressed up as a way of saving democracy, when each of them in fact appears deeply deficient of a clear understanding of democratic values and practices.

Norms	Participatory		Deliberative		Associative
Proposal	*Egalitarian Participation*	*Civic motivation*	*Reasonableness*	*Transformation*	*Identification*
Innobucks	↓ digital divide	↓ gamification incentives			
Wiki democracy	↓ barriers to participation	↑ voluntariness	↑ participation structured	↑ every participant active	↑ voluntariness
Avatar democracy	↑ less regulatory capture ↑ effective representation of minorities ↓ all participation indirect		↑ no campaigning, no targeted ads	↑ less deception ↓ vertical and horizontal transformation conflict	
Deliberative data democracy			↑ increased pooling of information ↓ pooling of emotional information damaging		↑ knowledge that the unconscious is seen in parliament
Decision data democracy	↓ only aggregates and does not involve citizens in the right way				

Table 4 Overview of hypothesized effects on democratic norms, with indicated increase or decrease in support.

Another noteworthy trend is that some of the proponents of the radical revisions do not in fact themselves endorse the proposals that they promulgate.[38] Instead, authors take themselves to be speculating on ideas or conceiving of possibilities without defending them. But if these are good ideas, they should be worthwhile defending.

A proposal that stands out among the radical revisions discussed here is wiki democracy. First, wiki democracy is neither animated by a sense of technological possibility nor by a sense of technological necessity. Instead, wiki democracy is a relatively modest proposal that targets a limited range of problems in the legislative process. Second, wiki democracy starts with the identification of a shortcoming of democratic practices in light of democratic norms and tries to improve practices accordingly. Other radical revisions, by contrast, aim at a certain outcome while diminishing the domain of democratic practices. Third, wiki democracy rests on a technology that is available today and that has been used in a similar fashion already, albeit for different ends. This is not only a proof of concept, but it is also a feasibility check — although problems in increasing and sustaining fair and equal participation are likely to persist. Avatar democracy and data democracy, by contrast, are distinctively speculative and depend for their success on uncertain technological capabilities. In these ways, wiki democracy might not only be an attractive proposal, but the proposal may also serve as a methodological role model of good thinking about how to conceive of technological interventions to improve democracy.

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6 References

Asimov, Isaac. 1955. “Franchise.” *If, Worlds of Science Fiction*, August 1955.
Azuma, Hiroki. 2014. *General Will 2.0: Rousseau, Freud, Google*. New York: Vertical.

[38] With the exception of Hidalgo who endorses a general idea of augmented democracy.

Behrens, Jan. 2017. “The Origins of Liquid Democracy.” *The Liquid Democracy Journal*, no. 5 (May). https://liquid-democracy-journal.org/issue/5/The_Liquid_Democracy_Journal-Issue005-02-The_Origins_of_Liquid_Democracy.html.

Bertone, Giulia, Fiorella De Cindio, and Stefano Stortone. 2015. “LiquidFeedback in Large-Scale Civic Contexts: Framing Multiple Styles of Online Participation.” *Journal of Social Media for Organizations* 2 (1): 27.

Blum, Christian, and Christina Isabel Zuber. 2016. “Liquid Democracy: Potentials, Problems, and Perspectives.” *Journal of Political Philosophy* 24 (2): 162–82. https://doi.org/10.1111/jopp.12065.

Bozeman, Barry. 2007. *Public Values and Public Interest: Counterbalancing Economic Individualism*. Washington, D.C.: Georgetown University Press.

Chen, Yu-Che, and Michael J. Ahn. 2017. *Routledge Handbook on Information Technology in Government*. New York: Routledge.

Christiano, Thomas. 1996. *The Rule Of The Many: Fundamental Issues In Democratic Theory*. Boulder Colo.: Westview Press.

———. 2008. *The Constitution of Equality: Democratic Authority and Its Limits*. Oxford University Press. http://www.oxfordscholarship.com/view/10.1093/acprof:oso/9780198297475.001.0001/acprof-9780198297475.

———. 2018. “Democracy.” In *The Stanford Encyclopedia of Philosophy*, edited by Edward N. Zalta, Fall 2018. Metaphysics Research Lab, Stanford University. https://plato.stanford.edu/archives/fall2018/entries/democracy/.

Cohen, Joshua. 1989. “Deliberation and Democractic Legitimacy.” In *The Good Polity: Normative Analysis of the State*, edited by Alan P. Hamlin and Philip Pettit. Oxford: Blackwell.

———. 1997. “Procedure and Substance in Deliberative Democracy.” In *Deliberative Democracy: Essays on Reason and Politics*, edited by James Bohman and William Rehg. Cambridge Mass.: The MIT Press.

Cohen, Joshua, and Archon Fung. 2021. “Democracy and the Digital Public Sphere.” In *Digital Technology and Democratic Theory*, edited by Lucy Bernholz, Hélène Landemore, and Rob Reich. Chicago: University of Chicago Press.

Cohen, Joshua, and Joel Rogers. 1993. “Associations and Democracy.” *Social Philosophy and Policy* 10 (2): 282–312. https://doi.org/10.1017/S0265052500004234.

———. 1995. *Associations and Democracy*. Edited by Erik Olin Wright. London: Verso.

Coleman, Stephen, and Jay G. Blumler. 2009. *The Internet and Democratic Citizenship: Theory, Practice and Policy*. Cambridge University Press.

Danaher, John. 2016. "The Threat of Algocracy: Reality, Resistance and Accommodation." *Philosophy & Technology* 29 (3): 245–68. https://doi.org/10.1007/s13347-015-0211-1.

Diamond, Larry. 2010. "Liberation Technology." *Journal of Democracy* 21 (3): 69–83. https://doi.org/10.1353/jod.0.0190.

Domingos, Pedro. 2015. *The Master Algorithm: How the Quest for the Ultimate Learning Machine Will Remake Our World*. New York: Basic Books.

Dryzek, John S., André Bächtiger, Simone Chambers, Joshua Cohen, James N. Druckman, Andrea Felicetti, James S. Fishkin, et al. 2019. "The Crisis of Democracy and the Science of Deliberation." *Science* 363 (6432): 1144–46. https://doi.org/10.1126/science.aaw2694.

Eagleton-Pierce, Matthew. 2001. "The Internet and the Seattle WTO Protests." *Peace Review* 13 (3): 331–37. https://doi.org/10.1080/13668800120079027.

Elster, Jon. 1989. "The Market and the Forum: Three Varieties of Political Theory." In *Foundations of Social Choice Theory*, edited by Jon Elster and Aanund Hylland. Cambridge: Cambridge University Press.

Floridi, Luciano. 2016. "Technology and Democracy: Three Lessons from Brexit." *Philosophy & Technology* 29 (3): 189–93. https://doi.org/10.1007/s13347-016-0229-z.

Fuller, Roslyn. 2020. "Digital Democracy Report." Dublin: Solonian Democracy Institute. http://solonian-institute.com/wp-content/uploads/2020/02/DigitalDemocracyReport_Final.pdf.

Fung, Archon, Hollie Russon Gilman, and Jennifer Shkabatur. 2013. "Six Models for the Internet + Politics." *International Studies Review* 15 (1): 30–47. https://doi.org/10.1111/misr.12028.

Gastil, John. 2016. "Building a Democracy Machine: Toward an Integrated and Empowered Form of Civic Engagement." Harvard Kennedy School: Ash Center for Democratic Governance and Innovation. http://ash.harvard.edu/files/ash/files/democracy_machine.pdf.

Gastil, John, and Robert C. Richards. 2017. "Embracing Digital Democracy: A Call for Building an Online Civic Commons." *PS: Political Science & Politics* 50 (3): 758–63. https://doi.org/10.1017/S1049096517000555.

Gordon, Eric, and Jessica Baldwin-Philippi. 2014. “Playful Civic Learning: Enabling Lateral Trust and Reflection in Game-Based Public Participation.” *International Journal of Communication* 8 (February): 28.

Gould, Carol C. 1988. *Rethinking Democracy: Freedom and Social Co-Operation in Politics, Economy, and Society*. Cambridge: Cambridge University Press.

Guseva, Alya, and Akos Rona-Tas. 2019. “Consumer Credit Surveillance.” In *The Oxford Handbook of Consumption*, edited by Frederick F. Wherry and Ian Woodward, 341–57. Oxford: Oxford University Press. https://doi.org/10.1093/oxfordhb/9780190695583.013.16.

Harari, Yuval Noah. 2017. *Homo Deus: A Brief History of Tomorrow*. New York: HarperCollins.

Heath, Joseph. 2020. *The Machinery of Government: Public Administration and the Liberal State*. Oxford: Oxford University Press.

Hidalgo, César. 2018. *A Bold Idea to Replace Politicians*. Ted. https://www.ted.com/talks/cesar_hidalgo_a_bold_idea_to_replace_politicians.

Hindman, Matthew. 2009. *The Myth of Digital Democracy*. Princeton, N.J.: Princeton University Press.

Howard, Philip N., and Muzammil M. Hussain. 2011. “The Upheavals in Egypt and Tunisia: The Role of Digital Media.” *Journal of Democracy* 22 (3): 35–48. https://doi.org/10.1353/jod.2011.0041.

———. 2013. *Democracy’s Fourth Wave?* Oxford: Oxford University Press. https://books.google.com/books/about/Democracy_s_Fourth_Wave.html?hl=de&id=ayHOyrmmT8kC.

Kolodny, Niko. 2014. “Rule Over None I: What Justifies Democracy?” *Philosophy & Public Affairs* 42 (3): 195–229. https://doi.org/10.1111/papa.12035.

Lafont, Cristina. 2015. “Deliberation, Participation, and Democratic Legitimacy: Should Deliberative Mini-Publics Shape Public Policy?” *Journal of Political Philosophy* 23 (1): 40–63. https://doi.org/10.1111/jopp.12031.

Lalley, Steven, and E. Glen Weyl. 2017. “Quadratic Voting: How Mechanism Design Can Radicalize Democracy.” SSRN Scholarly Paper ID 2003531. Rochester, NY: Social Science Research Network. https://doi.org/10.2139/ssrn.2003531.

Landemore, Hélène. 2013. *Democratic Reason: Politics, Collective Intelligence, and the Rule of the Many*. Princeton, N.J.: Princeton University Press.

Lepore, Jill. 2020. *If Then: How the Simulmatics Corporation Invented the Future*. Liveright Publishing.

Lerner, Josh. 2014. *Making Democracy Fun: How Game Design Can Empower Citizens and Transform Politics*. Cambridge Mass.: The MIT Press.

Levine, David K. 2020. "Radical Markets by Eric Posner and E. Glen Weyl: A Review Essay." *Journal of Economic Literature* 58 (2): 471–87. https://doi.org/10.1257/jel.20191533.

Liang, Fan, Vishnupriya Das, Nadiya Kostyuk, and Muzammil M. Hussain. 2018. "Constructing a Data-Driven Society: China's Social Credit System as a State Surveillance Infrastructure." *Policy & Internet* 10 (4): 415–53. https://doi.org/10.1002/poi3.183.

Lim, Merlyna. 2018. "Roots, Routes, and Routers: Communications and Media of Contemporary Social Movements." *Journalism & Communication Monographs* 20 (2): 92–136. https://doi.org/10.1177/1522637918770419.

Lim, Merlyna, and Mark E. Kann. 2008. "Politics: Deliberation, Mobilization and Networked Practices of Agitation." In *Networked Publics*, edited by Kazys Varnelis, 77–108. Cambridge Mass.: The MIT Press.

Loh, Wulf. 2019. "The Gamification of Political Participation." *Moral Philosophy and Politics* 6 (2): 261–80. https://doi.org/10.1515/mopp-2018-0037.

Lyon, Aidan. 2016. "Data." In *The Oxford Handbook of Philosophy of Science*, edited by Paul Humphreys. Oxford: Oxford University Press.

Mansbridge, Jane J. 1983. *Beyond Adversary Democracy*. Chicago: University of Chicago Press.

Mill, John Stuart. 1859. *On Liberty*. Edited by David Bromwich and George Kateb. New Haven and London: Yale University Press [2003].

Morozov, Evgeny. 2011. "Liberation Technology: Whither Internet Control?" *Journal of Democracy* 22 (2): 62–74. https://doi.org/10.1353/jod.2011.0022.

———. 2014. *To Save Everything, Click Here: The Folly of Technological Solutionism*. New York: PublicAffairs.

———. 2019. "Digital Socialism?" *New Left Review* 116 (June): 33–67.

Nabatchi, Tina. 2018. "Public Values Frames in Administration and Governance." *Perspectives on Public Management and Governance* 1 (1): 59–72. https://doi.org/10.1093/ppmgov/gvx009.

Nabatchi, Tina, and Ines Mergel. 2010. "Participation 2.0: Using Internet and Social Media: Technologies to Promote Distributed Democracy and Create Digital Neighborhoods." In *The Connected Community: Local Governments as Partners in Citizen Engagement and Community Building*, edited by James H Svara and Janet Denhardt. Phoenix, AZ: Alliance for Innovation.

Newsom, Gavin. 2013. *Citizenville: How to Take the Town Square Digital and Reinvent Government*. New York: Penguin Press.

NIST. 2012. "Accessible Voting Technology." National Institute of Standards and Technology. December 18, 2012. https://www.nist.gov/itl/voting/accessible-voting-technology.

Noveck, Beth Simone. 2009. *Wiki Government: How Technology Can Make Government Better, Democracy Stronger, and Citizens More Powerful*. Washington, D.C.: Brookings Institution Press.

———. 2018. "Crowdlaw: Collective Intelligence and Lawmaking." *Analyse & Kritik* 40 (2): 359–80. https://doi.org/10.1515/auk-2018-0020.

Perez, Oren. 2020. "Collaborative E-Rulemaking, Democratic Bots, and the Future of Digital Democracy." *Digital Government: Research and Practice* 1 (1): 8:1-8:13. https://doi.org/10.1145/3352463.

Peter, Fabienne. 2021. "Epistemic Norms of Political Deliberation." In *Routledge Handbook of Political Epistemology*, edited by Michael Hannon and Jeroen de Ridder. New York: Routledge.

Pitkin, Hanna Fenichel. 1967. *The Concept of Representation*. Berkeley and Los Angeles: University of California Press.

Posner, Eric A., and E. Glen Weyl. 2017. "Quadratic Voting and the Public Good: Introduction." *Public Choice* 172 (1): 1–22. https://doi.org/10.1007/s11127-017-0404-5.

———. 2018. *Radical Markets: Uprooting Capitalism and Democracy for a Just Society*. Princeton, N.J.: Princeton University Press.

Posner, Richard A. 2003. *Law, Pragmatism, and Democracy*. Cambridge Mass.: Harvard University Press.

Przeworski, Adam. 1999. "Minimalist Conception of Democracy: A Defense." In *Democracy's Value*, edited by Ian Shapiro and Casiano Hacker-Cordón. Cambridge: Cambridge University Press.

Rawls, John. 1971. *A Theory of Justice*. 1999 Revised edition. Cambridge Mass: Harvard University Press.

———. 1993. *Political Liberalism*. New York: Columbia University Press.

Schlozman, Kay Lehman, Henry E. Brady, and Sidney Verba. 2018. *Unequal and Unrepresented: Political Inequality and the People's Voice in the New Gilded Age*. Princeton, N.J.: Princeton University Press.

Shahbaz, Adrian, and Allie Funk. 2019. “Freedom on the Net 2019.” Freedom on the Net. Washington, D.C.: Freedom House. https://freedomhouse.org/report/freedom-net/2019/crisis-social-media.

Shane, Peter M., ed. 2004. *Democracy Online: The Prospects for Political Renewal Through the Internet*. New York: Routledge.

Simon, Julie, Theo Bass, Victoria Boelman, and Geoff Mulgan. 2017. “Digital Democracy: The Tools Transforming Political Engagement.” London: Nesta. https://media.nesta.org.uk/documents/digital_democracy.pdf.

Strandberg, Kim, and Kimmo Grönlund. 2018. “Online Deliberation.” In *The Oxford Handbook of Deliberative Democracy*, edited by Andre Bächtiger, John S. Dryzek, Jane Mansbridge, and Mark Warren, 364–77. Oxford University Press. https://doi.org/10.1093/oxfordhb/9780198747369.013.28.

Susskind, Jamie. 2018. *Future Politics: Living Together in a World Transformed by Tech*. Oxford: Oxford University Press.

Talisse, Robert B. 2019. *Overdoing Democracy: Why We Must Put Politics in Its Place*. Oxford: Oxford University Press.

Theiss-Morse, Elizabeth, and John R. Hibbing. 2005. “Citizenship and Civic Engagement.” *Annual Review of Political Science* 8 (1): 227–49. https://doi.org/10.1146/annurev.polisci.8.082103.104829.

Towns, Steve. 2010. “The Innobucks Start Here.” Governing: The Future of States and Localities. April 2010. https://www.governing.com/columns/tech-talk/The-Innobucks-Start-Here.html.

Tufekci, Zeynep. 2017. *Twitter and Tear Gas: The Power and Fragility of Networked Protest*. New Haven: Yale University Press.

Viehoff, Daniel. 2016. “Authority and Expertise.” *Journal of Political Philosophy* 24 (4): 406–26. https://doi.org/10.1111/jopp.12100.

Watkins, Alan, and Iman Stratenus. 2016. *Crowdocracy: The End of Politics*. Kent: Urbane Publications.

Wilson, James Lindley. 2019. *Democratic Equality*. Princeton, N.J.: Princeton University Press.

Wright, Erik Olin. 2010. *Envisioning Real Utopias*. London: Verso.

Zacka, Bernardo. 2017. *When the State Meets the Street: Public Service and Moral Agency*. Cambridge Mass.: Belknap Press.