

condemnation, temporary gag, and fines. As suspension or, worse, expulsion, violate the basic civil right to vote, it may be considered too extreme. Imagine a future in which a person is a member of multiple e-democracies, which have a joint judicial system. A temporarily limit on participation in all these democracies simultaneously, analogous to jail time in the real world, may be severe indeed. But for such a punishment to be effective, **accountability** must be ensured: it is not sufficient that the offending digital identity be truthful; it has to be unique and persistent, lest the offender sheds the punishment by abandoning one identity in favor of another.

**7. Hysteresis:** Democracy's forefathers did not foresee the immediacy with which the general will can be ascertained on the Internet. Eventually, the general will must prevail lest we violate sovereignty. But it should go through reasonable checks and balances until it does, lest mob dynamics prevail. To this end we enlist **hysteresis**, a characteristic of systems in which the output is not an immediate function of the input.

While a multiyear election cycle confers natural hysteresis on earthly democracies, e-democracies require hysteresis to be engineered, so that swings in peo-

ple's opinions may not immediately result in decisions that accommodate such swings. Examples include minimal periods for proposal making and deliberation; minimal endorsements for proposals to be considered; minimal quorum for a decision to be binding; and special majority needed for certain actions, for example, change of constitution.

### Conclusion

It is my opinion that representative democracies are in dire straits because of their failure to uphold core democratic values, notably equality and transparency, and that e-democracy may offer the only feasible remedy. I have derived requirements for the foundations of e-democracy from the 1789 French *Declaration of the Rights of Man and of the Citizen*. The next urgent step is to build such foundations so the desperately needed Internet revolution of earthly democracies would commence. 

### References

1. Anttiroiko, A.-V. Building strong e-democracy: The role of technology in developing democracy for the information age. *Commun. ACM* 46, 9 (Sept. 2003), 121–128.
2. Camenisch, J. and Lysyanskaya, A. An efficient system for non-transferable anonymous credentials with optional anonymity revocation. *Advances in Cryptology—EUROCRYPT 2001* (2001).
3. Create a Democracy contract in Ethereum, 2017; <https://www.ethereum.org/dao>
4. *Déclaration des droits de l'homme et du citoyen*;

- National Constituent Assembly (1789); English translation: [https://en.wikipedia.org/wiki/Declaration\\_of\\_the\\_Rights\\_of\\_Man\\_and\\_of\\_the\\_Citizen](https://en.wikipedia.org/wiki/Declaration_of_the_Rights_of_Man_and_of_the_Citizen)
5. Democracy Index. Wikipedia, 2017; [https://en.wikipedia.org/wiki/Democracy\\_Index](https://en.wikipedia.org/wiki/Democracy_Index)
  6. Foa, R.S. and Mounk, Y. The danger of deconsolidation. *The Democratic Disconnect* 27, 3 (2016).
  7. Gilad, Y., Hemo, R., Micali, S., Vlachos, G. and Zeldovich, N. Algorand: Scaling Byzantine Agreements for Cryptocurrencies. *Cryptology ePrint Archive, Report 2017/454* (2017).
  8. Jeffries, D. Why Everyone Missed the Most Mind-Blowing Feature of Cryptocurrency. *Hacker Noon*, 2017.
  9. Lee, D. T., Goel, A., Aitamurto, T. and Landemore, H. Crowdsourcing for participatory democracies: Efficient elicitation of social choice functions. In *Proceedings of the Second AAAI Conference on Human Computation and Crowdsourcing (HCOMP-14)* (Pittsburgh, PA, 2014). AAAI Press, 2014.
  10. Levine, B.N., Shield, C., and Margolin, N.B. *A Survey of Solutions to the Sybil Attack*. University of Massachusetts Amherst, Amherst, MA, 2006.
  11. Lewis, A. A gentle introduction to self-sovereign identity (2017).
  12. Magna Carta Libertatum, 1215; [https://en.wikipedia.org/wiki/Magna\\_Carta](https://en.wikipedia.org/wiki/Magna_Carta)
  13. Mill, J.S. *On Liberty*. Longman, Roberts & Green, Bartleby.com, 1859, 1999.
  14. Schuler, D. Creating the world citizen parliament: Seven challenges for interaction designers. *Interactions* 20, 3 (Mar. 2013), 38–47.
  15. Shapiro, E. and Talmon, N. A Condorcet-Optimal Participatory Budgeting Algorithm. *arXiv* (2017).

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**Counterpoint: E-Democracy Won't Save Democracy**

**Democracy Will Save Democracy**

Increased technology is not the solution to the fundamental issue of declining democratic culture.

**Douglas Schuler**

**D**EMOCRACY IS RADICAL. It exists when people are involved in their own governance: participating in public problem-solving and checking power. It entails awesome responsibilities that citizens don't always embrace. But shirking these responsibilities invites catastrophe: decisions would be made by the most powerful to enrich the few at the expense of the many and the natural environment. Also, as the trend persisted, the ability for citizens to engage wisely and effectively would degrade.

More obstacles to engagement would be erected by those who make the decisions. And so on in a downward spiral.

I agree with Ehud Shapiro's statement in his "Point" column, "Foundations of e-Democracy," that democracy worldwide is threatened and degraded. Many countries are becoming less democratic and citizens around the world are losing confidence in democracy.<sup>5</sup> I disagree, however, with many of his prescriptions including the assertion that "e-democracy may offer the only feasible remedy." Declining democratic culture—not lack of technology—is the best indicator for declining democratic participation. When people see governance as irrelevant and unresponsive, they become cynical and withdrawn and the general ability to help address shared challenges withers. Moving the mechanics of democracy to the Internet ignores these core realities.

### Saving Democracy

Shapiro observes that "many democracies transform into oligarchies, plutocracies, or even kleptocracies" because they are dominated by "the rich, the powerful, and the connected." Beyond that there is little analysis of the problems that could help us see the benefits of his prescriptions. His support for e-democracy seemingly rests on the Internet's near-magical properties. In building a case for an "Internet revolution of democracy" he asserts "the pressing need" for it and states there exists "apparent clear ability of the Internet to deliver it." A variety of other critical questions are begged by the presumption that e-democracy is necessary—even inevitable.

The big problems we face including lack of government leadership, media freedom, and critical civic education, are problems that technology alone

cannot fix. Other nagging problems such as professional dissembling, influence of money, corruption, gerrymandering, and voter suppression also share that feature and addressing them *non-technologically* could help give rise to a democracy that was amenable to intelligently integrating online opportunities.

According to Shapiro, e-democracy “presupposes universal Internet access as well as Net neutrality.” This seems to imply that his prescriptions are of no use in many settings (in the U.S., for example, as well as most of the world) where those attributes do not exist and, unfortunately, may never exist. About 20% of adults in the U.S.—often the most disadvantaged citizens—have neither broadband at home nor smartphones (<https://pewrsr.ch/2kQtkrM>; <https://pewrsr.ch/2inUJzB>) and Net neutrality is threatened.<sup>6</sup> If those conditions must already exist (and I would propose adding “non-surveilled” Internet access) Shapiro’s proposal becomes utopian, mostly irrelevant in the near term.

It was unclear to me from Shapiro’s “Point” column whether it is representative democracy that is in “retreat worldwide” or whether it is the political processes practiced in the world’s putative democratic societies. In other words, I was not clear whether representation itself is to be dispensed with. Nevertheless, I would still mention the seminal 1789 text *Declaration of the Rights of Man and of the Citizen*<sup>7</sup> upon which his “Point” column is based supports that right (A6, A14). Although he does not use the term “direct democracy” he endorses a trajectory that “gradually supplants traditional representative democracy by e-democracy.” This objective should not be seen as obvious, nor necessarily desirable. Perhaps the citizenry will want to employ “representatives” who have governing expertise? Moreover, the goal of direct democracy may be unsound on practical grounds: How much time would the average person want to expend in a given day to consider every relevant proposal?

### Missing Aspects

Shapiro takes an innovative approach by using the *Declaration* as a proxy “customer” for “humanity at large” to derive requirements for future democratic systems. While the *Declaration* is sur-

## Thinking that democracy can be reduced to a computer problem can be a dangerous distraction.

prisingly relevant and thorough, it says little about recent developments in our understanding of democracies and 21<sup>st</sup>-century realities. Although individual rights are fundamental to democracy it is only through collective efforts that non-trivial objectives are realized. Democracies need spaces (or settings) where people can assemble and procedures with which they can discuss, deliberate, and make decisions. John Dewey pointed out that the process of coming to a decision is actually more important than the decision itself. But this rich aspect of democracy is often overlooked by developers and funders. Citizens interact with formal governmental processes and within non-governmental organizations such as labor unions, nonprofits, and social movements. In the future citizens may also participate in global decision making. (And we could be experimenting more with that right now.) Improving the ability of citizens to organize into various types of collectivities could help provide a more democratic playing field. Increasing the involvement of people who are marginalized including undocumented people, people in occupied territories, rural people, refugees, prisoners, and people without access to the Internet is critical. The bottom line is that types and missions of various collectivities—as well as their social contexts—are exceedingly diverse and while the *Declaration* focuses on “universal” rights, the exercise of these rights (and the struggles for them) will take a multitude of

forms. At least some of these forms will be online and the cooperation and commitment of the computer science community will be necessary.

The focus on democratic societies alone is limiting: It implies Shapiro’s ideas are applicable to about half of the world’s population. This is a huge number but the other half could also benefit from additional democratization. Democracy comes in shades of gray and processes that degrade or enrich democracy are perpetually at play in all countries. Hence, determining the level of e-democracy readiness is not trivial although the need to do so is essential. Moreover, the problems humankind faces are global even if the negative consequences of these problems are borne unequally. But opening up e-democracies to the people of the world would likely be problematic as governments (and media monopolies and other powerful entities) might feel inclined to nudge their citizens to vote their way.

Shapiro also makes several disconcerting technological recommendations although limited editorial space and my lack of knowledge of the technological particulars prevent an extensive analysis. Technology is embedded within social contexts that cannot be separated from the technology in use. Even democratic functions that seem most conducive to automation such as voting have not yet demonstrated the necessary legitimacy to warrant universal adoption. And the idea of conducting the necessary discussion and deliberation without surveillance and harassment seems impossibly utopian in this era of mass harvesting of personal information. Beyond that there are deep inherent risks in staking future democracies on unproven technologies including blockchain, cryptocurrencies, and smart contracts. And handing over decision making to an “autonomous, incorruptible, transparent, and persistent software agent” is essentially nondemocratic, even if it is “programmed to obey democratic decisions.”

Finally, Shapiro does not consider the process of achieving e-democracy in any depth. Thinking about how we get there is crucial, non-trivial, and political—not merely technological. Improving democracy is not a matter of building a

system based on a set of requirements and switching it on. Democracy requires participation and the design and development of participatory systems are best undertaken with participation. He suggests “e-parties” will “export their participatory practices of their inner workings to real-world governments” but this is a narrow view of social innovation (and our experiences with e-parties thus far have not been entirely reassuring). It is relevant to note that women in France—but not all—were only granted voting rights in 1944, a full 155 years after the 1789 *Declaration* that asserted the equality of all.

### Conclusion

I appreciate Shapiro’s focus on foundations. My critique could be seen as providing additional foundations including political realities, critique, and provisos. I fear Shapiro’s discussion on technologies goes beyond the foundation orientation into the realm of technological determinism or fetishism. Thinking that democracy can be reduced to a computer problem can be a dangerous distraction. The reality is that many of the “answers” we seek can only be determined through seeing how new systems are used, and this use is likely to vary from cultural context to cultural context.

But this critique is not intended to discourage new citizen approaches, including ones that use the new affordances the Internet provides. On the contrary, many initiatives such as participatory budgeting,<sup>3</sup> deliberative polling,<sup>4</sup> online deliberation,<sup>2</sup> citizen juries,<sup>10</sup> and many others suggest promising directions for transforming our democratic systems incrementally.

To get this right we must experiment. Our systems must evolve and this means engagement with real people. While the technological contribution is necessary, civil society, librarians, artists, government officials, activists, and “ordinary” people must also assume important roles. In an article I wrote for *ACM Interactions*,<sup>8</sup> I proposed a “global parliament” as a suitable grand challenge in which the community of computer professionals could collaborate with many others to design and build a system (or systems) that facilitated global citizen communication. Computer professionals need to

## Technology is embedded within social contexts that cannot be separated from the technology in use.

keep in mind the broad social goals—foundations—such as strengthening social and cultural support and interest in democracy; increasing access to information and dialogue and deliberation; and giving voice to marginalized people. This means working to ensure the right mixture of people, policy, institutions, processes, education, and, of course, technology.

The media landscape at the time of the *Declaration* bears little resemblance to the ubiquitous, monopolistic digital empires of today with their global reach, massive data mining, and influence on public opinion. And governments of the 18<sup>th</sup> century did not hire hackers and digital mercenaries. Thus more control over the existing media and more access to and support for publicly owned media will be necessary for genuine democracy in the 21<sup>st</sup> century. I agree with Shapiro that Facebook is not an appropriate platform for this, nor could any for-profit, proprietary, closed system. A project of this magnitude requires a deep, long-term commitment by civil society, government, professional societies, and others. The first principle of the ACM with its “obligation to protect fundamental human rights” suggests it should be involved. And a project of this magnitude would require sustained support.

Good democratic governance should not be confused with “thin democracy,”<sup>1</sup> where citizens assume minimal roles. We need systems that help people be more engaged, better informed, and more adept at public problem solving, a capacity I refer to as civic intelligence.<sup>9</sup> The point is not

merely to make people’s lives more convenient but to make their lives richer, including their ability to contribute to the common good.

Democracy is—and always will be—a work in progress. It is by definition imperfect. At its core it is an artifact of rules and procedures animated by human beings. It is necessarily both open and closed, constrained and free. It necessarily includes non-sanctioned activities such as peaceful protest and civil disobedience. Let’s use Shapiro’s ideas as provocations, hypotheses, or proposals as we move forward. But if we use the ideas and approach he proposes and advocates in his “Point” column (or any single proposal) as the blueprint, we will miss the opportunity to improve the governance approaches we need for current and future realities. It is a critical time for this community to engage in deep and ongoing discussion and activism on the roles of computers—and computer professionals—in society. ■

### References

1. Barber, B. *Strong Democracy: Participatory Politics for a New Age*. University of California Press, 2003.
2. Davies, T. and Gangadharan, S.P. *Online Deliberation: Design, Research, and Practice*. University of Chicago Press, 2009.
3. Dias, N. *Hope for Democracy: 25 Years of Participatory Budgeting Worldwide*. In *Loco Association*, São Brás de Alportel, 2014; <https://bit.ly/2Jw4hdy>
4. Fishkin, J.S. and Luskin, R.C. Experimenting with a democratic ideal: Deliberative polling and public opinion. *Acta Politica* 40, 3 (Mar. 2005), 284–298.
5. Foa, R.S. and Mounk, Y. The democratic disconnect. *Journal of Democracy* 27, 3 (Mar. 2010), 5–17.
6. Kang, C. F.C.C. repeals Net neutrality rules. *The New York Times* (Dec. 14, 2017); <https://nyti.ms/2CkTbRR>
7. National Constituent Assembly France. *Declaration of the Rights of Man and of the Citizen (1789)*; <https://bit.ly/2uJr4BA>
8. Schuler, D. Creating the world citizen parliament: Seven challenges for interaction designers. *ACM interactions* 20, 3 (May+June 2013).
9. Schuler, D. Cultivating society’s civic intelligence: Patterns for a new ‘world brain’. *Information, Communication, and Society* 4, 2 (Feb. 2001), 157–181.
10. Smith, G. and Wales, C. Citizens’ juries and deliberative democracy. *Political Studies* 48, 1 (Jan. 2000), 51–65.

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