3   The Democratic City: The Social Determinants of Technology's Impacts

How do democracy and politics appear through tech goggles?

This is a central question in our examination of smart cities. The previous chapter elucidated how what appear to be technical questions—How can cities improve mobility? How should cities prepare for new technology?—are actually political questions whose answers can have significant social and political impacts. But it is not yet clear whether the flaws in the visions for new transportation technology implicate other aspects of the smart city. Are the issues that emerge as cities embrace self-driving cars unique to automobiles and traffic, or do they reflect something more fundamental about a tech-centric worldview? As we will see, those under the influence of tech goggles miss not just the political nature of seemingly technical issues such as traffic but also the political nature of politics itself.

Many technologists point to direct democracy as the pinnacle of democratic civic engagement. One oft-cited model is the New England town meeting, in which community members gather to deliberate and make important decisions. In the eyes of technologists, society deviated from town meetings to our current form of government for purely practical reasons of scale and coordination: the country became too big (in both geography and population) to hold such a meeting for every decision.

"Sadly, direct democracies do not scale," explains the technologist Dominik Schiener. "Direct democracies in its purest form are simply not feasible for larger communities." Resolving this issue required numerous levels of representation, but that is a flawed solution, in Schiener's eyes. "Representative democracies scale well, but they fail to best serve citizens' best interest," he writes, explaining that rather than look out for the people they represent, politicians exist within a web of partisan political

organizations and corrupt special interests. We have been stuck with the legacy of technical limitations, Schiener declares, prevented from returning to a direct democracy by "implementation barriers."[1]

Digital technology and social media appear to break those barriers and make it possible to adopt more democratic forms of governance. Complaining about the "shrill arguments" and "fights" that characterize government, former San Francisco mayor Gavin Newsom asserts: "Technology has rendered our current system of government irrelevant, so now government must turn to technology to fix itself."[2] Mark Zuckerberg promised that Facebook would "bring a more honest and transparent dialogue around government that could lead to more direct empowerment of people."[3] Napster co-founder and former Facebook president Sean Parker proclaimed that "new mediums and new media . . . will make politics more efficient."[4] Nathan Daschle (the son of former Senate majority leader Tom Daschle) promises that technology can liberate people from partisan dysfunction and disempowerment, asserting that with modern connectivity, "We can now replicate core political party functions online."[5]

Following these dreams, technologists have created apps to transform politics. Parker started the online civic engagement platform Brigade—the self-proclaimed "world's first network for voters"[6]—promising a social media–driven "revolution in political engagement."[7] Hailed as "a dead-simple way of taking political positions," the app allows users to agree or disagree on statements such as "The federal minimum wage should be raised to $15 an hour."[8] Another platform, Textizen, promises "Public engagement for the digital age"[9] by letting people respond by text message to simple questions posed by the government, such as "What's your favorite thing about Salt Lake City?"[10] "Textizen makes it possible for cities to collect and analyze data in real time," explained one observer, who added, "Textizen is reinventing the relationship between government and citizens."[11] Daschle's app, Ruck.us, created an online social network where users could discuss current events and plan political actions.

Within cities, no technology has been more heralded for transforming civic engagement than the digital services apps known as 311. Named for the phone number used in many cities to access nonemergency municipal services, these apps promise to improve civic engagement by making service delivery more personalized and efficient. Instead of needing to call

city hall to ask for services, residents can photograph potholes or damaged street signs and notify their governments straight from a smartphone. Once their issue is fixed, residents receive an update from the government. As an added benefit, instead of wandering the city searching for potholes to fix, city staff can rely on their residents to notify them of issues as they arose. Dozens of municipalities (including Baltimore, Los Angeles, and Lincoln, Nebraska) have each deployed city-specific 311 apps for reporting issues within their jurisdictions.

Underlying the development of 311 apps is the belief that with the public working as the government's "eyes and ears,"[12] the efficiency of service delivery would increase and so too would trust in government. An early version of Chicago's 311 app appeared in Apple's App Store with the following description: "Engaging the citizenry in the daily administration of government will lead to more efficient allocations of tax dollars, increase transparency and increase trust in Chicago government."[13] According to IBM, "The more digital tools make it easier to interact with the government, the more confidence citizens will have in the government to provide important public services." One manager at the company proclaimed, "Social and mobile applications are fundamentally—and for the better— transforming how citizens and governments can interact."[14]

These technological developments reflect admirable goals. After all, our current representative democracy is clearly imperfect and leaves many people disempowered and disaffected. Public engagement in democratic decision making is a critical way of counteracting increasingly concentrated political power and declining trust in public institutions. Engagement is particularly important in the context of local government, where the issues at hand most directly affect daily life and where the most direct opportunities for engagement exist. In addition to allowing individuals a voice in setting priorities and policies, engagement is critical as a tool for developing their interest and capacity to become active citizens who can participate in deliberation. In this sense, it is important that citizens be able to voice their opinions to the government both as individuals and as members of civic associations—the foundations of collective action, which Alexis de Tocqueville in 1840 famously deemed the "great free schools" of democracy.[15]

Yet despite technologists' optimism and flashy new technology, they have found that "the rules of politics are not easily broken."[16] Daschle's

platform Ruck.us, for instance, gave up on its mission within two years. Even Parker acknowledges that the domain of civic engagement apps is "littered with failure."[17]

New technology clearly transforms how people communicate and associate—so why hasn't it transformed democracy?

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The seeds of these technologies' limitations can be found in the assumptions and priorities embedded in their design. Parker wants to make politics more "efficient," and his app Brigade is acclaimed for being "dead-simple." Schiener assesses political systems in terms of their ability to "scale." Across the United States, 311 apps draw attention for making government "easier" and "more efficient."

Technologies designed around these values fail not because they are poorly or maliciously designed, but because they do not address the fundamental challenges behind democracy and engagement. Through tech goggles we misdiagnose the core limitations on democratic decision making and civic engagement—power, politics, public motivation and capacity—as problems of inefficiency and insufficient information.

This logic suggests that politics is a coordination problem that can be solved through novel technologies, freeing us from the perils of the "dumb" city. Inspired by the rise of artificial intelligence and 3-D printing, for instance, the MIT computer scientists Christopher Fry and Henry Lieberman advocate for replacing U.S. democracy with a "Reasonocracy" that is "based on logical reasoning." In this proposed form of government, decisions are made by "Reasonocrats," representatives who "solve problems . . . using reason instead of power," as opposed to bureaucrats, "who implement government policy via fixed routine without exercising intelligent judgment."[18]

But as the political scientist Corey Robin explains, politics "is a struggle about social domination" that involves the negotiation of competing interests.[19] When half of a group wants one thing and half wants another, disagreement and disappointment are inevitable. Politicians seeking to mediate between those positions are bound to disappoint both sides. This is what Bruno Latour referred to when he wrote, "What we despise as political 'mediocrity' is simply the collection of compromises that we force politicians to make on our behalf. If we despise politics we should despise ourselves."[20] Moreover, in many areas, including education and criminal

justice, disagreements revolve around not just power or resource alloca-
tion but fundamentally competing moral visions of a good and just society.
Democracy, in other words, is not merely a project of aggregating prefer-
ences and making logical decisions.

By failing to recognize these realities of politics, technologists misdi-
agnose the roots of political disempowerment and dysfunction and mis-
identify the ideals that we should strive to achieve. As a result, the very
goal that technologists most desire—an efficient and conflict-free politics—
is nonsensical.

Technologists overlook numerous aspects of politics that contribute to
the issues they decry and constrain the solutions they propose. A notable
example is the design and structure of political institutions. The political
scientists Archon Fung, Hollie Russon Gilman, and Jennifer Shkabatur
note that "claims about the potential benefits of digital technologies for
democracy . . . are excessively attentive to the novel dynamics that technol-
ogy enables but inattentive to the institutional dynamics of political sys-
tems." Proclamations that technology will empower the public and enable
direct democracy ignore the fact that collective action requires resources
and authority, and that "policy makers and politicians have little incen-
tive" to engage more deeply with the public. Moreover, Fung, Gilman, and
Shkabatur explain, although apps like 311 enable individuals to send infor-
mation to the government, "they do not aim to create more equal, inclu-
sive, representative, deliberative or potent forms of citizen influence over
government." The public might have a new tool to inform municipal oper-
ations, but that tool is employed within the framework of traditional rela-
tionships: the governed obtain services from the government without being
empowered with greater agency over public priorities or decision making.
In fact, it is precisely because outreach apps such as 311 and Textizen are
"compatible with existing incentives and institutional constraints"—rather
than revolutionary—that governments have eagerly adopted them.[21]

Notions of politics and democracy as coordination problems also mis-
represent what gets people engaged in politics and what barriers keep them
out of it. Engagement apps strive to simplify civic interactions as much
as possible, as if the only obstruction to civic engagement were the time
it takes to speak face-to-face with neighbors and public officials so that
lowering communication barriers would enable true democracy to emerge.
Schiener espouses this view, declaring that "making the entry barrier as low

as possible . . . will much more likely satisfy a large portion of the population and lead to an overall better governance of the country."[22]

Such assumptions fly in the face of well-established lessons from civic associations: attempts to transform democracy by simplifying engagement are doomed to failure. As the political scientist Hahrie Han explains in *How Organizations Develop Activists*, engagement efforts that are designed to be quick and easy fail to foster meaningful participation and citizenship. In a multiyear, nationwide study of a dozen civic groups, Han concluded that a reliance on "transactional mobilizing" plagued low-engagement organizations, while an emphasis on "transformational organizing" allowed organizations to develop large cadres of dedicated participants and in turn have more significant political impacts.[23]

Han describes transactional mobilization tactics as those that conceptualize participation "as a transactional exchange between the activist and association."[24] A civic group organizes opportunities to get involved in an issue—call an elected official, show up to a protest—while the individual provides time and energy. From this perspective, the best way to foster engagement is to make participation as quick and simple as possible. This task becomes increasingly easy with new digital tools that drastically lower the barriers to communication.

But when reaching many people is so easy, even high numbers of participants can be a misleading indicator of strength. Many people might fill out a survey, but be hesitant or unprepared to become more active citizens. By lowering barriers as much as possible to meet people where they already are, in other words, transactional tactics fail to empower individuals or motivate them to take further action. In Han's survey, organizations that relied on transactional mobilizing "became trapped," constantly struggling to maintain engagement.[25] And because elected officials often recognize (and discount) political action that is "cheap talk,"[26] these organizations lacked the capacity to effect change.

In contrast, the high-engagement organizations in Han's research utilized transformational organizing strategies that "cultivate people's motivation, skills, and capacities for further activism and leadership."[27] These groups also deploy mobilization tactics to get people involved, but with an emphasis on civic development rather than transactions: people who engage are recruited to take on more responsibility and taught how to lead future efforts. Through this process, high-engagement organizations teach

members to reflect on the value of their work and enmesh them in social relationships that act as critical motivators to stay engaged. In contrast, participation wanes in low-engagement groups because individuals lack the sense of purpose and collective identity to stay motivated.

Engagement apps are exemplary transactional mobilizers: they minimize barriers to submitting requests and opinions in order to maximize the quantity of interactions, but they do not cultivate deeper engagement or create community among users. They are poised to fall prey to the same political impotence as Han's low-engagement groups: just as those organizations were constrained by their members' lack of motivation and civic skills, so too will digital platforms that rely on opinions or service requests become trapped by the limited nature of the participation they encourage.

In other words, reporting a pothole will not suddenly compel someone to vote—or run—for her local school board, nor will doing so grant her a more important voice in policy debates. Research in Boston has found that residents who receive timely responses to service requests are more likely to submit requests in the future, but there is no indication that this translates into other civic behaviors (e.g., voting, joining neighborhood groups) or attitudes (e.g., increased trust in government).[28] In fact, a separate analysis in Boston found that 311 reporting reflects hyperlocal personal needs rather than civic motivations: more than 80 percent of reports were in the immediate vicinity of the reporter's home. The study concluded that one "should not treat 311 reporting as a proxy for activities like voting or volunteering,"[29] and a similar study in New York reached the same conclusion.[30]

Transactional technology solutions for civic engagement also ignore the structural social and political factors that empower certain voices more than others. In *The Unheavenly Chorus*, the political scientists Kay Schlozman, Sidney Verba, and Henry Brady describe substantial and persistent "disparities in political voice across various segments of society," in which "the affluent and well educated are consistently overrepresented" both online and off.[31]

Beyond the most salient barriers that contribute to this disparity—education, skills, money, time, and internet access—are personal experiences that shape people's ability to assert themselves in public life. As Nancy Burns, Schlozman, and Verba note in *The Private Roots of Public Action*, U.S. women are still less politically active than men almost a century after first being allowed to vote. This discrepancy is due in part to

inequalities associated with social attitudes and opportunities that at first glance appear unrelated to civic participation: for example, men "are more likely than women to get the kinds of jobs that develop civic skills and to gain positions of lay leadership." As a result, women "are less likely than men . . . to be politically interested, informed, or efficacious."[32]

Some segments of the population do not engage with civil society because they have been systematically excluded from it. The legal scholar Monica Bell observes that "many people in poor communities of color [have an intuition] that the law operates to exclude them from society." Underlying this is a perception of what Bell calls "legal estrangement": African Americans don't just perceive that they are unfairly treated by police and the law but also, more broadly, "often see themselves as essentially stateless—unprotected by the law and its enforcers and marginal to the project of making American society." One teenager in Bell's study reported feeling socially and politically powerless, asserting, "[Y]our voice basically doesn't matter."[33]

If poor, minority communities recognize themselves as excluded "from the protection of the law and from their rightful place in society"[34]—not to mention regularly harassed and shot by police, who are among the most visible of the "street-level bureaucrats"[35]—what difference does it make if they can contact the government using an app? In fact, a 2016 study found that "[p]olice misconduct can powerfully suppress" calls to 911 among African Americans—indicating that systemic disempowerment and abuse are critical barriers to trust in government and civic engagement.[36]

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While no app could be expected to solve these myriad barriers to civic participation, that the creators of engagement apps provide no response to or reckoning with them indicates the severe limits of tech-centric perspectives: the innovators do not recognize these problems, or, if they do, they believe that technology can solve them. In this sense, the myopic focus on making civic engagement and governance more efficient results from the belief in a sort of "information fallacy": government is flawed because it does not have enough information about citizen perspectives and infrastructure conditions, in large part because barriers to entry for the public are too high. Reducing these barriers should therefore provide the government with more information, making it more efficient and, hence, effective.

The trouble with this perspective is not that information is useless, but that focusing solely on information as the way to improve urban democracy completely ignores the roles of politics and power. Democracy means far more than just allowing people an easy way to voice their needs and opinions so that services can be provided efficiently—it requires structuring society so that all people "stand in relations of equality" and can pursue "collective self-determination by means of open discussion among equals, in accordance with rules acceptable to all."[37]

By casting political problems (how to allocate resources across the population) as coordination problems (how to efficiently respond to constituent requests), tech goggles obscure and aggravate existing inequities. Meanwhile, the focus on efficiency as a solution distracts us from the ways that power structures and civic processes systematically exclude and diminish the weight of certain voices. Those distortions cannot be rectified through technology—they will be resolved only by changing laws and institutions.

Compounding this issue is that making engagement efficient, and in particular emphasizing efficient service delivery through 311 apps, diminishes the nature of citizenship by suggesting to the public that government exists to address personal needs, as if it were a customer service agency. Promising to quickly repair every pothole elides the reality that government has limited resources that often must be allocated to other issues and other people. Such promises will therefore generate citizens-as-disappointed-consumers and impair the "willingness of people to accept the collective responsibilities of citizenship," explains the political scientist Catherine Needham.[38] "The fundamental danger is that [treating citizens like consumers] may be fostering privatised and resentful citizens whose expectations of government can never be met, and cannot develop the concern for the public good that must be the foundation of democratic engagement and support for public services," she writes.[39]

Focusing on customer service may in fact "exacerbate political inequalities even as it improves some aspects of service production and delivery," writes the political scientist Jane Fountain.[40] Because customer service relies on meeting a customer's demands and expectations, social groups with less power and lower expectations—poorer "market segments," within the frame of customer service—will also receive lower-quality service.

The inequities inherent to efficiency- and customer-service-oriented engagement technology are clearly demonstrated by 311 apps—despite

appearing to be value-neutral, the efficiency embedded in these apps benefits some groups more than others. The apps are designed around a predetermined set of request types that the public can submit; the most common categories involve potholes, street lights, graffiti, sidewalks, and trees.[41] The apps streamline access to municipal services for those whose needs fall within these limited categories, but they do little to help those whose needs transcend them. In Boston, for example, one study found that "Black and Hispanic respondents both reported wanting to use the system to connect with neighbors" and that these communities "were less likely to report public issues."[42] As a result, 311 reports are heavily skewed toward the wealthy, white neighborhoods whose residents have the greatest propensity to report issues rather than to those with the most need.[43]

More fundamentally, despite being hailed as empowering the public, efficiency-minded technologies provide no avenue for the public to request better schools, improved bus service, or less heavy-handed intervention by police—in other words, to voice needs that would require difficult and substantial (and therefore inefficient) political reforms. In fact, 311 apps largely prioritize the same types of issues as discriminatory "quality of life" or "broken windows" policing, leading to the criminalization of minorities in gentrifying neighborhoods[44] and (via a local landlord's 311 report about an "Eric" selling cigarettes outside his building) the killing of Eric Garner.[45]

Through these design choices, 311 apps can reduce the scope of collective experiences and frustrations that are essential to a unified body politic. If certain groups have their needs addressed quickly and easily, they are unlikely to recognize the challenges that other groups with deeper problems face. When an upper-middle-class white woman enjoys a frictionless process in requesting that a pothole in front of her house be repaired, she may further buy into the premise of the city-as-customer-service-agency— pleased that the city solved her problem and eager to request more services, but uninterested in engaging with her government or community in more meaningful ways. She will be unaware not just of the more intractable problems that exist in many poor and minority communities but also of the significant friction that those residents experience when they attempt to persuade the government to address their concerns.

Suppose instead that no 311 apps exist—that there is no easy way for someone to get that pothole in front of her house repaired. Perhaps now she must call the public works department, which informs her that there

are even worse potholes in another part of town that need to be filled first. She begins to see that her issue, although experienced individually, is part of a collective problem: many people have potholes in front of their homes, because the government has insufficient funding for infrastructure repair. Frustrated by the large backlog, maybe she gathers her neighborhood into a civic group. Partnering with a local representative, they organize to place a referendum for a tax to support infrastructure repair on the next municipal ballot. Through this work, the civic group also comes into contact with those trying to address the community's more systemic issues, such as inadequate bus service and underfunded schools in the predominantly black neighborhoods, and joins forces with them to advocate for change.

This is certainly more work than submitting a 311 report to get a pothole filled and requires a higher level of engagement than many people desire. In a utopia, perhaps everyone really would need nothing more from government than efficient delivery of services. But in the real world, where there are vast inequalities in the scope of issues that different groups face and in whose demands are prioritized by public officials, it is deeply undemocratic to provide the more advantaged with opportunities to streamline their already privileged relationship with government while largely ignoring those with more substantial and intractable needs.

Moreover, positioning 311 apps as the solution for civic engagement obscures the real determinants of antidemocratic power in cities. As the social scientist Jathan Sadowski and the lawyer Frank Pasquale explain, "Time spent organizing to deploy a 'platform for citizens to engage city hall, and each other, through text, voice, social media, and other apps,' is time not spent on highlighting the role of tax resistance by the wealthy in *creating* the very shortage of personnel that smart cities are supposed to help cure by 'force multiplication' of the cities' remaining workers."[46] With more public funding for social services, in other words, there would be no need to strive with such urgency to make every public institution more efficient.

If anything, however, the logic of data and algorithms justifies and exacerbates austerity. In a 2016 editorial, the economist Rhema Vaithianathan (who has developed machine learning models that Pittsburgh uses to predict child abuse)[47] argues that "[b]y 2040 Big Data should have shrunk the public sector beyond recognition." Vaithianathan proposes that data should replace civil servants and, even better, that "[t]he information and

insights will be . . . , ideally, agreed by all to be perfectly apolitical."[48] View-ing government through tech goggles, Vaithianathan assumes that munic-ipalities do little more than the mechanical tasks of monitoring services and gathering information about those services. According to this logic, an emphasis on data can make government simultaneously more efficient and more socially optimal. Taking this position, Vaithianathan advocates for severe cuts in the public sector—framing her advocacy not as a political argument but as a purely technical and therefore "apolitical" one.

Technological solutions thus provide a way to eschew meaningful dis-cussions about our political values and how to realize them. Just as self-driving cars obstruct conversations about improving livability and reducing congestion through better urban design and public transit, so engagement apps stymie consideration of systemic changes that would more signifi-cantly empower the public. Striving to lower barriers for engagement through technology takes for granted that there are no more worthwhile avenues to meaningfully increase civic participation. Yet this is clearly not the case: if inequalities in public and private life discourage many people from participating, then reducing these inequalities would engender more widespread and substantial engagement. Abolishing practices and institu-tions that systematically marginalize certain communities would do far more to increase civic trust and participation than developing an app that these groups can use to report graffiti.

But the problem is not just that better solutions are possible: through the tech goggles cycle, civic engagement apps alter our conceptions and prac-tice of democracy. Viewing democracy through tech goggles, people overes-timate the impact of technology and ignore the complex social and political factors that shape civic engagement. They see high barriers to communi-cation—a problem that technology is more than capable of solving—but are blind to other limiting factors, such as community capacity to organize and minimal political incentives to redistribute power. Technologies are then designed so that city residents have seamless opportunities to contact government, but interactions are limited to those that make the govern-ment into a more efficient service provider. Such technology shapes the behavior of citizens and public officials in ways that entrench the beliefs that problems of governance result from poor coordination, that the point of government is to efficiently provide services, and that the fundamental political challenge of living in a city is dealing with basic service needs. As

apps cast simply stating an opinion as the primary form of participation, people may see no reason to organize, build coalitions, or develop legislation. It is only through a focus on technology and efficiency that such impoverished views of democracy and politics could take hold.

Technologists are correct, of course, in asserting that their tools can reduce barriers to information and participation—anyone who uses email and social media can attest to this. In certain contexts, such as when municipalities need information about conditions across the city, citizen participation can provide valuable aid. In Detroit, residents used a mobile app to report the conditions of over 400,000 properties, providing the city and local nonprofits with precise data to guide urban revitalization efforts.[49] New York City relied on its 311 system in the aftermath of Hurricane Sandy to identify the locations of downed trees and other issues.[50]

But we should not confuse such interactions with meaningful civic engagement or public empowerment. Each relies on transactional information sharing and traditional relationships between citizens and government. Seen through tech goggles, which obscure issues of justice, civic identity, and power, such dynamics may appear to solve the problem of civic engagement. Yet a more thorough accounting of the barriers to civic engagement would echo the words of the open government activist Joshua Tauberer: "Governance is about power. Power is a social thing, not a technological thing. Websites don't magically give people power."[51]

Mitch Weiss, who helped create the first 311 app as chief of staff in Boston, has learned a similar lesson. "We know from our data that trust in government is at historic lows," he says with a grimace. "I don't think that trying to make government ever more efficient and treating our citizens like customers and trying to serve them better and better as customers is actually the answer. There are big decisions that we need to make in public life that are not going to be solved by technology, and we need citizens to engage on those decisions. And if you use technology to push them further and further away, they're not going to be able to make those big decisions with you."[52]

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That's where Steve Walter comes in. Despite being a technology researcher for the City of Boston, Walter is far more fascinated by the transformative power of play than by the capabilities of new technology. He illustrates the

value of play with a simple gravity experiment. He holds a pen in the air, drops it, and watches it fall. The pen lands on the floor and rattles around. "I'm learning about gravity!" Walter exclaims. "I'm playing and learning at the same time. That's what play does."[53]

Games and playfulness have long captured Walter's imagination. "We've all had those experiences where we became engrossed in a game and felt so alive," he says. "But it's typically for stupid reasons—to beat a stupid game! Just imagine if you could feel that way toward helping another person."

With a background in media and user design, Walter provides an important perspective in city halls: intense focus on the lived realities of people who live and work in the city. "The urban environment is an experience—it's not just being in a dense area," he explains. "It's about how you interact with other people, and how you do things with others. We have to take into account human experience." In this setting, Walter says, much of urban life's value comes from the ability to play—to derive new meaning by exploring, questioning, and pushing the bounds of experience.

Play has long been considered essential to a healthy democracy. The philosopher Marshall Berman declares, "Any society that takes the rights of man and citizen seriously has a responsibility to provide spaces where these rights can be expressed, tested, dramatized, played off against each other."[54] Berman points to the music video for Cyndi Lauper's 1983 hit song "Girls Just Want to Have Fun"[55] as emblematic of these values. The video portrays Lauper and her friends singing and dancing through the streets of New York City. Along the way, they pick up onlookers and companions (ranging from a black construction worker to a stuffy white businessman) to create a joyous dance party that mirrors the even more resplendent and city-unifying parade from the 1986 film *Ferris Bueller's Day Off*.[56] Through song and dance as a form of play, Lauper and Bueller are both, in Berman's words, "transforming the life of the street itself, using its structural openness to break down barriers of race and class and age and sex, to bring radically different kinds of people together."[57]

But as cities rush to adopt technology and make civic engagement efficient, Walter sees play being stamped out in favor of increasing efficiency. While many in his field hail new technology as encouraging civic engagement, Walter decries it "as a novelty to increase participation" without making that participation more meaningful and empowering.

Combining the spirit of play with the possibilities of digital technology, Walter wants to "use games to create new forms of civic action." His goal is not to design a game that can be won but to design a process that generates reflection, empathy, and learning. In a neighborhood planning process, for example, Walter believes that "game mechanics can create a more empathetic understanding of the other stakeholders." He explains, "I as a young white man might play as the eighty-year-old Asian immigrant who has a different set of needs than I do." Such exploration can lead to newfound understandings and create opportunities for dialogue across groups. Walter believes that it can also make engagement more fulfilling and effective. "If we can make the process intrinsically enjoyable, we will get better outputs. If people want to be a part of it, they will put more effort into it."

Several years ago, Walter joined forces with a kindred spirit: Eric Gordon, a civic media professor at Emerson College in downtown Boston and founder of its Engagement Lab. As Gordon observed the increasing use of technology as a means of civic engagement, he grew concerned that "engagement is too often conceived as simply making available opportunities for official transactions . . . rather than enabling citizen-to-citizen connections or meaningful feedback."[58] As Gordon saw it, the technological focus on making civic engagement efficient creates a "systematic blindness to the responsibility of government to cultivate dialogue, meaning and dissent."[59] He provides an example: deliberation is a deeply inefficient process, but one that is vital to a healthy and representative democracy. "How do we build that into systems where efficiency is the primary value?"[60]

Setting out to answer this question, Gordon and Walter created Community PlanIt (CPI)—an online, multiplayer game that facilitates engagement, deliberation, and decision making within communities. The game is organized around a series of weeklong missions, each of which focuses on a particular issue and consists of challenges such as trivia questions, problem solving, and creative exercises. In completing these activities, participants are prompted to consider the views and perspectives of others, all while attempting to accumulate points and influence within the game. The goal is not to push users toward a particular outcome but to provide an environment where the community can come together and deliberate.

Clearly, Community PlanIt is not the typical civic engagement technology platform. But it has been successfully deployed in numerous contexts,

including a 2011 visioning process for the Boston Public Schools and a 2012 master planning process in Detroit. Both cities saw remarkable results that far surpass the benefits provided by typical engagement apps. An evaluation of CPI in these two cities found that the game "creates and strengthens trust among individuals and local community groups" and "encourages interactive practices of engagement."[61] In Detroit, where numerous engagement tactics were deployed as part of the long-term planning effort, Community PlanIt was voted the one that made participants feel most hopeful about the future.[62]

Instead of being gamified with a rigid structure that funnels users to predetermined ends, CPI embraces play to enable exploration and deliberation. Every user is tasked with responding to open-ended prompts, and in order to see the responses of others, one must first submit one's own answer. Such game mechanics lead to positive and reflective deliberation that one participant called "the back and forth that you don't get in a town hall meeting." Players also noted that the game encouraged them to reflect on their own opinions and appreciate alternative viewpoints. "I think it forced you to really think about what you wanted to say in order to see other people's opinions," said one participant. "Whenever I found out that I was like the minority . . . it just made me think of why do people think the other idea is better," added another. "I put my comment and someone disagreed with it," remarked another player, before adding, "I don't really know who's right, but I feel like it made me really think about what I thought prior."[63] Through these interactions, players developed their capacities to reflect on their positions and emerged with deeper trust in the community.

What makes CPI most special in Walter's eyes are the "mechanics within the game that allow people to appropriate it." The conversations that emerge from the game are often not those that public officials have in mind at its start. For instance, in a small Massachusetts city where a local planning commission came in with a set of survey questions, the public turned the conversation to an entirely unexpected topic: trash pickup. Even though this was not part of the game's prescribed context, Walter explains, "it was just the thing that kept emerging over and over again. They wanted to talk about that."

"This is the best part of a system that uses game mechanics but ultimately cares more about play than about structure," Walter says. "You

provide some structure but you allow people to push it in the direction that they want it to go."

Observing the impacts of Community PlanIt led Gordon and Walter to develop an appreciation for what they call "meaningful inefficiencies." In contrast to "mere inefficiencies" that cause systems to lag unnecessarily (there is little value in inefficient snow plowing, for instance), they explain that "inefficiency becomes meaningful" when it enables "citizens [to] share in a give and take of experience and increase their range and perception of meanings with each other." Meaningful inefficiencies make possible "civic systems that are open to the affordances of play . . . , where users have the option to *play* within and with rules, not simply to *play out* prescribed tasks."[64]

Tech goggles, of course, fail to differentiate between mere and meaningful inefficiencies: all inefficiency is bad. "When the application of technology to civic life is celebrated purely for its expediency, transactionality, and instrumentality," Gordon and Walter lament, civic actions such as deliberation, dissent, and community building "are potentially sidelined." And "by tacitly managing the possible forms of self-government and fields of action available to citizens," they argue, governments retain their control through technology "far more efficiently and pervasively [than possible] through external force."[65]

This is a far cry from the bottom-up revolution that many hoped the internet and social media would enable, and Gordon says that change can come only from "a culture shift. I think it's really important that it becomes more prominent to think about the institution of cities as not simply being about providing service, but being about creating livable contexts," he says. "That is not simply a matter of infrastructure and service delivery—it's a matter of creating cultures where dialogue and deliberation matter. That isn't often generated simply through transactions."[66]

As Community PlanIt demonstrates, meaningful inefficiencies need not be eradicated by technology. Systems like Community PlanIt will not solve every community challenge or provide citizens with greater influence over public decisions, but they are far more capable of promoting civic engagement than the typical apps we have seen. Rather than funneling citizens toward simple and transactional behaviors, meaningful inefficiencies allow for play that transforms civic perceptions, motivations, and capacities.

In this sense, meaningful inefficiencies can be seen as kindling that fuels transformational organizing.

For when it comes to developing technology to create more democratic cities, embracing values and policies other than efficiency—that in fact are often rooted in meaningful inefficiencies—is paramount. For as Gordon and Walter explain, the fundamental question is not "how can we make civic life more efficient with technology" but rather "how can we use technology to make civic life more meaningful."[67]

* * *

Technology, as we have seen, does not exist in a vacuum: despite the hopes of many, it does not demolish institutional and political structures on its own. Instead, technology can support deliberation and capacity building only to the extent that its users are actually granted meaningful voice in developing public priorities and policies. The challenge for cities attempting to improve engagement is not to deploy cool new technology but to create civic spaces that empower the public. Power shifts not when a new technology makes existing processes and interactions more efficient but when those processes and interactions are restructured to give the community greater influence over local governance, whether that is achieved through technology or not.

One initiative that provides this voice is participatory budgeting (PB), a process in which the government empowers residents to directly determine how a portion of their municipal budget will be spent. Through PB, residents work with one another and government officials to develop proposals for projects that the government could fund. After projects are selected through a democratic vote, the government works with the community to implement them.

Compared to the traditional method of allocating budgets, in which the public has little or no influence over how public money is spent, participatory budgeting represents a stark shift in power. By "creating a new process for how citizens and institutions share information, interact, and make public decisions," writes the political scientist Hollie Russon Gilman in *Democracy Reinvented*, "participatory budgeting has the potential to strengthen local democratic practice and to alter the current relationship between citizens and local government."[68]

In addition to allowing residents to collectively develop and allocate money to projects that address community needs, PB creates a rare environment of deliberation and knowledge transfer. As members of the public work with government officials and develop municipal projects, they gain a more thorough understanding of government's role and limitations. Through this process, citizens create social capital, develop a sense of leadership and agency within their community, and come to appreciate the multiplicity of needs and values that public policy must balance. Although occasionally frustrating, these aspects of PB are essential to its appeal: one participant proclaimed PB "the most fulfilling mode of civic engagement I have ever been part of."[69]

None of this means that participatory budgeting is commonplace or easy to implement, however. PB has been used in the United States only since 2009 (though the practice's roots trace back to Brazil in the 1980s), and the process is incredibly time-consuming. To develop and select projects, people must attend numerous meetings, which many are unable or unwilling to do. Those with inflexible job schedules and childcare responsibilities are particularly limited by these time requirements. For PB to encompass larger budgets and engage more people, notes Gilman, "it will need to become less resource-intensive."[70]

Digital tools for information sharing and communication could make PB vastly less burdensome by streamlining deliberation, but Gilman warns that reforming the process with a focus on efficiency could "weaken the commitment to face-to-face engagement that makes deliberative exercises worthwhile." Gilman found that "citizens primarily sustain their involvement in [PB] because of [its] civic, not material rewards," which "are much more difficult to acquire online." For example, working with public officials is "among the most rewarding aspects of the process" but would be almost impossible to replicate within a technological platform that is designed to make conversations efficient. Similarly, replacing group deliberations with electronic communication is likely to shrink the range of topics and participants while also reducing the community building that participation creates. In these ways and more, asserts Gilman, technology may dilute PB by preventing participants from "experiencing the painstaking rewards and gaining the kinds of knowledge that come from in-person participation in civic dialogue."[71]

Gilman is right to fear that adopting typical civic engagement technologies—replacing in-person deliberation with an online platform for efficiently making decisions, for example—would diminish PB's value by shifting the emphasis from transformation to transaction. After all, Hahrie Han's research highlights the value of transformational organizing that develops people's capacities as activists and leaders. Transactional mobilizing can aid these efforts by bringing people to the table, but it cannot on its own generate sustained civic engagement. The same holds for participatory budgeting: beyond providing new mechanisms for the public to influence municipal decisions, PB draws its value largely from the transformational processes it involves. Participants emerge having learned how government operates and having developed their capacity to effect change. Even when the process was frustrating, Gilman writes, participants remained committed because they "were forging . . . a collective identity that sustained their involvement."[72]

But perhaps Gilman assumes that technology is anathema to PB only because civic technology is typically developed with such a laser focus on efficiency. Notably, Han does not dismiss transactional approaches entirely. Although they are insufficient on their own to sustain efficacious organizations with highly engaged members, such approaches are nonetheless a vital tool for drawing people in. Transactional technologies that make involvement in PB easier could be effective tools to engage a larger portion of the public. In fact, evidence from Brazil suggests that certain efficiency-minded approaches such as online voting and text alerts for upcoming events can broaden participation in PB's more transactional components and "can be seen as the gateway for politically inactive or less active citizens."[73]

Meanwhile, Gordon and Walter's notion of meaningful inefficiencies explains what Gilman regards as "the paradox presented by an innovation [participatory budgeting] that actually both creates and depends on what some might consider inefficiency."[74] When Gilman attributes PB's value to its being inefficient compared to conventional budgeting, she is picking up on the role of meaningful inefficiencies as a source of civic rewards. From this perspective, there is no paradox at all: it is precisely because participatory budgeting requires taking a more deliberative route to the end result that it is so transformative. Thus, while Gilman is correct that most civic technologies would be detrimental to PB, Community PlanIt demonstrates

that technology could aid PB's more deliberative components without warping them if it were developed and deployed to support rather than extinguish meaningful inefficiencies.

Recognizing its need to make PB more accessible, the small California city of Vallejo has begun adopting exactly these types of technologies. In 2015, Vallejo teamed up with Stanford's Crowdsourced Democracy Team to deploy a platform that facilitates online voting. In 2017, Vallejo also partnered with the Social Apps Lab at the University of California, Berkeley to incorporate into PB an additional platform called AppCivist that provides a centralized place to develop proposals, keep track of project updates, and communicate with city staff.

Vallejo has implemented these new conveniences to bolster rather than eliminate core components of participatory budgeting. As Vallejo's PB project manager Alyssa Lane emphasizes, "technology cannot replace face-to-face interaction." She notes that even though project teams could develop proposals and city staff could provide feedback through AppCivist, most preferred to do so in person, in more personal and thorough conversations. Project teams instead used the platform primarily to document progress between in-person meetings and to keep people who had to miss a meeting informed. "I think face-to-face helps them iron things out," Lane says. "I don't see that going away anytime soon."[75]

Of course, with or without technology, participatory budgeting is not a panacea for the lack of urban civic engagement and democratic decision making. Its time-consuming nature significantly limits who can participate and how widespread the practice can become. And even for those who do participate, deliberation is not foolproof: though it clearly can promote civic rewards, it does not preclude antidemocratic outcomes.[76] Moreover, participatory budgeting has thus far been restricted to relatively minor allocations of money to relatively apolitical projects. If PB is to "reinvigorate local democracy," asserts Gilman, the process "must encompass major budgetary questions, up to and including urban redevelopment, zoning, and social welfare spending."[77] Such a change will subject PB to a far more intense level of scrutiny, which may make it hard for PB to retain its essential character. Finally, many important municipal decisions are made outside the realm of budgeting, whether in implementing approved projects or in developing priorities and legislation. Citizen empowerment efforts that neglect these nonbudgetary components of politics and power will

be rendered impotent, as important decisions can be shifted so that they escape PB's purview.

Nonetheless, thoughtfully integrating technology into participatory budgeting represents precisely the form of innovation that embodies the Smart Enough City. In improving a valuable but burdensome process, cities need to judiciously distinguish between mere inefficiencies that technology can and should overcome—creating opportunities for transactional mobilizing that engages more people—and meaningful inefficiencies that allow transformational organizing to occur—inefficiencies that technology should not be deployed to mitigate. That is the key distinction which technologists far too often miss: while all inefficiencies make democratic governance more challenging, only mere inefficiencies should be eradicated. That meaningful inefficiencies represent a challenging but necessary component of democracy is a paradox beyond the comprehension of technophiles.

While technology should not eliminate the necessary difficulties of in-person deliberation, it can enhance deliberations with improved information sharing, help increase the number and diversity of participants, and mobilize the community through electronic voting. Unlike 311 and other engagement apps, which promote transactional mobilizing in a vacuum, PB technologies of the sort used in Vallejo are enmeshed in a transformational experience and are designed to move people up the ladder of participation. This combination of eliminating mere inefficiencies while fostering meaningful inefficiencies will trim the fat from participatory budgeting, making it more sustainable without hindering its ability to empower the public and cultivate civic identities.

In Vallejo, for instance, participatory budgeting is being used to rebuild the trust in government that cratered after the city went bankrupt in 2008. "We have a few projects that probably would not have been funded by the city in a normal budget process," says Alyssa Lane. "But even more so than projects, I think I've been the most excited by watching specific delegates and committee members blossom." Lane shares the story of a man who began showing up to PB meetings who had never before been actively engaged in the community. Initially very quiet and introverted, by the end of the process this man had developed a project that was funded through PB, and he was in regular contact with public officials. He remained engaged

in future PB cycles as a volunteer. "It was very inspiring to see the evolution of his civic engagement," Lane says. "There are many stories like that."

* * *

Returning to the question that began this chapter, we now see that technologists hold the deeply flawed and dangerous conception of democracy as predominantly a technical problem. More importantly, it is now clear that the issues explored in the previous chapter reflect not something specific to how technologists think about cars but rather their core misunderstanding of technology's value for society. Like self-driving cars, civic engagement apps are not inherently bad—but the belief that technology can solve long-standing social and political dilemmas entrenches existing structures and inequities under a shiny facade of innovation.

Participatory budgeting demonstrates that the most important innovations come in the form of programs and policies that alter social conditions and relations rather than in the form of new technology, which typically buttresses existing structures and relationships. For although PB will benefit from the thoughtful implementation of technology, its real innovation lies in providing the public with a new source of power and a deliberative space in which to wield it. Participatory budgeting thus demonstrates to Gilman that "innovation can come in many different forms, including in the makeup of the participants and in the process structure." Such an initiative would have no place within the smart city, which equates innovation with technology and therefore is primarily concerned with how new technology can make engagement more personalized and efficient. It is precisely because PB does not follow this standard approach of chasing technology-cum-efficiency that it represents for Gilman "an unlikely exemplar of twenty-first-century innovation."[78]

Instead of lowering the barriers to the simplest forms of civic engagement, the Smart Enough City reforms civic processes first and then deploys technology to improve their implementation. For technology on its own will not make cities meaningfully more democratic—it must be deployed to advance programs and policies that empower the public. This is akin to the previous chapter's conclusion that having urban development goals in place is a prerequisite to taking advantage of new transportation technologies. In the chapters to come, we will continue to

explore how nontechnological innovation and long-term planning lay the foundation for effective use of technology and drive the emergence of Smart Enough Cities.

We have also begun to see how the social and political impacts of technology depend largely on the values embedded in its design and functionality. In the previous chapter the fundamental challenge that cities faced was to prepare for and adopt new technology, but here we encountered the even murkier and more consequential realm of how cities should develop and deploy new technology. Of course, determining what values to prioritize when creating technology, just like developing the policies and structures that the technology supports, is a matter of politics. We cannot escape these thorny issues simply by using technology. That will be a central theme in the next chapter.