



# TOWARD A MORE DEMOCRACY-FRIENDLY INTERNET

AI on Social Media Is Part of the Problem.  
Can It Be Part of the Solution?

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*A Sounder Public Judgment Working Paper*

# CONTENTS

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## 03 INTRODUCTION

## 06 THE PUBLIC JUDGMENT FRAMEWORK

### Social Media's Challenges to Public Judgment Formation

## 08 THE NEED FOR GENERATIVE AS WELL AS PREVENTIVE MEASURES

## 09 FOUR PATHWAYS TOWARD SOCIAL MEDIA THAT ENHANCE PUBLIC JUDGMENT

### Pathway 1: An Ethical Design Movement

- The Potential and Complexities of Ethical Design

### Pathway 2: Regulation and Incentives

### Pathway 3: Consumer Education and Power

### Pathway 4: Research and Innovation in Support of Public Judgment

- Complications of Doing Research in the Social Media Space
- Promising Innovations
- Exploring New Digital Platforms
- Change a View
- Front Porch Forum
- Project Debater
- Adding Civic Tools to Existing Platforms
- Efforts to Educate Consumers and Give Them Control and Choice
- Using Sentiment Analysis to Identify Themes and Work Through Ideas

## 25 CONCLUSION

## 27 APPENDIX

## INTRODUCTION

Social media platforms like Facebook and Twitter were once hailed as a transformative means to connect people, create community, amplify diverse voices, and mobilize civic engagement. More recently, they have been implicated in spreading misinformation, amplifying hate speech, reinforcing bias, and creating echo chambers and “filter bubbles<sup>1</sup>,” all of which are highly problematic for democracy. This is not to say social media are the *main* source of challenges to our democratic life or the only force challenging it; just that they significantly *exacerbate* the problem by ramping up polarization, divisiveness, misinformation, and poor public discourse.

At the center of social media’s impacts are the machine learning/AI algorithms that organize so much of life online. In AI, computer programmers design algorithms that allow machines to learn from large sets of data without the need for programmer intervention—in other words, the machines learn, make decisions and deliver outcomes—like what appears on one’s social media feed—on their own, often without human awareness or oversight.

Naturally enough, these social media algorithms are designed to engage users in ways that maximize profit for the companies that create them—and they do a very good job of it by encouraging people to spend a lot of time online, consuming and passing along information within their social networks. Such “engagement” often happens harmlessly and even delightfully through sharing of photos and videos of kittens, grandkids and lip-synched pop songs. But when it comes to our political discourse, unfortunately, outrage and outrageousness are particularly effective engagers of attention, more so, it seems, than sound data, compelling evidence, and solid ethical arguments.

Provocative, controversial posts about politics and public life grab us by the lapels of our human nature (our cognitive biases and social psychology), regardless of whether they are factual or constructive. They are quite effective in encouraging us to spend a lot of time clicking on and sharing information and messages online, all of which leads to substantial profits for these platforms, even as it becomes highly problematic for the quality of our democracy’s public discourse, public opinion, and public participation. As a result of the dangers this phenomenon is posing to democracy, pressure is growing for social media companies to do more to address how their platforms affect democracy, and for government and consumers to do more, as well.

This paper draws on expert interviews and recent studies and analyses to explore the potential for artificial intelligence on social media—particularly algorithms that shape machine learning outcomes – to support the American public’s ability to come to sound judgment on important decisions in our society. In exploring these questions of AI and public discourse, we are, in essence, asking what a more “democracy-friendly” internet might look like and how it might perform. By a “democracy-friendly” internet, we seek platforms that are not only free from hateful speech and blatant misinformation but with the positive attributes that help citizens act as citizens by providing:

- User-friendly access to trustworthy information
- Exposure to a wide range of political and social perspectives and value propositions
- The ability to exchange ideas productively, with both the likeminded and those who think differently

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<sup>1</sup> *Filter bubbles* are defined by Dictionary.com as “a phenomenon that limits an individual’s exposure to a full spectrum of news and other information on the internet by algorithmically prioritizing content that matches a user’s demographic profile and online history or excluding content that does not” and *echo chambers* are defined as “an environment in which the same opinions are repeatedly voiced and promoted, so that people are not exposed to opposing views”. “Filter bubble”, Dictionary.com, last modified March 2, 2020, <https://www.dictionary.com/browse/filter-bubble?s=t>. “Echo Chamber,” Dictionary.com, last modified March 2, 2020, <https://www.dictionary.com/browse/echo-chamber?s=t>

Our aim in this paper is to help concerned citizens and decisions makers, and especially the “non-techie” among them, to think through these issues and explore possible solutions. Collectively, we bring to these questions a significant level of technological expertise, along with decades of experience in studying how the public grapples with public problems and the kinds of inputs and conditions that help or hinder them in doing so. Our perspective on the latter draws especially on the work of the social scientist and democratic theorist Dan Yankelovich, first codified in his 1991 book, *Coming to Public Judgment*.

Bringing this “public judgment” perspective to conversations about the internet and democracy is a major goal. We think the framework, which we describe below, can be useful for helping data scientists, online practitioners, and democracy advocates converge in common cause and fruitful conversation on the possibilities of designing social media that enhance democratic participation rather than undermining it. We hope this discussion can serve as a useful starting point for fresh cross-sector, cross-partisan conversation about how social media can strengthen rather than undermine democratic life. We consider four paths for doing so: ethical design, regulation and incentives, consumer education and power, and research and innovation.

To test and explore this possibility, we have reviewed relevant literature and interviewed a range of experts whose work spans the intersection of technology and democracy:

- **Cheryl Contee**, cofounder of several tech startups, including Do Big Things, and an affiliate at Harvard University’s Berkman Center for Internet and Society
- **Will Ferguson**, veteran of numerous tech startups, cofounder and chief executive officer of a civic tech project called EnCiv, and coholder of eight patents in machine-learning solutions
- **Adolf Gundersen**, research director at the Interactivity Foundation and cofounder and chief operating officer of EnCiv
- **Craig Newmark**, founder of craigslist and Craig Newmark Philanthropies
- **Eli Pariser**, Public Interest and Tech Fellow at New America
- **Foster Provost**, professor at New York University and director of Data Analytics and AI at the NYU/Stern Fubon Center
- **John Thomas**, a “user experience consultant” at !Problem Solving International, former research staff member at IBM, and executive director of the AI lab at NYNEX Science and Technology
- **Micah Sifry**, cofounder of Civic Hall and Personal Democracy Media
- **Natalie Stroud**, associate professor at University of Texas at Austin and director of the Center for Media Engagement
- **Duncan Watts**, professor at University of Pennsylvania, Annenberg School of Communication, and former employee of Microsoft and Yahoo!

“As a result of the dangers social media is posing to democracy, pressure is growing for companies to do more to address how their platforms affect democracy, and for government and consumers to do more as well.”

We explored with these experts, and raise here, the following questions:

- In theory, could machine learning enhance the ability of social media to facilitate public judgment rather than undermine it, as is too often the case today?
- What are the obstacles—technical, economic, political, and otherwise—to its ability to do so?
- Do any promising examples of research and practice suggest it may be possible to overcome the obstacles?
- What are some ways in which this project might be moved forward?

Before exploring these questions directly, we'll provide a discussion of the concept of "public judgment," which we think provides a useful framework for thinking about how social media might be reoriented in a more democracy-friendly direction.

# THE PUBLIC JUDGMENT FRAMEWORK

Over six decades of close study, Daniel Yankelovich was continually impressed by the lack of attention paid to the question of the quality of public opinion.<sup>2</sup> He thought it poor research practice and problematic for democracy to report research findings suggesting “a majority of Americans support policy X” if people had never really thought through the implications of policy X, and that the supposed “consensus” would fall apart as soon as they realized there were tradeoffs involved. As a result, he began to distinguish in his work between raw, unstable “opinion” and more stable “public judgment,” a term he reserved for relatively stable views that are developed over time as people struggle with an issue and the ramifications and tradeoffs of different solutions for it.

Moreover, Yankelovich observed that the public tends to move through three distinct stages, each with sub stages, to come to sound public judgment:

In the *Consciousness Raising stage*, the public becomes aware of an issue as something needing attention, and ultimately develops a sense of urgency about addressing it. The news media tend to be central to this phase of public judgment formation.

In the *Working Through stage*, people begin looking for answers and solutions. They consider their personal experience as well as evidence and ideas they encounter about how to move forward. Often, they are attracted by the lure of easy answers before they are willing to grapple with the hard choices and tradeoffs of real-world solutions. The news media tend to be less useful here, as they are continually moving on to the next big thing before people have done much “working through.”

In the *Resolution stage*, the public tends to stabilize in its decisions, reaching a sense of public judgment—first “in theory” and, over time, in practice as behavior aligns with new convictions and norms. This stage of public thinking is marked by being relatively *stable* (it can certainly evolve further but does not change dramatically at the latest headline or tweak of survey wording). And it is more *responsible* (in the sense that people have accepted that there are no magical answers, struggled with contending ideas and choices, and shown a willingness to accept tradeoffs and to deal with the consequences of their choices).<sup>3</sup>

As related by Will Friedman in 2019, Yankelovich offered the question of women in the workplace as a tangible example of how public judgment can establish itself:

Whereas in 1971 62 percent of Americans agreed that “men are better suited emotionally for politics than women,” 15 years later, in 1986, only 36 percent agreed—and many fewer would do so today. [According to Yankelovich,] “Changes in attitudes toward the role and status of women clearly show how Americans [were] struggling to assimilate new values

<sup>2</sup> Daniel Yankelovich, the social scientist and pioneering public opinion researcher, published twelve books, the last—*Wicked Problems, Workable Solutions*—just two years before his death in 2017 at age 91. He founded or cofounded numerous organization and initiatives, including the polling firm Yankelovich, Skelly and White, the *New York Times*/Yankelovich Poll, the nonprofit, nonpartisan Public Agenda (with which the present authors are associated), and the Yankelovich Center for Applied Social Science Research at the University of California, San Diego. He received the American Association of Public Opinion Research Award for Exceptionally Distinguished Service in 2012 and, in 2015, the Roper Center’s Mitofsky Award for Research Excellence.

<sup>3</sup> See Dan Yankelovich, *Coming to Public Judgment* (Syracuse, NY: Syracuse University Press, 1991), and Dan Yankelovich and Will Friedman, *Toward Wiser Public Judgment* (Nashville, TN: Vanderbilt University Press, 2011).

[around self-expression, self-fulfillment, autonomy, pluralism . . . ] with traditional ones [around home, family, social status . . . ].”<sup>4</sup>

A more recent example would be the evolution of public opinion on cigarette smoking in public venues, once the norm and now outlawed with strong public support. We may also be well on our way to a shift in public judgment regarding criminal justice and incarceration reform, especially with respect to alternatives to imprisonment for nonviolent offenses.<sup>5</sup>

### **Social Media’s Challenges to Public Judgment Formation**

Social media, and the algorithms that organize them, have introduced new dynamics to how people navigate the stages and tasks of coming to public judgment. On the positive side, social media allow greater access to a wider range of information than ever before and create new ways for people to connect with each other and share ideas. But, on the negative side, social media create or exacerbate a host of difficulties that subvert public judgment:

- Toxic, polarizing content that too easily goes viral
- Information overload, a problem exacerbated by the loss of trusted gatekeepers
- The spread of misinformation, abetted by automated bots and, now, “deep fakes” that make it increasingly difficult to distinguish online reality from online illusion
- The speed of information flows, which makes it difficult to contain or challenge misinformation and other kinds of problematic content
- Filter bubbles and echo chambers that create bias, reinforce narrow thinking, and stoke polarization

All of this is to say, when the public is forming opinions in an information and communications environment increasingly driven by misinformation and vitriol, the quality of that public opinion will suffer. For the public to come to sound judgment, it needs

- trustworthy and accessible information;
- exposure to diverse perspectives;
- the opportunity to articulate opinions, be challenged, and deliberate among different points of view; and
- the chance to learn the benefits and challenges of prospective solutions.

In theory, at least, social media ought to have as much potential to foster these conditions and facilitate stronger public judgment as to undermine it—but, assuming that potential exists, it remains largely untapped.

“ Social media ought to have as much potential to foster public judgment as to undermine it—but if so, that potential remains largely untapped.”

<sup>4</sup> Yankelovich, *Coming to Public Judgment*, quoted by Will Friedman in “The Problem of Public Judgment in a Divisive and Digital Age,” *Sounder Public Judgment Working Paper*, Public Agenda, 2019, [https://www.publicagenda.org/wp-content/uploads/2019/10/PA-Paper-DigitalAge-v5\\_FINAL.pdf](https://www.publicagenda.org/wp-content/uploads/2019/10/PA-Paper-DigitalAge-v5_FINAL.pdf). See pages 126–34 in *Coming to Public Judgment* for Yankelovich’s discussion of attitudes toward women’s place in society, and throughout for numerous other examples of “working through” to public judgment.

<sup>5</sup> Will Friedman, Ravi Reddi, and David Schleifer, “Where Americans See Eye to Eye on Incarceration,” *Hidden Common Ground Report*, Public Agenda, 2019, [https://www.publicagenda.org/wp-content/uploads/2019/09/PublicAgenda\\_HiddenCommonGround\\_CriminalJustice\\_2018.pdf](https://www.publicagenda.org/wp-content/uploads/2019/09/PublicAgenda_HiddenCommonGround_CriminalJustice_2018.pdf).

## THE NEED FOR GENERATIVE AS WELL AS PREVENTIVE MEASURES

As we reviewed the literature and interviewed experts, it became apparent that, while more conversation than ever before is taking place about the impact of social media on society and democracy, on the whole the biggest focus in response has been on *preventive* rather than *generative* measures. A surge of discourse and initiatives has sought in the past few years to combat the spread of hate speech, misinformation, and undemocratic manipulation of public opinion and voting behavior, including how to counter the way machine learning empowers bad actors to pursue these tactics.<sup>6</sup> We fully support this work and think it an essential corrective to the problems we've been raising here.

We also think, though, that much more attention should be paid to how to design and provide incentive proactively for social media that are democracy friendly, and specifically so with respect to the problem of public judgment in our increasingly complex world. Can machine learning, for example, be applied in ways that help people understand better the evidence on public problems, to encounter and engage with diverse views productively, and to understand the tradeoffs of alternative solutions? Can it support healthy democratic discourse that reveals common ground and usefully clarifies disagreements? Ethan Zuckerman, director of the Center for Civic Media at MIT, has recently urged the field to envision just these sorts of possibilities:

**Can we imagine a social network designed in a different way:** to encourage the sharing of mutual understanding rather than misinformation? A social network that encourages you to interact with people with whom you might have a productive disagreement, or with people in your community whose lived experience is sharply different from your own? Imagine a social network designed to allow constituents in a city to discuss local bills and plans before voting on them . . . Instead of optimizing for raw engagement, networks like these would measure success in terms of new connections, sustained discussions, or changed opinions. These networks would likely be more resilient in the face of disinformation, because the behaviors necessary for disinformation to spread—the uncritical sharing of low-quality information—aren't rewarded on these networks the way they are on existing platforms.<sup>7</sup>

Based on our interviews and reading of the literature, people are just beginning to think deeply about how to move beyond the necessary rearguard, defensive measures to minimize the degradation of the internet as it exists today, and to envision the kinds of possibilities Zuckerman raises. And, to the extent some *are* beginning to imagine a more democracy-friendly internet, the thinking and experimentation is at a very early stage.

The moment thus seems especially ripe for framing up more cross-sector conversation about how we might guide and accelerate this process, including the diverse values and perspectives of a diverse society that ought to guide social media redesign, the role of government regulation and industry self-regulation, the need for consumer education, and the role of research and innovation. To aide that conversation, we now turn to our main discussion of the four paths that might lead us toward a more democracy-friendly internet, with social media that support rather than undermine the public's capacity for sound judgment.

<sup>6</sup> Philip M. Napoli, "Social Media and the Public Interest: Governance of New Platforms in the Realm of Individual and Algorithmic Gatekeepers," Rutgers School of Communication, New Brunswick, NJ, August 17, 2014. See also Caplan and Boyd, "Who Controls the Public Sphere?" and DeepMind, "About," <https://deepmind.com/about>.

<sup>7</sup> Ethan Zuckerman, "Building a More Honest Internet," *Columbia Journalism Review*, Fall 2019, [https://www.cjr.org/special\\_report/building-honest-internet-public-interest.php](https://www.cjr.org/special_report/building-honest-internet-public-interest.php).

# FOUR PATHWAYS TOWARD SOCIAL MEDIA THAT ENHANCE PUBLIC JUDGMENT

As they are still relatively new, we have not fully absorbed the potential of social media to enhance public judgment. Through our interviews and initial research, we have identified four prospective paths along which people are attempting to move social media in healthier directions relevant to democracy in general and the problem of public judgment in particular. Each path warrants consideration and discussion, and we offer this analysis as a means to frame and advance the conversation. The potential paths are:

1. **Ethical design:** support for an ethical design movement for the internet that creates democracy-friendly professional norms (similar to the Hippocratic Oath) and promotes AI on social media that prioritize or “optimize for”<sup>8</sup> results consistent with those norms<sup>9</sup>
2. **Regulation and incentives:** the creation of more effective regulation of tech platforms to ameliorate online conditions deleterious to public judgment and increase those conducive to it
3. **Consumer education and power:** the education of consumers on how the design of social media platforms can affect their ability to participate effectively in a democracy, after which they may be able to demand of industry the kind of platforms they see as being in the public’s interest
4. **Research and innovation:** the development of democracy-friendly social media platforms that support public judgment formation, including innovations that also support positive business outcomes to provide incentive for adoption, and allow for the research needed to inform such innovations

Below we elaborate on these four pathways in detail, including the opportunities and challenges each presents. The best way forward may involve one of these paths, a combination of them, or a different path entirely. Our aim is to stimulate productive dialogue on how social media platforms can better support public judgment as part of the critical infrastructure for a healthy, thriving twenty-first-century democracy.

## Pathway 1: An Ethical Design Movement

As the negative impacts of social media have been increasingly in the spotlight, momentum around ethical design has started to grow in the tech industry. In his TED Talk “The Filter Bubble,” for instance, Eli Pariser argued, “We need the new gatekeepers to encode that sense of responsibility into the code that they’re writing . . . Make sure algorithms have encoded in them a sense of public life, a sense of civic responsibility.”<sup>10</sup> Similarly, Amy Webb has discussed how nine companies—Alibaba, Amazon, Apple, Baidu, Facebook, Google, IBM, Microsoft, and Tencent—need a fire lit under them to spur them to consider the ethical ramifications of AI in their platforms. She wrote,

The future of AI—and by extension, the future of humanity—is already controlled by just nine big tech titans, who are developing the frameworks, chipsets, and networks, funding the majority of the research, earning the lion’s share of patents, and in the process mining

<sup>8</sup> We use the term “optimize for” throughout the paper, which means creating algorithms that prioritize certain outcomes over others.

<sup>9</sup> Micah Sifry, interview by Will Friedman and Quixada Moore-Vissing, November 18, 2019.

<sup>10</sup> Eli Pariser, “Beware Online Filter Bubbles,” TED Talk 2011, [https://www.ted.com/talks/eli\\_pariser\\_beware\\_online\\_filter\\_bubbles?language=en](https://www.ted.com/talks/eli_pariser_beware_online_filter_bubbles?language=en).

our data in ways that aren't transparent or observable to us . . . We must empower and embolden the Big Nine to shift the trajectory of artificial intelligence, because without a groundswell of support from us, they cannot and will not do it on their own.<sup>11</sup>

This "groundswell of support" cited by Webb needs to address how humans are limited in their ability to identify their own biases and to predict how technology might affect society. As Cheryl Contee questions,

I know how developers actually make a lot of decisions at the root level. Are those people really equipped? Are they partnered with people who can help them think through the implications of the things they're building and design better solutions?<sup>12</sup>

At this point, no universal conceptualization exists of what constitutes ethical design, but people are beginning to wrestle with the problem. In 2018, for instance, Salesforce hired its first chief ethical and humane use officer.<sup>13</sup> Harmony Labs is conducting research about how media might be optimized to advance the public good,<sup>14</sup> and the University of Michigan founded a Center for Social Media Responsibility, also in 2018.

That said, some ideas are emerging that can help us begin this conversation about attributes of ethical design. The research institute Data and Society, for example, discussed "values-in-design" and "values sensitive design" in a 2016 report that defined an approach whereby "designers need to be made more aware of and critically examine how their own values shape the technologies they work on or produce."<sup>15</sup> And Eli Pariser and Natalie Stroud are working on a new initiative at New America Foundation that applies urban design principles to digital public spaces, essentially calling for tech designed with public interests in mind. They are framing digital public spaces as arenas where expectations around shared norms and values for behavior that serve the public good can be articulated, similar to other public squares, like parks or libraries.<sup>16</sup>

One issue central to ethical design is optimization in AI—that is, the question of what goals algorithms are attempting to accomplish through continuous (machine) learning . Although businesses inevitably have profits in mind, Foster Provost, who has worked in both the tech industry and academia, warns against taking a narrow view of business motives. He states that businesses are thinking not only about short-term profit maximizing but about the long-term survival of the company, their brand image, the interests of stakeholders other than just shareholders, and about ethics and simply doing the right thing.

Other interviewees are more pointed in their criticism of the big platforms, suggesting profit motives trump other considerations, resulting in side effects that undermine healthy democratic discourse and sound public judgment. A platform may, for instance, create feeds that cater to user interests to keep them engaged but in the process also support narrowing the user's point of view rather than providing balanced information about an issue. Furthermore, since extreme or upsetting content may get more attention and more easily go viral, platforms may promote

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<sup>11</sup> Amy Webb, "How Can We Design AI for the Best Long-Term Interests of Humanity?" *Fast Company*, March 4, 2019, <https://www.fastcompany.com/90312306/how-can-we-design-ai-for-the-best-long-term-interests-of-humanity>.

<sup>12</sup> Cheryl Contee, interview by Will Friedman and Jim Euchner, June 17, 2019.

<sup>13</sup> Salesforce, "Paula Goldman Joins Salesforce as VP, Chief Ethical and Human Use Officer," press release, December 10, 2018, <https://www.salesforce.com/company/news-press/stories/2018/12/121018-j/>.

<sup>14</sup> Harmony Labs, "Mission," 2017, <https://harmonylabs.org/mission>.

<sup>15</sup> Caplan and Boyd, "Who Controls the Public Sphere?"

<sup>16</sup> Eli Pariser, interview by Will Friedman and Jim Euchner, 2019.

content that will attract user clicks and views, even if that content is inaccurate, artificially polarizing, or hateful. Such practices bias, outrage, and disturb users in ways that make them less likely to engage in well-rounded and fair-minded thinking and decision making.

In theory, though, algorithms could optimize for better public judgment outcomes, such as increasing access to diverse points of view, promoting civil and stimulating discourse across differences, and encouraging users to engage with new content that might expand their thinking. Among the questions are, what would optimizing for public judgment rather than for profit look like? Can and will businesses uphold goals of long-term survival and financial success while at the same time acting as ethical leaders in their industries by generating business models and user experiences that support the social good and create a more democracy-friendly internet?

### The Potential and Complexities of Ethical Design

Some experts we interviewed acknowledge the complexity of establishing goals and values that might guide AI development if profit were not the dominant ultimate objective. Natalie Stroud, for example, shares that she and Eli Pariser have been working on a project called “civic signals” to identify a set of principles for more positive tech platforms. But Stroud agrees that deciding what is “good” is complicated. “It’s a super humbling experience—you start thinking: Plato tried to do this. What was I thinking when I decided to embark on this?”<sup>17</sup> And Foster Provost comments that sometimes we try to understand if Option A or Option B is better for people, but it’s often not that simple. A is better than B for some and worse for others.<sup>18</sup>

The trickiness and complexity of the endeavor are reflected as well in recent arguments by U.S. Senator Ted Cruz and other Republican Party officials, who have expressed concern that Facebook, Google, and Twitter are limiting the reach of the political speech of right-leaning users. Cruz stated at a Senate Judiciary Committee hearing on free speech, technology, and public discourse that “what makes the threat of political censorship so problematic is the lack of transparency, the invisibility, the ability for a handful of giant tech companies to decide if a particular speaker is disfavored.”<sup>19</sup> Social media sites are tasked with sometimes conflicting tasks, such as minimizing disinformation while trying to ensure content is not censored. Such dynamics underscore the need for ethical design to ensure an inclusive and fair treatment of views in a pluralistic democracy and spread factual information—no easy task, but one generally believed possible by those we interviewed.

The European Union’s work around public service media provides one starting point for determining what criteria democratically aligned algorithms could optimize for. Several journalists from the BBC—Fields, Jones, and Cowlshaw—presented a paper at the 2018 Rec Sys conference about the need for “public service algorithms” and the role these could play, in particular, in changing the nature of social media recommendation systems (that is, the systems that recommend to consumers further content to explore). They argued that the increasing use of algorithmic recommendations that cater to user interests threaten EU public service values like universality and diversity, and instead “reinforce audiences’ preexisting preferences . . . creating experiences more like a goldfish bowl than a window to the world.” The result is that users are treated as “consumers first, as opposed to citizens.”<sup>20</sup>

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<sup>17</sup> Natalie Stroud, interview by Will Friedman and Jim Euchner, October 24, 2019.

<sup>18</sup> Foster Provost, interview by Will Friedman and Jim Euchner, May 30, 2019.

<sup>19</sup> Jessica Guynn, “Ted Cruz Threatens to Regulate Facebook, Google, and Twitter over Charges of Anti-Conservative Bias,” *USA Today*, April 10, 2019, <https://www.usatoday.com/story/news/2019/04/10/ted-cruz-threatens-regulate-facebook-twitter-over-alleged-bias/3423095002/>.

<sup>20</sup> Ben Fields, Rhianne Jones, and Tim Cowlshaw, “The Case for Public Service Recommender Algorithms,” working paper presented at the Second F CREC2018 Workshop, held in conjunction with the 12th ACM Conference on Recommender Systems, Vancouver, Canada, October 2–7, 2018, <https://piret.gitlab.io/fatrec2018/program/fatrec2018-fields.pdf>.

Fields and colleagues identified two key pathways for public service algorithm design, one focused on diversity and the other on accountability. *Designing for diversity* considers how to expose users to a balanced range of information and perspectives in ways that encourage “agency, autonomy, and personal growth” and enable them to make reasoned decisions. *Designing for accountability* calls for algorithms in public service media to be accountable rather than black boxes, where the information is inaccessible or unknown. The authors argued for the need to ensure the “workings of recommender systems are transparent and intelligible across technical, managerial, and editorial teams” and called for these systems to be subjected to rigorous testing of how they work in practice and with what impact—in particular, how they determine what content is being presented to audiences, based on what criteria, and to what effect. Similarly, Martens and Provost examined AI systems that classify pieces of texts—for example, the identification by Facebook of posts that are potentially objectionable or inflammatory. These authors argued for a broader human understanding of how such decisions are made. Managers within an organization, for instance, need to understand the process by which texts are flagged so they can communicate that process to their staffs; customers affected by those decisions need to understand why certain actions regarding their posts were made; and the data science and development team needs to understand both the process and its impact so they can then improve the algorithms.

The design paradigm outlined by Fields, Jones, and Cowlshaw illustrates rising discourses in Europe that frame public service media practices as a mechanism for strengthening citizenship and upholding such fundamental human rights as freedom of expression and information.<sup>21</sup> In a 2016 conference, the European Council outlined that public service media should allow for impartial and independent news and information, prevent discrimination in all its forms, and provide a forum for public discussion in which a broad spectrum of opinions can be discussed.<sup>22</sup> While how well these design norms are observed and how they work in real life remain to be seen, to us they seem well-aligned with the importance of creating conditions conducive to sounder public judgment.

At this time, the work around ethical design is emergent, occurring in disparate pockets, and far from fully realized. More thinking and conversation will surely be needed to explore what a universal, yet practical and cogent, set of values might look like, and how they would be encouraged and/or enforced. This is a complicated proposition, and the experts we interviewed identify several roadblocks to progress. Natalie Stroud feels the development of public service algorithms will require large datasets, which can be difficult to come by, to train any machine learning.<sup>23</sup> And even if platforms are successful in creating algorithms that optimize for social goods, these algorithms could be easily exploited. Craig Newmark worries that bad actors could infiltrate public service algorithms and pollute them.<sup>24</sup> Will Ferguson raises broader questions about users’ rights to keep their personal data private, and how lack of privacy could allow for civic manipulations. He notes that even if companies successfully create more civic-minded platforms, the question remains of how user data will be used—for instance, the same data generated in a bipartisan discourse online to inform better public judgment could be used to manipulate users’ political behavior and inform election strategies.<sup>25</sup>

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<sup>21</sup> See Council of Europe, “Public Service Media,” 2020, <https://www.coe.int/en/web/freedom-expression/public-service-media>.

<sup>22</sup> European Ministerial Conferences on Mass Media Policy and Council of Europe Conferences of Ministers responsible for Media and New Communication Services, “Media and Internet Directorate General of Human Rights and Rule of Law,” Council of Europe, Strasbourg, 2016, 26, <https://rm.coe.int/16806461fb>.

<sup>23</sup> Stroud, interview.

<sup>24</sup> Craig Newmark, interview by Will Friedman and Jim Euchner, April 23, 2019.

<sup>25</sup> Will Ferguson, interview by Will Friedman, Adolf Gundersen, and Jim Euchner, April 17, 2019.

Another question that emerges is what our goal should be. Should we design algorithms that encourage more expansive and well-rounded thinking? Or should we, rather, create neutral systems that empower consumers to decide for themselves whether they want to narrow down their input and reinforce their current ways of thinking or expose themselves to new ideas that broaden their perspectives? Such freedoms could be supported through “opt-in” or “opt-out” policies.

A broader question is how social media platforms might balance optimizing machine learning for democratic outcomes with optimizing it for profits. Stroud has done some work that suggests creating a “double bottom line,” where innovations can simultaneously be good for democracy and for business, may be possible.<sup>26</sup> But others, like Adolf Gundersen and Will Ferguson, have questioned if profit outcomes will always overshadow democratic ones. As Gundersen states, “What my concern would be in leaving it to the private sector with their single bottom line is— what encourages them to shoot for the double bottom line? You might be able to engineer solutions like that, but ultimately dollars and cents are going to win out over their commitment to democracy.”<sup>27</sup>

In sum, the feasibility and effectiveness of ethical design depend on research and thought leadership that recognize the tremendous influence tech platforms have on how people think, engage, learn, and make decisions. Not only are the outcomes from the use of social media tangled and complex many of them are not even yet fully formed, and it requires our best predictions to think through how what we do today may affect tomorrow. Such work will require all hands on deck, including tech designers, moral leaders, government officials, business executives, and researchers. And it will require the space for thoughtful conversation among participants who take the time to look at the forest rather than trees, even in the face of the rapid pace of the market.

## Pathway 2: Regulation and Incentives

As new means of communications and information sharing, social media platforms were at first not regulated the way large media corporations are, although in recent years they have clearly and increasingly been operating as the large corporations do, and national governments and international agencies have been struggling to keep pace.<sup>28</sup> Although many of these companies like Facebook may not have been developed with the intention of being major distributors of news and information, a recent Pew Research Center study indicates over half of Americans are getting their news from social media platforms, a trend that has been growing steadily for the past few years.<sup>29</sup>

As Caplan and Boyd have written, “The recognition that [social media] platforms can shape what news and information comes into user awareness, and thus political attitudes and beliefs, has not yet been reflected by public interest media policies.”<sup>30</sup> Can the impetus and energy for the creation of more democracy-friendly digital platforms come from within the online industry, or must it come from outside it? The notion that social media companies should take on more accountability and self-regulation is gaining traction. The question, of course, is whether practice will default to profit over principles. As Micah Sifry argues, “A lot of the problems with social media’s effect on society is the business model of these big platforms. Until we force some

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<sup>26</sup> Stroud, interview.

<sup>27</sup> Adolf Gundersen, interview by Will Friedman, Will Ferguson, and Jim Euchner, April 17, 2019.

<sup>28</sup> Napoli, “Social Media and the Public Interest.”

<sup>29</sup> Peter Suciú, “More Americans Are Getting their News from Social Media,” *Forbes*, October 11, 2019, <https://www.forbes.com/sites/petersuciu/2019/10/11/more-americans-are-getting-their-news-from-social-media/#3a94c533e179>.

<sup>30</sup> Caplan and Boyd, “Who Controls the Public Sphere?”

changes in those business models, just asking them nicely to design a little differently isn't going to help much."<sup>31</sup>

Industry standards, consumer demands, and government regulation all need to acknowledge the impact social media platforms can have on the public interest, particularly in shaping public opinion and/or degrading its quality, as has been the case with previous media technologies, such as radio and television. In those cases, standards were put in place and public service requirements and/or options developed that were intended as nonpartisan civic resources, such as National Public Radio or the Public Broadcasting Service. Might some corollary of this approach be appropriate for social media and digital news platforms, as well?

The United States has been particularly slow to create a regulatory regime for social media platforms, partially because of tensions around free speech laws—and with robust tech company lobbying undoubtedly playing a role, as well.<sup>32</sup> But other countries have begun to characterize social media as part of their broader media infrastructure and are starting to regulate such platforms accordingly. Australia, for instance, has passed legislation regulating violent material concerning subjects such as murders and terrorist attacks; the EU passed the General Data Protection Regulation (GDPR); and Germany and the UK have passed legislation to protect consumers' personal data. Most of this regulation is focused, however, on preventive measures to protect consumers and democracy rather than encouraging tech platforms to contribute to our democratic life.<sup>33</sup>

Phillip Napoli has proposed a framework for managing tensions around social media regulation.<sup>34</sup> Similar to our generative/preventive framing at the beginning of this paper, Napoli characterized current social media governance as *restrictive*, in that it concentrates on activities and content flows that should be prevented, rather than *affirmative*, focusing on activities and content flows that should be encouraged or required. The latter are our primary concern here, including the possibility of incentives and smart regulations that support online conditions for thoughtful public judgment and informed public engagement.

Duncan Watts<sup>35</sup> warns that government regulation created in ignorance of how digital platforms actually function could create more problems than it solves—and he fears that may be where we are headed. Watts references the GDPR as an example; although it was a well-intentioned attempt to protect consumer privacy and has achieved this to an extent, he claims there have also been unexpected and important effects of the legislation. For instance, the legislation has allowed large, well-resourced companies—the very ones the GDPR intended to regulate—to thrive, while its complexity has created barriers for startups, requiring them to have large teams of lawyers and engineers to comply with it. As an alternative, Watts calls for regulation that allows media platforms to open up to more research—something we expand upon in the *Complications of Doing Research in the Social Media Space* section of this paper on (see page 18 ).

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<sup>31</sup> Sifry, interview.

<sup>32</sup> Kalev Leetaru, "History Tells Us Social Media Regulation Is Inevitable," *Forbes*, April 22, 2019, <https://www.forbes.com/sites/kalevleetaru/2019/04/22/history-tells-us-social-media-regulation-is-inevitable/#4fab723e21be>.

<sup>33</sup> Damien Cave, "Australia Passes Law to Punish Social Media Companies for Violent Posts," *New York Times*, April 3, 2019, <https://www.nytimes.com/2019/04/03/world/australia/social-media-law.html>; Nitasha Tiku, "Europe's New Privacy Law Will Change the Web, and More," *Wired*, March 19, 2018, <https://www.wired.com/story/europes-new-privacy-law-will-change-the-web-and-more/>; Singer, Natasha. "Germany Restricts Facebook's Data Gathering." *The New York Times*, February 7, 2019. <https://www.nytimes.com/2019/02/07/technology/germany-facebook-data.html>; UK Department for Digital, Culture, Media & Sport. "Data Protection Act 2018 Factsheet." May 23, 2018. [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/711162/2018-05-23\\_Factsheet\\_1\\_-\\_Act\\_overview.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/711162/2018-05-23_Factsheet_1_-_Act_overview.pdf).

<sup>34</sup> Napoli, "Social Media and the Public Interest."

<sup>35</sup> Duncan Watts, interview by Quixada Moore-Vissing and Jim Euchner, February 5, 2020.

When it comes to industry's ability to self-regulate, Cheryl Contee points to a challenge beyond the most obvious one of the profits today's status quo allows companies to reap. She claims that, while social media platforms have a tendency to maintain a culture and style of operating ostensibly appropriate to startups, such as extremely lean staffing, in reality they've become hugely profitable enterprises that wield enormous power to influence public opinion and the state of civic discourse across entire societies. "That's fine for startups, but these are now multinational, global corporations."<sup>36</sup>

Micah Sifry argues further that the social media regulations that do exist have not been overly effective, and much more thought needs to be put into the question.<sup>37</sup> He references COPPA, the Children's Online Privacy Protection Rule, established by the Federal Communications Commission (FCC) in 1998, as an example. COPPA technically imposes certain requirements on operators of websites, including social media platforms directed at children under 13 years of age. Sifry claims, however, that COPPA has not been widely enforced, and, despite this ruling, many children engage with inappropriate content on social media and share their personal data with tech platforms.

The way social media platforms are currently constructed, the burden of responsibility and protection against harm lies primarily with the users instead of the companies. Philip Napoli has called this an individualist model of the public interest, "in which many of the responsibilities associated with the production and dissemination of the news and information essential to a well-functioning democracy fall . . . to individual media users."<sup>38</sup> The result is that users are obliged to seek out diverse news sources and viewpoints on their own, rather than having social media platforms facilitate such access for them. An alternative to such an individualist model might be one that is invested in the public interest more broadly; for instance, companies could be required to supply or contribute to a fund that supports platforms that promote sound public judgment by providing resources:

- The means to engage with diverse perspectives and diverse thinkers in productive ways
- Just-in-time information on the state of evidence about alternative solutions
- Ways of engaging with public officials and civic organizations relevant to the issue at hand

To summarize, this discussion of regulations and incentives has raised the following questions:

- Can social media platforms effectively self-regulate in ways relevant to democracy and acknowledging the importance of sounder public judgment? Can they do so in some respects if not in others?
- When does the government need to step in with regulation and/or incentives, and what kinds will be most effective? How can we ensure the regulators are well-informed and truly understand the systems they seek to regulate?
- Do we need some version of a public-interest social media system, apart from the for-profit platforms? What would such a system look like? How might it be created and supported?

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<sup>36</sup> Contee, interview.

<sup>37</sup> Sifry, interview.

<sup>38</sup> Napoli, "Social Media and the Public Interest."

### Pathway 3: Consumer Education and Power

It is possible that, as consumers' understanding of the effects of social media platforms grows, they will begin to vote with their feet or demand change. But right now, consumers are largely uninformed about how the algorithms behind social media may be affecting their thinking and engagement in public life. While Sifry would like to see burdens on consumers eased by more effective regulation, he feels another lever to bring about change is provided by consumer education and action. "Ultimately, I think we need a clearer understanding of what the harms are. We need a language for that," he says. "We don't have much of it right now, especially when it comes to the harms to healthy democratic discourse."<sup>39</sup>

Popular culture suggests consumer interest in these issues may be growing. Shows like HBO's *Silicon Valley* have delved into the unintended consequences of creating online algorithms and imposing government regulation, and a prominent plotline involves a comically ill-fated attempt to develop a new tech platform that eschews the collection of user data as a matter of principle. Our political debates also show signs that bipartisan concern is rising, though the parties may have different philosophical approaches on what is best. Recently, for example, GOP senators questioned representatives of Google and other platforms in a Senate Judiciary Committee hearing, exploring how such platforms may encourage bias against conservatives.<sup>40</sup> Democratic presidential candidate Andrew Yang brought up consumers' rights to their personal data as a key issue in the 2019 Democratic primary debates.<sup>41</sup> Such leadership discourse likely reflects, and can also help stimulate, greater consumer interest in these issues.

Informed users may start to demand reforms to tech platforms, and companies may face increasing pressure to adjust their behavior as a result. Cheryl Contee finds it problematic for tech platforms to think only about how often and how much users engage rather than the quality of experiences they are getting on the platform. She states, "It happened first to Twitter and Facebook—when you don't actually cultivate the community, when you don't take care of it, people start to walk away . . . the health of the platform will impact the numbers."<sup>42</sup>

With increased consumer awareness of the dark side of social media algorithms, participation in platforms that encourage divisive, negative, narrowed thinking and discourse may become unpopular, and the platforms may start responding to such consumer sentiment. More likely, consumer advocates will be able to exert popular opinion to shape corporate behavior and/or government regulatory action. Such advocacy could also lead to the requirement that companies pay for consumer education about the risks of social media use, mirroring the regulation of tobacco companies to conduct consumer education about the risks of smoking.

“ We need a clearer understanding of what the harms are. We don't have much of it right now, especially when it comes to the harms to healthy democratic discourse.”

<sup>39</sup> Sifry, interview.

<sup>40</sup> Amy Scott, "GOP Puts Google Search on Trial in DC," NPR, July 16, 2019, <https://www.npr.org/2019/07/16/742308833/googles-search-bias-on-trial-in-washington>.

<sup>41</sup> Catherine Clifford, "Andrew Yang: You Should Get a Check in the Mail from Facebook, Amazon, Google for Your Data," CNBC, October 17, 2019, <https://www.cnbc.com/2019/10/17/andrew-yang-facebook-amazon-google-should-pay-for-users-data.html>.

<sup>42</sup> Contee, interview.

#### Pathway 4: Research and Innovation in Support of Public Judgment

Momentum has been building in the tech world around more democracy-friendly research and innovations. Academic researchers and the private sector have joined in a partnership called Social Science One, which allows for more collaborative research between the academy and tech sectors. In April 2018, for instance, Social Science One and Facebook embarked on a project about how social media affect democracy and elections.<sup>43</sup> Microsoft is partnering with Stanford University to advance human-centered AI, and a workshop held in advance of the March 2019 launch of the Stanford Institute for Human-Centered Artificial Intelligence (HAI) explored how AI can be used to address important societal problems and identified cross-cutting technical, ethical, and policy challenges for AI uses.<sup>44</sup> Facebook has an Election Integrity and Civic Engagement team,<sup>45</sup> and Google's DeepMind is examining how AI can be used in ethical and responsible ways to support public problem solving.<sup>46</sup> ICTec, an annual civic tech conference, brings tech designers and practitioners together each year to discuss the development of and research behind civic tech tools.<sup>47</sup>

It is worth noting that some scholars believe the widespread concerns about the negative impacts of social media on the democratic process are overblown. Watts and Rothschild, for instance, have argued that while fake news, misinformation, and social media's impact on democratic discourse are real problems, the popular press has overstated them relative to other sources of polarization and misinformation.<sup>48</sup> To be clear, our thesis is not that social media represent the source of today's polarized and dysfunctional national politics; just that they're increasingly problematic contributors. As Ezra Klein explains the situation,

Over the past 50 years, the country's dominant political coalitions have sorted by ideology, race, religion, geography, psychology, consumer behavior, and cultural preferences. This has, in turn, kicked off a series of feedback loops in which political institutions (the media, Congress) and actors (candidates, individual journalists) adopt more polarized strategies to both respond and appeal to a more polarized audience, which further polarizes the audience, which further polarizes the institutions, which further polarizes the audience, and so on.

Social media is one of those institutions, and in my view, is clearly a polarization accelerant. In the coming years it may prove a primary driver.<sup>49</sup>

Thus, one need not view social media as the core cause of our political polarization and dysfunction to want to minimize their role as an accelerant of them—or, as we are attempting to do here, to explore the potential for social media and online connectivity to contribute to healthy public discourse that strengthens democratic participation.

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<sup>43</sup> Social Science One, "About," <https://socialscience.one/>.

<sup>44</sup> Eric Horvitz, "Advancing Human-Centered AI," *Microsoft Research Blog*, March 18, 2019, <https://www.microsoft.com/en-us/research/blog/advancing-human-centered-ai/>.

<sup>45</sup> Sheera Frenkel and Mike Isaac, "Inside Facebook's Election 'War Room,'" *New York Times*, September 19, 2018, <https://www.nytimes.com/2018/09/19/technology/facebook-election-war-room.html>.

<sup>46</sup> DeepMind, "About."

<sup>47</sup> TICtec, "The Impacts of Civic Technology Conference from My Society," <https://tictec.mysociety.org/>.

<sup>48</sup> Duncan J. Watts and David M. Rothschild, "Don't Blame the Election on Fake News. Blame It on the Media," *Columbia Journalism Review*, December 5, 2017, <https://www.cjr.org/analysis/fake-news-media-election-trump.php>. See also Seth Flaxman, Sharad Goel, and Justin M. Rao, "Filter Bubbles, Echo Chambers, and Online News Consumption," *Public Opinion Quarterly* 80, no.1 (2016): 298–320, <https://doi.org/10.1093/poq/nfw006>; Christopher A. Bail, Lisa P. Argyle, Taylor W. Brown, John P. Bumpus, Haohan Chen, M. B. Fallin Hunzaker, Jaemin Lee, Marcus Mann, Friedolin Merhout, and Alexander Volfovsky, "Exposure to Opposing Views on Social Media Can Increase Political Polarization," *Proceedings of the National Academy of Sciences* 115, no. 37 (September 11, 2018): 9216–21.

<sup>49</sup> Nicholas Thompson, "Why Are We Polarized? Don't Blame Social Media, Says Ezra Klein," *Wired*, February 13, 2020, <https://www.wired.com/story/why-are-we-polarized-dont-blame-social-media-ezra-klein/>.

Some initial research zeros in on questions with specific relevance to social media and the problem of public judgment. In 2014, Facebook led psychological experiments with nearly 700,000 users and found that positive newsfeed content encouraged positive comments, and negative feeds encouraged negative comments.<sup>50</sup>

In a 2018 study, the Robert Wood Johnson Foundation used its National Survey of Health Attitudes to compare outcomes of Front Porch Forum communities with a national data set related to community trust. Robert Wood Johnson found that FPF encouraged more trust and connection among neighbors and more optimism about community than national averages.<sup>51</sup> Research by Joshua Scacco, Ashley Muddiman, and Natalie Stroud at the University of Texas at Austin's Center for Media Engagement found that replacing article text on a news website with a digital quiz encouraged more learning about public affairs *and* encouraged users to stay on the site longer, creating an impact that is, arguably, good for both democracy and the news business.<sup>52</sup>

Such studies are steps in the right direction, but are first steps at best; much more research and innovation are needed to determine if and how social media can support rather than undermine democracy.

### Complications of Doing Research in the Social Media Space

According to Alex Abdo, a large obstacle in the way of research and innovation in the social media space is that tech platforms themselves are discouraging such research by those outside their organizations.<sup>53</sup> Because of the way current laws are constructed, he argued, companies' right to privacy takes precedence over the public's right to understand how the company is operating.

Abdo is part of the Knight First Amendment Institute at Columbia University, which tried to conduct research about Facebook. Facebook claimed the digital investigations violated its terms of service, producing a chilling effect on the team's research. In a 2018 opinion piece in *The Guardian*, Abdo said imposing such restrictions is common on the parts of Facebook and Twitter, and that the platforms should lift them to allow research "to prevent social media from tearing the country apart." He claimed that if researchers were granted access to more of Facebook's data, they could learn how it uses algorithms to respond to users' behavior and personal profiles.

Similarly, Duncan Watts advocates for the tech industry to open its gates to public and academic research.<sup>54</sup> Watts is currently a professor at the University of Pennsylvania's Annenberg School for Communication who has also worked in the private sector for Microsoft and other companies. Watts overall feels that Facebook has been subjected to a lot of ill-informed criticism, but that they haven't handled that criticism well. He comments,

In general, I'm baffled at how reluctant Facebook has been to offer up any data. It's a very strange response that Facebook has had the last few years to outside criticism where they just keep stonewalling and hope the problem goes away. It could hardly be worse than what people think it is. So it's perplexing to me that they just don't offer up what they know.<sup>55</sup>

<sup>50</sup> Vindu Goel, "Facebook Tinkers with Users' Emotions in News Feed Experiment, Stirring Outcry," *New York Times*, June 29, 2014, <https://www.nytimes.com/2014/06/30/technology/facebook-tinkers-with-users-emotions-in-news-feed-experiment-stirring-outcry.html>.

<sup>51</sup> Front Porch Forum, "More Neighborly Communities," provided to Public Agenda in an email from Michael Wood-Lewis, January 2, 2020.

<sup>52</sup> Joshua M. Scacco, Ashley Muddiman, and Natalie J. Stroud, "The Influence of Online Quizzes on the Acquisition of Public Affairs Knowledge," *Journal of Information Technology and Politics* 13, no. 4 (October–December 2016): 311–25, <https://www.tandfonline.com/doi/abs/10.1080/19331681.2016.1230920>.

<sup>53</sup> Alex Abdo, "Facebook is Shaping Public Discourse. We Need to Understand How." *The Guardian*, September 15, 2018, <https://www.theguardian.com/commentisfree/2018/sep/15/facebook-twitter-social-media-public-discourse>.

<sup>54</sup> Watts, interview.

<sup>55</sup> Ibid.

Watts expresses concerns about the lack of transparency from the tech industry and subsequent implications on research, suggesting we are locked into a bad equilibrium where “people who know stuff aren’t allowed to say anything, and people who are doing all the talking don’t know anything.” He claims,

It’s very frustrating to me that we are still in this world where corporations sit on all this data and so researchers have bad data to work with and then they end up doing bad research. And then people in companies say—well, that’s dumb, we know that isn’t true. The solution would be to open up and let researchers have access to the good data so they would find out what is true.<sup>56</sup>

Ideally, researchers would be able to conduct “A/B studies” that divide the user base into two parts, each with its own experimental conditions. Part A, for example, might encounter social media under the influence of one algorithm while Part B would see the effect of the operation of a variant algorithm. The one with the better results (by whatever measures used) can become the new algorithm.

Such a research strategy could also be applied to simpler and less expensive, yet promising, experiments, such as Scacco, Muddiman, and Stroud’s research on news article quizzes, noted earlier. As of now, though, only social media companies themselves can run these experiments. Instagram conducted a pilot study recently: after data indicated the number of “likes” users received was affecting their mental health, Instagram removed the option to view the likes of other users.<sup>57</sup> Conducting such studies could help us learn how social media might be redesigned to encourage sounder public judgment—for instance, by lessening filter bubble effects and providing more expansive alternatives that help people become more knowledgeable, more open-minded, and less artificially polarized.

An implication is that the ability to conduct meaningful research and innovation may depend on the regulation of tech platforms to allow for the data access needed to test ideas, illustrating the push and pull of the four pathways we have presented. Similarly, ethical design would ideally be informed by research, and consumer demands may drive ethical design. Essentially, considering one pathway without considering the effect of and potential interplay with others is difficult, which is one reason this subject is so complex.

### Promising Innovations

When we asked the experts to identify tech platforms that actively support public judgment, they came up with a handful of examples that can inform the field’s thinking. Overall, these examples demonstrate four common themes for future research and innovation:

- Designing new digital platforms so users better understand their own views, expose themselves to new ideas, encourage constructive dialogue, and build community
- Creating civic add-ons for existing technology that accomplish these goals
- Allowing consumers to control their own settings with relationship to their feeds and recommendations for other content
- Using sentiment analysis as a means to identify common themes and work through ideas and, perhaps, affect user feeds

Not many examples exist of democracy-friendly platforms that create conditions supportive of sound public judgment, but below we share a few promising ones.

<sup>56</sup> Ibid.

<sup>57</sup> Mary Meisenzahl, “Instagram Is Now Experimenting with Removing ‘Likes’ Worldwide,” November 14, 2019, *Business Insider*, <https://www.businessinsider.com/instagram-removing-likes-worldwide-test-2019-11>.

## Exploring New Digital Platforms

**Change a View.** Micah Sifry refers us to Change a View, a platform that promotes meaningful multipartisan discourse. It emerged out of a Reddit community called Change My View, founded by Kal Turnbull to encourage people to consider the points of view of others and make strong, meaningful arguments. By 2019, Change My View had grown to more than 700,000 subscribers, but Turnbull was frustrated by how Reddit's algorithm would push controversial threads higher than reasoned, meaningful conversations. He ended up creating his own platform called Change A View, a site on which users can flag arguments that have changed their minds. The site pays moderators to review threads, and provides a "public mod log" so people can see what changes the moderator has made.<sup>58</sup> Rules guide Change A View to try to keep discourses productive, (similar to those that govern Change My View), including directives like, "comments must contribute meaningfully to discussion" and "don't be rude or hostile to another user."<sup>59</sup>

Using human moderators to monitor content raises questions of scalability and sidesteps a central question of this discussion, which is whether AI can be adjusted to support public judgment rather than undermine it. But experiments like Change A View can help the AI community gain a better understanding of what algorithms supportive of public judgment ought to be "optimizing for" and thus be an important step in the process.

**Front Porch Forum.** Micah Sifry also identifies Front Porch Forum as a model for how social media can build strong local community, which, in turn, allows for stronger public judgment. He comments,

Two-thirds of [Vermont's] households belong to a local [Front Porch] Forum and visit it typically once a day to get civic news, to hear about their neighbors, to hear about what's going on around town, to hear what the school board or the town board are up to. The platform is architected around what you might call "slow democracy."<sup>60</sup>

Michael Wood-Lewis developed FPF because he and his wife had difficulty meeting people in their small Vermont community. The design of FPF was always intended to facilitate human connection, getting people out from in front of their computer screens back into their local communities. Users are required to provide their street addresses and identify with their full names to join the network, which connects real-life neighbors to each other on a digital platform. Unlike platforms like Facebook, users do not have their own individual profile pages and cannot select their friends, so, much like in an actual neighborhood, anyone living locally can interact with others. Local people act as paid human moderators, skimming posts to make sure they adhere to the site's code of conduct, which, among other things, prohibits personal attacks.<sup>61</sup>

By many accounts, FFP seems to be working well. In many Vermont towns, 80 percent of residents participate in FPF,<sup>62</sup> and 79 percent of users take offline civic actions, such as helping out neighbors, as a result of membership in their local forums. FPF has been used in conjunction with a range of community needs and interests, from posting about lost pets to

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<sup>58</sup> Arielle Pardes, "'Change My View' Reddit Community Launches Its Own Website." *Wired*, April 6, 2019, <https://www.wired.com/story/change-my-view-gets-its-own-website/>.

<sup>59</sup> ChangeAView, "The Rules," 2019, <https://changeaview.com/rules>; Reddit, "Fresh Topic Friday," October 2019, <https://www.reddit.com/r/changemyview/wiki/freshtopicfriday>.

<sup>60</sup> Sifry, interview.

<sup>61</sup> Andrew Liptak, "How a Vermont Social Network Became a Model for Online Communities," *The Verge*, January 24, 2019, <https://www.theverge.com/2019/1/24/18129437/front-porch-forum-vermont-social-network-listserv-local-online-community>.

<sup>62</sup> *Ibid.*; Peter Strauss, "The Story of Vermont's Quiet Digital Revolution," PBS Video, 2018, <https://www.pbs.org/video/the-story-of-vermonts-quiet-digital-revolution-fqvdp/>.

soliciting recommendations for mechanics to talking local politics or helping neighbors in need. A particular strength of the forum has been its role in preparing for and responding to natural disasters. One Vermont resident, for instance, shared in a news story that she felt her town had been more prepared for tropical storm Irene because FPF had helped “to build and reinforce relationships with neighbors.”<sup>63</sup> When the Vermont Council on Rural Development was awarded a federal grant to increase the resiliency of towns at risk of disasters, they included Front Porch Forum as part of the grant.

Overall, FPF provides an alternative paradigm for social media, one that allows for building rather than polarizing communities. As Thomas Streeeter, professor of sociology at the University of Vermont, commented in a documentary about FPF,

Humanity has only been communicating electronically [for a short time]. We’re still trying to figure out what we’ve done to ourselves. And I think it’s made people look at Facebook and Google and the large commercial companies involved, and I think people are wondering whether they actually represent the best of what the Internet can deliver.<sup>64</sup>

Sifry is careful, however, not to idealize FPF, sharing that people on the site “can still be snotty; not everyone gets along. It’s not like some perfect utopia, but the overall impact is that these things don’t spike as high [as on other platforms] in terms of flaming into real polarization.”<sup>65</sup>

As on Change A View, the use of human moderators on FPF potentially informs prodemocracy experiments with AI but is still not a purely “machine” example as humans are involved in vetting information rather than algorithms doing so independently. We see a more “pure” machine experiment in the next example.

**Project Debater.** IBM’s Project Debater is an attempt to encourage users to expand their thinking through AI, which it has programmed to debate, present evidence, and critique user arguments.<sup>66</sup> Project Debater’s AI system scans massive numbers of texts at high speed to deliver speeches about different topics. It can also rebut opponents, providing an opportunity for discourse back and forth. The logic behind the interface is that it will “help people reason by providing compelling, evidence-based arguments” and limit “the influence of emotion, bias, or ambiguity.”<sup>67</sup>

IBM developed Project Debater with the intention of expanding people’s thinking through reasoned debate, helping them see that answers are not black and white—a task directly relevant to public judgment formation, as Yankelovich described it. Whether they will elect to spend time engaging with Project Debater remains an open question, and the interface, which currently provides limited topics for discussion, can be a bit unwieldy and time consuming to use. But it is at least an initial attempt to experiment with AI and human interaction in ways that are relevant to engendering sounder public judgment, and so seems worthy of study.

### Adding Civic Tools to Existing Platforms

One strategy for strengthening public judgment online is to add civic tools or filters to existing social media platforms. Cheryl Contee mentions how Google’s AI-based DeepMind has been working on strategies to analyze the content of conversations so it can, for example, flag

<sup>63</sup> Liptak, “How a Vermont Social Network Became a Model for Online Communities.”

<sup>64</sup> Strauss, “The Story of Vermont’s Quiet Digital Revolution.”

<sup>65</sup> Sifry, interview.

<sup>66</sup> IBM, “Project Debater,” IBM AI Research, <https://www.research.ibm.com/artificial-intelligence/project-debater/>.

<sup>67</sup> IBM, “Project Debater.”

unproductive content and use AI to prompt different kinds of user engagement. Says Contee, “There may be ways the system could be trained to raise a red flag to people in the conversation or to a moderator or someone else to say, “This is taking off in a really unhealthy way.”<sup>68</sup> Bots may have potential to address these red flags. Bots are frequently used as customer service tools in that they allow for automated machine responses that simulate conversations. But bots could also be used to prompt reflection about a user’s behavior; before allowing a post with lots of angry words, for instance, a bot could provide users with questions like, “Are you sure you want to post this?”

One experiment performed by Natalie Stroud and her colleagues has shown that small design tweaks, such as providing online quizzes about articles or substituting a “respect” for “like” button, can affect how people interact online in ways relevant to a healthier democratic discourse. Users in the experiment tended to “respect” political comments more frequently than they liked or recommended the comments and were more likely to respect comments expressing points of view different than their own. Importantly, adding a “respect” button seemed to have merit not only for democracy (in that users were more thoughtful about the information they were viewing) but also for business (in that they spent more time in the comment section).<sup>69</sup> The results of the experiment illustrate how a “double bottom line” might be possible—one that provides positive outcomes both for business and democracy.

Upon hearing about Stroud, Muddiman, and Scacco’s work, John Thomas wondered if space could be provided on social media platforms like Facebook and Twitter for reactions even more nuanced and multidimensional than made possible by the respect button.<sup>70</sup> He suggests tools that would facilitate feedback like, “This is clever. I disagree, but it made me think,” or “You brought me to something I didn’t know here.”

### **Efforts to Educate Consumers and Give Them Control and Choice**

Once people understand the risks associated with existing media platforms, as well as the potential benefits of engaging with more democracy-friendly interfaces, they can make educated decisions about how they want to use social media. Just as tobacco consumers who have come to understand the risks of smoking can make more informed choices, so online consumers can become aware of the risks of filter bubbles, fake news, echo chambers, and divisive online discourses and decide what kinds of platforms they want to associate with. Those who want a different kind of online experience should have the option to control their settings and access to platforms that allow for more democratic experiences. As Ethan Zuckerman has recently put it,

A public service Web invites us to imagine services that don’t exist now, because they are not commercially viable, but perhaps should exist for . . . the benefit of citizens in a democracy. We’ve seen a wave of innovation around tools that entertain us and capture our attention for resale to advertisers, but much less innovation around tools that educate us and challenge us to broaden our sphere of exposure, or that amplify marginalized voices.<sup>71</sup>

The tech platform Canopy recently launched an app called Tonic that provides users with both diverse and personalized articles and videos, while protecting consumers’ private data.<sup>72</sup> To do so,

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<sup>68</sup> Contee, interview.

<sup>69</sup> Natalie Stroud, Ashley Muddiman, and Joshua Scacco, “‘Respect’ as the New ‘Like’: Research Reveals the Benefits of a ‘Respect’ Button in Online Comment Sections,” The Engaging News Project, Annette Strauss Institute at the University of Texas at Austin, September 18, 2013, [https://mediaengagement.org/wp-content/uploads/2014/04/ENP\\_Buttons\\_Brief.pdf](https://mediaengagement.org/wp-content/uploads/2014/04/ENP_Buttons_Brief.pdf).

<sup>70</sup> John Thomas, interview by Will Friedman and Jim Euchner, May 13, 2019.

<sup>71</sup> Zuckerman, “Building a More Honest Internet.”

<sup>72</sup> Tom Simonite, “The People Trying to Make Internet Recommendations Less Toxic,” *Wired*, March 18, 2019, <https://www.wired.com/story/people-trying-make-internet-recommendations-less-toxic/>.

the app uses something called “differential privacy,” which “enables organizations to learn from a group’s patterns without distinguishing between individuals within it.”<sup>73</sup> *Gizmodo* compared Tonic’s differential privacy to the U.S. Census, in that the government can aggregate census data about citizens without revealing anything about one particular individual.<sup>74</sup> Essentially, Tonic collects data about what users do and don’t read and offers them recommended readings based on their habits but without collecting personalized user data. Although Canopy’s employees don’t create specific recommendations based on user profiles, they do vet all content that lands on Tonic.<sup>75</sup> Since content is curated, outrage for its own sake can be avoided, and Tonic can provide more factual and unbiased content than social media feeds. Tonic also strives to offer people content they might not normally engage with to encourage them to break out of their filter bubbles. It is important to note, however, that at this time Tonic is not a “social” media platform but rather a media platform; although users can read content, they do not receive options to comment or interact.

Although Tonic’s rhetoric of more user control, privacy, and positivity are appealing, the platform itself still feels experimental and seems to cater primarily to a highly educated crowd. The content presented to users appears somewhat random, which in some ways accomplishes Tonic’s goal of exposing users to new ideas. But, the question will be, is the content compelling enough to encourage users to frequent the platform?

### Using Sentiment Analysis to Identify Themes and Work Through Ideas

Sentiment analysis—the act of scanning online discourse and identifying common themes—has shown some potential to accelerate thoughtful, large-scale public decision-making processes. It is a process of mining data, often in the context of social media sites, to facilitate understanding of people’s opinions. While sentiment analysis is often used in business to help companies discern social views about their brands, products, or services,<sup>76</sup> it can also be used to help identify public discourses and facilitate public judgment. A prime example is the software platform Pol.is, which has been gaining attention across the globe, including in Canada, Denmark, and Taiwan. It uses sentiment analysis to help communities move from polarizing, deadlocked debates to identifying common ground that drives decisions.<sup>77</sup>

Colin Megill, the cofounder and CEO of Pol.is, claims the platform provides a better way than social media for government and public leaders to understand the public’s priorities.<sup>78</sup> Pol.is allows users to cross-pollinate their ideas and work through the consequences of their positions—both of which are fundamental to the process of public judgment formation that Yankelovich described. Pol.is does this by putting forward statements about an issue that users can agree or disagree with, and it allows them to post comments themselves. Users can indicate support or disagreement with the comments of others, but they can’t directly reply to other users directly—this is an intentional design to prevent unproductive diatribes. Pol.is codes data and groups’ comments into themes that signify opinions about the given issue area, creating a sort of visual map where one can see where agreement and disagreement occur.

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<sup>73</sup> Paul Sawers, “Canopy Provides a Blueprint for Privacy-Focused Content Recommendations,” *Venture Beat*, September 18, 2019, <https://venturebeat.com/2019/09/18/canopy-provides-a-blueprint-for-privacy-focused-content-recommendations/>.

<sup>74</sup> Victoria Song, “The News App That’s Testing a Promising Way to Build in Privacy from the Ground Up,” *Gizmodo*, September 20, 2019, <https://gizmodo.com/the-news-app-thats-testing-a-promising-way-to-build-in-1838261672>.

<sup>75</sup> Joan E. Solsman, “Tonic App Wants to Show You the Unexplored, Nontoxic Corners of the Internet Again,” *CNET*, September 18, 2019, <https://www.cnet.com/news/tonic-app-wants-to-recommend-you-articles-stories-poems-art-from-unexplored-nontoxic-corners-of-the-internet/>.

<sup>76</sup> Shashank Gupta, “Sentiment Analysis: Concept, Analysis, and Applications,” *Towards Data Science*, January 7, 2018, <https://towardsdatascience.com/sentiment-analysis-concept-analysis-and-applications-6c94d6f58c17>.

<sup>77</sup> Pol.is, “Mission and Vision,” <https://pol.is/company>.

<sup>78</sup> Tom Simonite, “The Internet Doesn’t Have to Be Bad for Democracy,” *MIT Technology Review*, June 2, 2017, <https://www.technologyreview.com/s/607990/the-internet-doesnt-have-to-be-bad-for-democracy/>.

An example of Pol.is in action is the work the company is doing with the Taiwanese government to support a platform called vTaiwan—the “v” stands for “vision, voice, vote, and virtual.”<sup>79</sup> vTaiwan emerged out of the Sunflower Movement, in which Taiwanese students mounted protests in opposition to changes in trade policies between Taiwan and China.<sup>80</sup> vTaiwan was designed to crowdsource ideas and identify areas of consensus among different parties,<sup>81</sup> as well as to bring citizens into conversations about prospective laws and regulations.<sup>82</sup> Over the past five years, vTaiwan has informed national legislation for at least twelve different cross-cutting issues, and, in 2016, Taiwan’s new premier declared, “All substantial national issues should go through a vTaiwan-like process.”<sup>83</sup> Media outlets have teamed up with vTaiwan in a project called *Talk to Taiwan*, a broadcast show on which government ministers, mayors, and scholars respond to citizen ideas and concerns expressed by Pol.is. Together, vTaiwan and *Talk to Taiwan* distribute surveys through social media and other outreach methods and receive response rates of about 1,000 people per issue area. The outcomes of the surveys are then deliberated on in live video broadcasts attended by around 20,000 people per issue.<sup>84</sup> In these ways, vTaiwan has had a consistent presence and relatively broad reach in Taiwan for half a decade.

One of vTaiwan’s large-scale efforts took place in 2015, when it addressed controversies emerging from the appearance of Uber on the Taiwan transportation scene. In particular, citizens and business and government leaders had questions about the regulation of Uber and how to ensure fair competition with taxi services. In the decision-making on Uber, the vTaiwan process moved through four stages: objective, reflective, interpretive, and decision.<sup>85</sup> In the objective stage, the platform leaders—a group called gOv—researched the Uber transportation issue in detail, gathering data for the public and translating jargon so people could easily understand the issues at hand. gOv also identified and contacted relevant stakeholders with invitations to participate in the platform. vTaiwan used advertisements on Facebook and other social media platforms to encourage people to join the conversation.

The goal of the reflective stage was to crowdsource ideas and gather public opinion. Using Pol.is software, users voted on suggestions made by others or contributed their own ideas. In four weeks, 4,500 people participated in this process with regard to the Uber issue. Using the visual map showing the areas of agreement and disagreement of the pro- and anti-Uber camps, gOv was able to draft six recommendations with which 80 percent of people agreed and move on to the interpretive stage.

In this third stage, vTaiwan invited experts from industry and academia, active online users, and representatives from government, Uber, and the taxi companies to a two-hour, in-person public meeting. The group used data from the Pol.is survey to develop proposals for Taiwanese Parliament. The public was allowed to livestream the conversation and contribute through online chat rooms and digital whiteboards that could be fed back into the meeting. At least 1,800 people watched the event or participated remotely.

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<sup>79</sup> Martin King, “Building Consensus and Compromise on Uber in Taiwan,” Centre for Public Impact, September 18, 2019, <https://www.centreforpublicimpact.org/case-study/building-consensus-compromise-uber-taiwan/>.

<sup>80</sup> Anson Au, “The Sunflower Movement and the Taiwanese National Identity: Building an Anti-Sinoist Civic Nationalism,” *Berkeley Journal of Sociology*, April 27, 2017, <http://berkeleyjournal.org/2017/04/the-sunflower-movement-and-the-taiwanese-national-identity-building-an-anti-sinoist-civic-nationalism/>.

<sup>81</sup> King, “Building Consensus and Compromise on Uber.”

<sup>82</sup> vTaiwan, “Where Do We Go as a Society?” <https://info.vtaiwan.tw/>.

<sup>83</sup> Liz Barry, “vTaiwan: Public Participation Methods on the Cyberpunk Frontier of Democracy,” *Civic Hall*, August 11, 2016, <https://civichall.org/civicist/vtaiwan-democracy-frontier/>.

<sup>84</sup> *ibid*

<sup>85</sup> King, “Building Consensus and Compromise on Uber.”

In the final, decision, stage, proposals were developed into a draft bill and sent to the Parliament, where all were ratified into new regulation.<sup>86</sup>

Platforms like vTaiwan and software from Pol.is appear promising—in fact, the stages through which vTaiwan moves participants mirror in many ways the stages of public judgment; participants become more deeply aware of issues, as in the *consciousness-raising* stage, then share opinions and deliberate, as in *working through*, and, finally, they move toward decisions, or *resolution*. vTaiwan's approach to partnering with social media networking sites to attract participants could be used to build more synergy between large social media platforms and participatory processes.

One question posed by the example of vTaiwan is how to foster balanced participation online, which is an issue not only for Pol.is, but for all online deliberation technologies. vTaiwan appears to have worked to seek out diverse stakeholders, but a lack of oversight into who is participating and what interest groups they represent could result in the process of public judgment's becoming skewed or manipulated. Of course, these issues of participation apply to other forms of civic engagement, as well, from voting to advocacy. They do not negate the promise of Pol.is and similar efforts to contribute to public judgment and meaningful civic participation via digital technology.

## CONCLUSION

When we began this study, one of our key questions was whether machine learning could be applied to facilitate sounder public judgment. Our initial research suggests this is, indeed, possible, but a great deal of cross-sector conversation and work will be necessary to get us there. Clearly, this is a complicated issue without quick or easy solutions. As Duncan Watts explains,

We've never had to develop a system of governance that applies to 2 billion people across 100 different nation states. That problem has never come up in all of human history. So it's not surprising that it is difficult . . . So how do we think through that problem?<sup>87</sup>

We propose the four pathways featured in this paper as a framework for thinking through this challenge by addressing questions that include the following:

- What is the potential of “ethical design” to drive change? Is it possible to use machine-learning algorithms to optimize for democracy as well as profit? Is some sort of public service internet desirable and even necessary?
- What information do consumers need to understand the opportunities and risks of social media use? Who should share this information, and what are the most effective ways of sharing it?
- Where is self-regulation sufficient, and where do government incentives and regulation need to be put into place? What kind of incentives and regulation would be most effective?
- Can social media platforms truly encourage civil, productive discourse via AI algorithms without the presence of human moderators? How could this proposition be tested?
- To enable less destructive and more productive user experiences, are we limited to platforms that focus on local life, or can we replicate experiences like Front Porch Forum in national and global platforms?

<sup>86</sup> vTaiwan, “Where Do We Go as a Society?”

<sup>87</sup> Watts, interview.

- What research and innovation agenda is most needed to create a more democracy-friendly internet that supports rather than undermines sound public judgment and meaningful civic participation? What needs to be done to ensure the possibility that high-quality research will be done, within and outside of the tech sector?

We suspect these conversations will be most fruitful if they range across sectors and disciplines, including diverse philosophical and political perspectives and involving such stakeholders as tech industry leaders, computer and data scientists, public officials, faith and ethics leaders, scholars, and consumer and democracy advocates. These individuals need to come together and move through their own process of public judgment, sharing information, listening and testing ideas, and deliberating on ends, means, and tradeoffs. Their deliberations should be informed and influenced by a “deep dive” into the evolving views and values of the American public on these new, society-changing digital realities.<sup>88</sup>

As social media platforms increasingly gain power over the public and the government, and consumers raise questions about this power and its implications, we find ourselves at a critical juncture. It is reminiscent of journalist Edward R. Murrow’s musings about the tremendous potential of television to fight “against ignorance, intolerance, and indifference.” His words, spoken in 1958, still apply:

This instrument can teach, it can illuminate; yes, and even it can inspire. But it can do so only to the extent that humans are determined to use it to those ends. Otherwise, it’s nothing but wires and lights in a box.<sup>89</sup>

Social media platforms appear to have the potential not only to support democracy, but to strengthen it, allowing for more access to information than ever before, as well as the opportunity to engage with people with diverse perspectives whom we would never have met otherwise, from across our community, across the nation, and throughout the world. Such opportunities can provide a solid foundation for upholding the sound public judgment essential to strong democracy. But to capitalize on this moment, we need thoughtful consideration and collaborative action, and we need it soon.

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<sup>88</sup> For a recent discussion on how to help the public develop sound judgment on emerging tech issues, see Eric Gordon, “Meaning Inefficiencies: Caring for Civics in an Age of Smart Cities,” synopsis for talk at Mahindra Humanities Center, Harvard University, February 6, 2017, <http://mahindrahumanities.fas.harvard.edu/content/meaningful-inefficiencies-caring-civics-age-smart-cities>.

<sup>89</sup> Edward R. Murrow, speech, Radio, Television, Digital News Association, October 15, 1958, [https://www.rtdna.org/content/edward\\_r\\_murrow\\_s\\_1958\\_wires\\_lights\\_in\\_a\\_box\\_speech](https://www.rtdna.org/content/edward_r_murrow_s_1958_wires_lights_in_a_box_speech).



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# APPENDIX

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## About the Experts

Below are brief biographies about the individuals we interviewed to inform this work. Interviewees were selected due to their professional experience and/or research in the tech worlds, social media, and/or machine learning and algorithm development.

### **Craig Newmark**

Craig Newmark is a pioneer, philanthropist, and leading advocate of the World Wide Web. Most commonly known for founding the online classified ads service craigslist, Newmark works to connect people and drive broad civic engagement. In 2016, he founded Craig Newmark Philanthropies to advance people and grassroots organizations that are “getting stuff done” in areas that include trustworthy journalism and the information ecosystem, voter protection, women in technology, and veterans and military families. At its core, all of Newmark’s philanthropic work helps strengthen American democracy by supporting the values the country aspires to: fairness, opportunity, and respect. He lives in San Francisco and New York City and enjoys birdwatching, science fiction, and Dad jokes. Newmark travels the country speaking about the initiatives he supports, and he uses Twitter to get the word out further—and to share photos of birds.

### **John Thomas**

John Thomas is a user experience consultant at !Problem Solving International and an expert in social computing, user experience, and creative problem solving. After receiving a PhD in psychology from University of Michigan, Thomas managed a research project on the “psychology of aging” at Harvard Medical School. He joined IBM Research and helped found the field of “human–computer interaction.” He left IBM to run the artificial intelligence lab at NYNEX Science and Technology for a dozen years. He then returned to IBM to do additional research in areas such as knowledge management, the use of stories in business, and cognitive computing. In addition to his computing work, Thomas runs a lively sports blog.

### **Will Ferguson**

Will Ferguson, a technology leader involved in numerous successful startups, aims to create platforms for enlightened, fun, civil discussions. The mission of his new project called EnCiv, is to improve society with a comprehensive civic platform and a network of nonpartisan organizations. Ferguson was the original software developer and product manager of FICO’s fraud detection system, which operated with an estimated \$300M current annual revenue. He is on eight patents in machine-learning solutions, has played key roles in several startups, and is an advisor to the EU-funded *Eunomia* project for information trustworthiness in social media.

### **Adolf Gundersen**

Adolf Gundersen is research director at the Interactivity Foundation (IF) and cofounder and chief operating officer of EnCiv. As a political scientist, Gundersen has conducted field research on the efficacy and nature of public deliberation. As a political theorist, he has devoted considerable attention to developing a model of deliberation and then teasing out its implications for democratic institutions. As a policy analyst, he worked with the World Bank to develop a more participatory and environmentally friendly approach to population relocation. Gundersen has written numerous monographs and three books on deliberation, the most recent, *Let’s Talk Politics: Restoring Civility through Exploratory Discussion*, with IF fellow Sue Goodney Lea.

### **Foster Provost**

Foster Provost is a professor of information systems, Andre Meyer Faculty Fellow, and director of the Fubon Center, Data Analytics and AI, at the Stern School of Business at New York University. He is also a professor of data science and former interim director of NYU's Center for Data Science. Previously editor in chief of the journal *Machine Learning*, Provost was elected as a founding board member of the International Machine Learning Society. He stands out in data science for his substantial contributions with respect to research, business thought leadership, and practical applications. Provost won the 2009 INFORMS Design Science Award for his work on social network-based marketing systems. Previous to that, he received IBM Faculty Awards for outstanding research in data mining and machine learning.

### **Cheryl Contee**

Cheryl Contee is the award-winning chief executive officer and cofounder of Do Big Things, a digital agency that creates new narratives and new tech for a new era focused on causes and campaigns. Author of the Amazon bestseller, *Mechanical Bull: How You Can Achieve Startup Success*, Contee is also the cofounder of Fission, which helped the world's leading nonprofits and foundations design digital ecosystems that create global change. Fission helped write the early source code for Crowdtangle, a successful social enterprise startup acquired by Facebook in December 2016. Cofounder of several other startups, Contee has been listed among the Influencers 50 in *Campaigns and Elections* magazine and named as an affiliate of Harvard University's Berkman Center for Internet and Society. She was inducted into the first *The Root* 100 list of established and emerging African American leaders.

### **Eli Pariser**

A Public Interest Technology Fellow at New America, Eli Pariser has dedicated his career—as an author, an online organizer, and, most recently, a cofounder of Upworthy—to figuring out how technology can elevate important topics in the world. To date, the Upworthy community has logged more than 1.5 billion minutes of attention on topics ranging from the criminal justice system to clean energy to the adverse effects of advertising on body image. In 2011, as a senior fellow at the Roosevelt Institute, Pariser published the *New York Times* bestseller *The Filter Bubble: What the Internet Is Hiding from You*, which highlights the ways important content can get lost in the newsfeed era. The TED talk Pariser gave in 2011 based on *The Filter Bubble* has generated over 3.5 million views.

### **Micah Sifry**

Micah L. Sifry is founder and president of [Civic Hall](#), “a nonprofit center for learning, collaboration, and technology for the public good,” curator of the annual Personal Democracy Forum, and editor of *Civici*, Civic Hall's news site. From 2006 to 2016 he was a senior adviser to the Sunlight Foundation, which he helped found, and he currently serves on the boards of *Consumer Reports* and the Public Laboratory for Open Technology and Science. Sifry is the author or editor of nine books, most recently *Civic Tech in the Global South*, coedited with Tiago Peixoto (World Bank, 2017); *A Lever and a Place to Stand: How Civic Tech Can Move the World*, with Jessica McKenzie (PDM Books, 2015); *The Big Disconnect: Why the Internet Hasn't Transformed Politics (Yet)* (OR Books, 2014); and *Wikileaks and the Age of the Transparency* (OR Books, 2011).

### **Natalie (Talia) Stroud**

Natalie (Talia) Jomini Stroud (PhD, University of Pennsylvania) is the founding and current director of the Center for Media Engagement and associate professor of communication studies and journalism at the University of Texas at Austin. Her book, *Niche News: The Politics of News Choice*, explores the causes, consequences, and prevalence of partisan selective exposure—that is, the preference for likeminded political information. The book received the Outstanding Book Award from the International Communication Association and inspired the early development of the center. Stroud’s work has received several additional awards, including the Michael Pfau Outstanding Article Award from the National Communication Association, and her research has appeared in *Political Communication*, *the Journal of Communication*, and *Public Opinion Quarterly*.

### **Duncan Watts**

Duncan Watts is a Professor of Computer and Information Science, Communication, and Operations, Information and Decisions at the University of Pennsylvania. Before coming to Penn, Watts was a principal researcher at Microsoft Research (MSR) and a founding member of the MSR-NYC lab. He was also an AD White Professor at Large at Cornell University. Prior to joining MSR in 2012, he was a professor of Sociology at Columbia University, and then a principal research scientist at Yahoo! Research, where he directed the Human Social Dynamics group.

His research on social networks and collective dynamics has appeared in a wide range of journals, from *Nature*, *Science*, and *Physical Review Letters* to the *American Journal of Sociology* and *Harvard Business Review*, and has been recognized by the 2009 German Physical Society Young Scientist Award for Socio and Econophysics, the 2013 Lagrange-CRT Foundation Prize for Complexity Science, and the 2014 Everett M. Rogers Award. In 2018, he was named an inaugural fellow of the Network Science Society. Watts is the author of three books: *Six Degrees: The Science of a Connected Age* (W.W. Norton 2003), *Small Worlds: The Dynamics of Networks between Order and Randomness* (Princeton University Press 1999), and *Everything is Obvious: Once You Know The Answer* (Crown Business 2011).