

Embracing Digital Democracy: A Call for Building an Online Civic Commons

John Gastil, *Pennsylvania State University*

Robert C. Richards, Jr., *Pennsylvania State University*

At this point in history, the civic sphere has gone online to a considerable extent. There now exist tremendous opportunities for deliberation and public engagement through online interfaces. Through any number of digital devices, one can now craft and critique legislation and administrative rules. One can sift through candidates, ballot measures, and policy ideas to decide how to fill out a ballot or amend a party platform. One can connect with like-minded voters or argue with political enemies any hour of the day or night for partisan purposes, to build alliances, or just for one's idle amusement.

These civic spaces, however, remain largely disconnected from one another. Tremendous energy dissipates from each civic portal, and few have long-term feedback loops that could transform the way citizens and governments interact. The online environment provides low-cost opportunities for such integration and feedback, and we propose overcoming the limitations of the status quo by building an online commons that interconnects the best existing tools.

Toward that end, we review in more detail the limitations of present online engagement tools, as well as what we consider some of the best practices in civic technology. We then provide a sketch of our proposal, which draws on gamification principles to draw new people into the civic sphere, encourage deliberative engagement, and establish feedback loops between citizens and their governments. The point of this proposal is to show how existing (and future) tools could be linked together, not for the sake of building (yet another) new platform but to facilitate citizens' fluid movement among diverse online (and offline) civic spaces. We conclude by reviewing the most challenging problems our proposal faces and how to address them.

COMMON LIMITATIONS IN ONLINE ENGAGEMENT

The bulk of online civic-engagement systems have severe limitations. Many such projects have attracted limited public interest (e.g., Morozov 2013), due partly to weak incentives for participation. Many of these systems also have failed to foster deliberation and reflection among participants (Coleman and Moss 2012; Dahlberg 2001; Gordon and Baldwin-Philippi 2014; Shulman 2009; Wilhelm 2000). Exacerbating that failure is some systems' tendency to trivialize policy matters (Bogost 2011; Lerner 2014).

These civic spaces generally have had little measurable impact on policy—or at least impact observable to their users (Landemore 2015; Noveck 2009; Smith, Richards, and Gastil 2015). Also, few online civic-participation systems have featured long-term feedback loops, that is, a straightforward means by which outputs of systems influence subsequent system inputs over extended durations (Gastil 2010). An example of a long-term feedback loop is a mechanism enabling citizens to discover the policy impact of their participation and to continue to engage with government to shape policy over several years (Macintosh and Coleman 2003). Accordingly, online engagement processes have had no visible impact on governmental legitimacy.

Worse still, most online civic spaces have remained disconnected from each other, which results in “diffused participation” (Macek, Macková, and Kotišová 2015, 77). Fragmented engagement may yield instances of mass “connective action” (Bennett and Segerberg 2013), but the disconnections cause dissipation of civic energy from one online participatory experience to the next, as citizens are required to log in anew each time they wish to participate, with no institutional memory across platforms.

Whereas some online platforms can integrate political organizers' diverse civic activities online (e.g., Warren, Sulaiman, and Jaafar 2014), research has not disclosed resources enabling citizens to integrate their diverse online civic experiences. This scattering of online participatory experiences, and the lack of means to integrate them, may hinder citizens from developing their civic identity (Youniss 2011) or consciousness (Lange and Onken 2013).

OVERCOMING THE LIMITATIONS

Nonetheless, a number of new projects have begun to address these issues. Regarding boosting participation, several efforts have employed game techniques (Lerner 2014) to increase citizens' motivation to engage. For example, the participatory-planning system Community PlanIt¹ employs several of these features, including awards for contributing comments, “like” buttons for positive reinforcement, and a participation leaderboard (Gordon and Baldwin-Philippi 2014). Similarly, the Peer-to-Patent² system for participatory vetting of patent applications lets participants rate one another's contributions and receive accolades via “reputation points” and awards (Noveck 2009, 181).

Many new engagement systems enhance deliberation and reflection. These include Common Ground for Action (CGA),³ developed by the Kettering Foundation and Conteneo Inc., which hosts moderated online policy deliberation using a version of the National Issues Forums (Gastil and Dillard 1999). During CGA, participants address trade-offs posed by policy

Regarding the integration of citizens' disparate engagement experiences, two recent online civic-engagement projects have addressed this issue through digital reward systems. In Europe, the D-CENT project has developed a blockchain-based "digital social currency" which incentivizes citizens to engage in participatory-democratic activities, such as online

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choices. Online chat coupled with dynamic visual displays of emergent choices foster reflection, perspective taking, and reconsideration of attitudes. To take another example, the Living Voters Guide⁴ is a crowdsourced collection of information about proposed ballot measures that encourages participants to weigh each other's arguments (Freelon et al. 2012).

More sophisticated systems include the Cornell eRulemaking Initiative's platforms for soliciting citizen feedback on proposed laws. RegulationRoom and SmartParticipation⁵ draw on design elements, algorithms, and trained human moderators to encourage deliberation (Epstein and Blake 2016; Park, Blake, and Cardie 2015). LiquidFeedback,⁶ employed by the German Pirate Party and Italy's Five-Star Movement, enables citizens to draft and deliberate on proposed policies through online crowdsourcing and commenting tools (Bertone, De Cindio, and Stortone 2015). Online "transitive proxy voting" allows decision making by the best-informed participants (Bertone, De Cindio, and Stortone 2015, 2).

New online engagement systems surpass previous projects in influencing policy. Technology-enabled participatory-budgeting systems, such as CitizenInvestor and Open City Hall,⁷ authorize citizens to allocate public funds for community projects (Gilman 2016). Legal crowdsourcing platforms, such as Open Ministry in Europe and Madison in the United States,⁸ allow citizens collectively to draft new laws that may then be enacted through formal lawmaking processes (Aitamurto and Landemore 2016; Christensen et al. 2015; Raffl 2014). The deliberation-promoting features of the RegulationRoom platform also encourage participants to shape their comments on proposed laws so as to render those comments more likely to get lawmakers' attention (Farina, Newhart, and Blake 2015). Participants' contributions to Noveck's (2009) Peer-to-Patent system have directly influenced officials' decisions on whether to grant patents.

Newer systems also have facilitated feedback loops between citizens and government that survive the initial participatory events. Both the mobile-based participatory-budgeting system implemented in the Democratic Republic of Congo and Vallejo, California's online participatory-budget platform enable citizens to monitor governments' implementation of public-works projects approved by citizens (Mbera and Allegratti 2014; Estefan and Weber 2012; Gilman 2016).

deliberation and participatory budgeting (Lucarelli et al. 2014). Citizens may monitor their accumulation of social currency—which provides an index of their overall civic participation—and then spend it on various socially desirable services (Roio et al. 2015). In the United States, the municipality of Manor, Texas granted digital points to encourage citizens to contribute to an online crowdsourcing platform for soliciting policy proposals (Newsom 2013). Citizens could observe their point collections on the city's website and then exchange points for a range of awards (Greenberg and Newell 2012). In these instances, online systems added a "meta-layer" over citizens' diffuse participatory experiences, offering citizens an overview of their civic participation and potentially aiding each citizen in integrating those experiences into his or her developing civic consciousness or identity.

IMAGINING A DEMOCRACY MACHINE

With so many advances overcoming previous limitations, we propose advancing to an online platform that links together already-existing forms of engagement, both online and offline, to maximize their reach and impact. By interconnecting complementary forms of civic learning, engagement, and influence, the machine itself would improve the quality of public input, the responsiveness of policies shaped by it, and the legitimacy of government itself.

At this stage, our proposed civic commons amounts to a thought experiment, which draws on but goes far beyond anything already built. For the sake of discussion, we choose to bundle our proposed design principles, guidelines, and assemblage of tools into a system we call, with loving irreverence, a "Democracy Machine." The mechanical metaphor emphasizes the interoperability of the commons' components, with emphasis on the cybernetic qualities of information feedback loops. No doubt it also plays on the absurdity of reducing democratic process to mechanical parts. Sharply contrasting organic and ecosystem metaphors certainly have their charms (e.g., Liu and Hanauer 2011), but for this essay, we chose a metaphor that invokes the spirit of invention. The other advantage of this odd moniker is that none can confuse it with any existing or future online commons, none of which are likely to adopt the term we use here.

The Central Feedback Loop

Gastil (2016) provides a more comprehensive vision of the Machine, whose core features we only aim to highlight. The fuel that starts up the Democracy Machine’s motor would be funding from public officials and agencies, who are already estimated to spend more than six billion dollars on civic tech (Accela 2014). The Machine uses calls for consultation to bring forward large numbers of individual citizens, who choose among different forms of engagement.

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Through an iterative process, the Machine distills this citizen input into refined recommendations for the government office that initiated the process. That same office feeds back its response to the input and follows up later with assessments of the efficacy of the adopted policy. Through the Machine, the citizens who drafted recommendations learn of their downstream impact. The Machine then asks citizens to assess the government’s responsiveness and the ultimate wisdom of its judgment. Those agencies found responsive and effective get a discount for their next consultation. If, on the other hand, the government disregards the decisions made by citizens, the Machine could be used to hold officials accountable. Thus, the Machine embodies the view that governmental engagement platforms should enable officials to hear and respond to the public.⁹ Figure 1 shows more clearly this long-term feedback loop, which could go a long way toward combatting the twin ills of government unresponsiveness and public resentment.

Gamification

To envision how the Machine functions, think of it as a game. Anyone who has played app games or massively popular multiplayer games knows how compelling it can be to build

up a persona in such a game, with opportunities to amass and spend credits, level-up avatars, and make friends with other players who, outside the game, remain complete strangers. Political and civic engagement opportunities could likewise plug into such a gaming system.

Imagine that whenever you took the time to engage in direct action through a civic portal, you accumulated “credit” for the effort in the Machine, through an automatic background process. Low-effort actions such as these form the

lowest level of participation in the Machine, but they play an important role in building up civic competence.

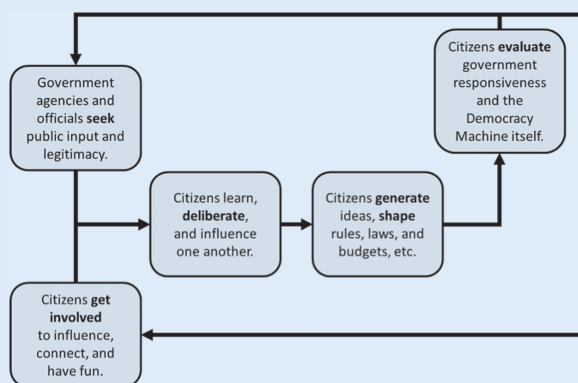
For the “gold farmers” active within the Democracy Machine, however, the real goldmine lies in the more intensive activities, such as deliberative forums. One can earn credit not only for participating in deliberation but also for succeeding at finding common ground when paired with participants from different backgrounds. Even more credit comes to those who receive favorable Uber-like ratings from their fellow travelers, who score another player as having made strong contributions and appeared responsive to others’ ideas.

Credit can flow from many activities and might even start to seem like a kind of civic Bitcoin, except for the fact that the credits can’t be purchased, exchanged, or converted into personal income. Their value lies in how they can be used. Accessing the higher-order functions of the Machine requires spending such credit, like dropping tokens into an arcade game. Machine players require credits, for instance, when they wish to sign a petition to place items on the agenda, to rank the priority of items up for discussion, and to vote on final sets of policy recommendations. As this partial list suggests, the Machine’s players will, in time, not only respond to consultation requests from government, but also, by degrees, control their own agenda—by either initiating discussions spontaneously or dismissing requests for consultation that they deem irrelevant or unnecessary.

Leveling Up

For citizens who want to get the most out of the Machine, the most important function of credits is spending them to level up through nine ascending levels, described in more detail in Gastil (2016). The incentives for leveling up, for example, are how the Machine handles the related problems of lurkers, anonymity, and civility. Anyone can become a part of the Machine’s regular operation simply by registering as a user, with the option of doing so anonymously. Even the second level simply requires a bit of Machine use to accumulate the necessary credit, such that when Level 3 Machine users join public deliberations, even if they choose to do so anonymously there will be strong credit incentives to engage in

Figure 1
Long Feedback Loop in the Democracy Machine



honest and respectful deliberations, lest poor peer feedback leave one stuck at that level. The jump to Level 4, however, requires revealing one's identity to the Machine itself as a registered voter with a specific name and address. The request for Level 4 status involves completing an online form that confirms the player's identity in voter-registration rolls.

For the purpose of generating representative public recommendations for government agencies, the Machine permits votes only from those whose identities it has

legitimacy by emerging from within—and across—diverse coalitions.

Reconnecting with the Face-to-Face Public Sphere

The Machine can also link up to existing face-to-face processes. Many people are already accustomed to “checking in” via apps like FourSquare, and the Machine could connect with these apps and more to give people credit for anything from attending town meetings or reporting for jury service to joining

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confirmed. This permits an aggregation of judgment that can be weighted using voter registration data to ensure a representative result. If the Machine's voters on a proposed California law, for instance, over-represent Orange County, the votes from that county can have a fractional weight. As explained later, such weightings can be far more subtle by virtue of the Machine comparing its players with what it knows about the larger world.

The next big jump comes when the player is ready for Level 6. At that point, the player must be ready to relinquish anonymity altogether. At and above that level, players begin to shape the higher-order functions of the Machine, such as agenda setting, how it interfaces with government, and even how the Machine should be developed in the future.

Membership Quests

The greatest credit rewards go to those players who forge coalitions that span diverse alliances and encourage their members to deliberate across those alliances. The strongest coalitions will answer the call when the Machine declares new Membership Quests. These Quests use the Machine's information about its database of players at or above Level 4 to identify specific groups underrepresented in its existing membership. The Machine will cross-reference voting results by precincts and population data by census blocks to recognize the most egregious gaps in its membership.

For example, if Republicans are the underrepresented group in Santa Clara, the Machine can initiate a Membership Quest that rewards coalitions capable of bringing in new users from precincts with high percentages of Republican voters living within them. Demographic targets can work the same way—and even more effectively, in the case of income-group underrepresentation. None of this requires trusting the accuracy of the demographic-survey responses of individual users, though in time, it may prove easy enough to cross-validate that information using publicly accessible big data.

As the diversity of the Machine's membership grows, and gets verified through various means, coalitions also gain credit by forging agreements across those same differences, through online interfaces such as the aforementioned Common Ground for Action. Crowdsourced legislation gains

a protest or doing policy advocacy, should the privacy concerns of such information not deter people from doing so.

In return, a well-integrated Machine could give updates to participants that make those experiences more meaningful. Jurors dismissed after being designated as alternates could learn the result of the trial they had watched. Those who took part in a contentious school-board meeting could learn what action the board took, weeks later. The point is not simply that the Machine can draw into its credit system offline events. The more powerful idea is that it can draw those events into its feedback loops, which help individuals see (and assess) the long-term impact of their civic activities. The more success the Machine has with this, the more buy-in it will get from public officials and community leaders who organize such events.

One offline event that bears special mention is voting in regular elections. Alliances and coalitions could have exceptional credit rewards for full, or near-full, participation rates, and they would run spontaneous get-out-the-vote campaigns within their memberships. Such campaigns would likely prove effective, in that they'd be well-tailored personal messages among people already socially connected. Electronic voting records, which the Machine could obtain at a small cost from election officials, would then verify actual turnout rates in everything from local to national elections.

As the foregoing discussion suggests, the Democracy Machine would not centralize citizen engagement, nor information about that activity. Some engagement would occur online within the Democracy Machine system, but participants would continue to be involved in face-to-face public processes and in online venues beyond the Machine. These external venues range from dedicated civic-engagement sites, such as petition platforms,¹⁰ to general-purpose social media systems, such as Facebook, on which participants may become involved in numerous civic activities (e.g., Vitak et al. 2011).

With respect to participants' civic engagement outside the Machine, if participants provided informed consent to do so, information about that participation could be transmitted back into the Machine. Such information need not be centralized, however. Digital records enable the same data to reside simultaneously in multiple locations (Weinberger 2002), so

information concerning participatory activities beyond the Democracy Machine would continue to reside in those external sources. For example, voting records would remain with election authorities and data about signing online petitions outside of the Democracy Machine would be retained by those external petition platforms. The Democracy Machine's aggregation of information about participants' civic engagement in multiple settings would enable participants to integrate and reflect on the full range of their participatory activities. In current conditions of "diffused participation" (Macek et al. 2015, 77), such integration and reflection may help participants to develop their civic consciousness or identity (Lange and Onken 2013; Youniss 2011).

FACING THE CHALLENGES AHEAD

Though we remain optimistic about the prospect of building a Democracy Machine, it will have to address some significant challenges. For example, the current proposal leaves unanswered how participants' demographics will be ascertained. Although census or voter registration data might be used for this purpose, those approaches are imperfect. One technique would be to require participants to complete a demographic survey as a condition of advancing to a level, but validating user responses remains a challenge.

The demographic problem raises another important challenge facing administrators of the Democracy Machine—protecting participants' rights of privacy (Coleman and Götze 2001) and autonomy (Bogost 2011; Lerner 2014). The Machine's design should safeguard participants' personal data and prevent the manipulation or exploitation of participants. That will require careful attention to technical details, but it ultimately raises questions about how to govern the Machine itself to keep its operations transparent and its data secure.

In addition, the Democracy Machine faces start-up obstacles, such as that of gathering an initial participant sample large enough to attract government agencies. Early-stage marketing and participant-recruitment strategies could be added to the initial implementation of the Machine, which could build out incrementally from wired cities such as Santa Clara and Austin.

A final challenge concerns sustainability. How should the Machine remain viable if, after an initial period of success, its array of game mechanics cannot retain a large-enough population of active participants to satisfy government mandates for public consultation? The Machine's design should include systematic experimental variations in its game mechanics, such as peer-rating and credit systems to identify the most effective combinations of design elements. Lerner (2014) has taken the same approach to improving face-to-face participatory-budgeting processes, and it should work even more seamlessly within the Machine.

Overcoming these and other challenges will require sustained collaborations among designers, researchers, and civic reformers. Such partnerships have already proven fruitful in refining the new wave of public-engagement experiments inspired by deliberative democratic theory (Nabatchi et al. 2012). By comparison, the online environment makes it easier to collect large samples with rich digital data, collected passively and

through incentivized surveys. Whether a shared vision of an online civic commons emerges, however, will require working through principled intellectual disagreements, conflicts between private interests and public goods, and tradeoffs between idiosyncratic innovation and the advantages of a shared platform. Users' ambivalence toward Google, which integrates diverse online services at the cost of one's digital privacy, gives a glimpse of the daunting obstacles lying ahead.

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NOTES

1. See <https://www.communityplanit.org>.
2. See <http://www.peertopatent.org>.
3. See <http://findcommonground.org>.
4. See <https://livingvotersguide.org>.
5. See <http://regulationroom.org> and <http://nyc.smartparticipation.com>, respectively.
6. See <http://liquidfeedback.org>.
7. See <http://boston.citizeninvestor.com> and http://www.ci.vallejo.ca.us/living/connect/open_city_hall, respectively.
8. See <https://www.avoinministerio.fi> and <https://mymadison.io>, respectively. OpenMinistry is now being developed under the name "Objective8" as part of the D-CENT project, <http://dcentproject.eu/> (Rogers et al. 2015).
9. We wish to acknowledge an anonymous reviewer for contributing this point.
10. For example, see Change.org (<https://www.change.org/>).

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