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The Future of Free Speech, Trolls, Anonymity, and Fake News Online

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By Lee Rainie, Janna Anderson, and Jonathan Albright

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Many experts fear uncivil and manipulative behaviors on the Internet will persist – and maybe get worse. This will lead to a splintering of social media into AI-patrolled and regulated 'safe spaces' separated from free-for-all zones. Some worry this will hurt the open exchange of ideas and compromise privacy.

The Internet supports a global ecosystem of social interaction. Modern life revolves around the network, with its status updates, news feeds, comment chains, political advocacy, omnipresent reviews, rankings, and ratings. For its first few decades, this connected world was idealized as an unfettered civic forum: a space where disparate views, ideas, and conversations could constructively converge. Its creators were inspired by the optimism underlying Stuart Brand's WELL in 1985, Tim Berners-Lee's World Wide Web, and Electronic Frontier Foundation co-founder John Perry Barlow's 1996 Declaration of Independence of Cyberspace. They expected the Internet to create a level playing field of information sharing and communal activity among individuals, businesses, other organizations, and government actors.

Since the early 2000s, the wider diffusion of the network, the dawn of Web 2.0 and social media's increasingly influential impacts, and the maturation of strategic uses of online platforms to influence the public for economic and political gain have altered discourse. In recent years, prominent Internet analysts and the public at large have expressed increasing concerns that the content, tone, and intent of online interactions have undergone an evolution that threatens its future and theirs. Events and discussions unfolding over the past year highlight the struggles ahead. Among them:

- Respected Internet pundit John Naughton asked in *The Guardian*, "Has the Internet Become a Failed State?" and mostly answered in the affirmative.
- The U.S. Senate heard testimony on the increasingly effective use of social media for the advancement of extremist causes and there was growing attention to how social media is becoming weaponized by terrorists, creating newly effective kinds of propaganda.
- Scholars provided evidence showing that social bots were implemented in acts aimed at disrupting the 2016 U.S. presidential election. And news organizations documented how foreign trolls bombarded U.S. social media with fake news.

- A May 2016 Pew report showed that 62% of Americans get their news from social media. Farhad Manjoo of *The New York Times* argued that the "Internet Is Loosening Our Grip on the Truth. " And his colleague Thomas B. Edsall curated a lengthy list of scholarly articles after the election that painted a picture of how the Internet was jeopardizing democracy.
- 2016 was the first year that an Internet .
- Time Magazine devoted a 2016 cover story to explaining "Why We're Losing the Internet to the Culture of Hate."
- Celebrity social media mobbing intensified. One example: "Ghostbusters" actor and "Saturday Night Live" cast member Leslie Jones was publicly harassed on Twitter and had her personal website hacked.
- An industry report revealed how former Facebook workers suppressed conservative news content.
- Multiple news stories indicated that state actors and governments increased their efforts to monitor users of instant messaging and social media applications.
- The Center on the Future of War started the Weaponized Narrative Initiative.
- Many experts documented the ways in which "fake news" and online harassment might be more than social media "byproducts" because they help to drive revenue.
- #Pizzagate, a case study, revealed how disparate sets of rumors can combine to shape public discourse and, at times, potentially lead to dangerous behavior.
- Scientific American carried a nine-author analysis of the influencing of discourse by AI tools, noting, "We are being remote-controlled ever more successfully in this manner... The trend goes from programming computers to programming people... a sort of digital scepter that allows one to govern the masses efficiently without having to involve citizens in democratic processes."
- Google (with its Perspective AI), Twitter, and Facebook are experimenting with new ways to filter out or label negative or misleading discourse.
- And researchers are exploring why people troll.

To illuminate current attitudes about the potential impacts of online social interaction over the next decade, the Pew Research Center and Elon University's Imagining the Internet Center conducted a large-scale canvassing of technology experts, scholars, corporate practitioners, and government leaders. Some 1,537 responded to this effort between July 1 and August 12, 2016 (prior to the late 2016 revelations about potential manipulation of public opinion via hacking of social media). They were asked:

> ***In the next decade, will public discourse online become more or less shaped by bad actors, harassment, trolls, and an overall tone of griping, distrust, and disgust?***

In response to this question, **42%** of respondents indicated that they expect no "no major change" in online social climate in the coming decade and **39%** said they expect the online future will be "more shaped" by negative activities. Those who said they expect the Internet to be "less shaped" by harassment, trolling, and distrust were in the minority: **19%**. Respondents were asked to elaborate on how they anticipate online interaction progressing over the next decade. [See "About this canvassing of experts," on Page 29 of this report, for details about the limits of this sample.]

Participants were also asked to explain their answers in a written elaboration and asked to consider the following prompts: **1)** How do you expect social media and digital commentary will evolve in the coming decade? **2)** Do you think we will see a widespread demand for technological systems or solutions that encourage more inclusive online interactions? **3)** What do you think will happen to free speech? And **4)** What might be the consequences for anonymity and privacy?

While respondents expressed a range of opinions from deep concern to disappointment to resignation to optimism, most agreed that humanity at both its best and its worst is empowered by networked communication technologies. Some said the flame wars and strategic manipulation of the zeitgeist might just be getting started if technological and human solutions are not put in place to bolster diverse civil discourse.

A number of respondents predicted online reputation systems and much-better security and moderation solutions will become near-ubiquitous in the future, making it increasingly difficult for "bad actors" to act out disruptively. Some expressed concerns that such systems—especially those that remove the ability to participate anonymously online—will result in an altered power dynamic between government/state-level actors, the elites, and "regular" citizens.

Anonymity, a key affordance of the early Internet, is an element that many in this canvassing attributed to enabling bad behavior and facilitating "uncivil discourse" in shared online spaces. The purging of user anonymity is seen as possibly leading to a more inclusive online environment and also setting the stage for governments and dominant institutions to even more freely employ surveillance tools to monitor citizens, suppress free speech, and shape social debate.

Most experts predicted that the builders of open social spaces on global communications networks will find it difficult to support positive change in "cleaning up" the real-time exchange of information and sharing of diverse ideologies over the next decade, as millions more people around the world become connected for the first time and among the billions already online are many who compete in an arms race of sorts to hack and subvert corrective systems.

Those who believe the problems of trolling and other toxic behaviors can be solved say the cure might also be quite damaging. "One of the biggest challenges will be finding an appropriate balance between protecting anonymity and enforcing consequences for the abusive behavior that has been allowed to characterize online discussions for far too long," explained expert respondent **Bailey Poland**, author of *Haters: Harassment, Abuse, and Violence Online*. The majority in this canvassing were sympathetic to those abused or misled in the current online environment while expressing concerns that the most likely solutions will allow governments and big businesses to employ surveillance systems that monitor citizens, suppress free speech, and shape discourse via algorithms, allowing those who write the algorithms to shape civil debate.

Susan Etlinger, an industry analyst at Altimeter, walked through a future scenario of tit-for-tat, action-reaction that ends in what she calls a "Potemkin Internet." She wrote: "In the next several years we will see an increase in the type and volume of bad behavior online, mostly because there will be a corresponding increase in digital activity…. Cyber attacks, doxing, and trolling will continue, while social platforms, security experts, ethicists, and others will wrangle over the best ways to balance security and privacy, freedom of speech, and user protections. A great deal of this will happen in public view. The more worrisome possibility is that privacy and safety advocates, in an effort to create a more safe and equal Internet, will push bad actors into more-hidden channels such as Tor. Of course, this is already happening, just out of sight of most of us. The worst outcome is that we end up with a kind of Potemkin Internet in which everything looks reasonably bright and sunny, which hides a more troubling and less transparent reality."

One other point of context for this non-representative sample of a particular population: While the question we posed was not necessarily aimed at getting people's views about the role of political material in online social spaces, it inevitably drew commentary along those lines because this survey was fielded in the midst of a bitter, intense election in the United States where one of the candidates, in particular, was a provocative user of Twitter.

Most participants in this canvassing wrote detailed elaborations explaining their positions. Their well-considered comments provide insights about hopeful and concerning trends. They were allowed to respond anonymously, and many chose to do so. These findings do not represent all points of view possible, but they do reveal a wide range of striking observations. Respondents collectively articulated four "key themes" that are introduced and briefly explained in the 22-page section following below and then expanded upon in more-detailed sections that begin on Page 33 of this report.

Four major themes about the future of the online social climate

Theme 1 **Things will stay bad because to troll is human; anonymity abets anti-social behavior; inequities drive at least some inflammatory dialogue; and the growing scale and complexity of internet discourse makes this difficult to defeat**

- Trolls have been with us since the dawn of time; there will always be some incivility
- Trolling and other destructive behaviors often result because people do not recognize or don't care about the consequences that might flow from those actions
- Inequities drive at least some of the inflammatory dialogue
- The ever-expanding scale of internet discourse and its accelerating complexity make it difficult to deal with problematic content and contributors

Theme 2 **Things will stay bad because tangible and intangible economic and political incentives support trolling. Participation = power and profits**

- "Hate, anxiety, and anger drive participation," which equals profits and power, so online social platforms and mainstream media support and even promote uncivil acts
- Technology companies have little incentive to rein in uncivil discourse, and traditional news organizations –which used to shape discussions – have shrunk in importance
- Terrorists and other political actors are benefiting from the weaponization of online narratives by implementing human- and bot-based misinformation and persuasion tactics

Theme 3 **Things will get better because technical and human solutions will arise as the online world splinters into segmented, controlled social zones with the help of artificial intelligence (AI)**

- AI sentiment analysis and other tools will detect inappropriate behavior and many trolls will be caught in the filter; human oversight by moderators might catch others
- There will be partitioning, exclusion and division of online outlets, social platforms and open spaces
- Trolls and other actors will fight back, innovating around any barriers they face

Theme 4 **Oversight and community moderation come with a cost. Some solutions could further change the nature of the internet because surveillance will rise; the state may regulate debate; and these changes will polarize people and limit access to information and free speech**

- Surveillance will become even more prevalent
- Dealing with hostile behavior and addressing violence and hate speech will become the responsibility of the state instead of the platform or service providers
- Polarization will occur due to the compartmentalization of ideologies
- Increased monitoring, regulation and enforcement will shape content to such an extent that the public will not gain access to important information and possibly lose free speech

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The following section presents a brief overview of the most evident themes extracted from the written responses, including a small selection of representative quotes supporting each point. Some responses are lightly edited for style or due to length.

Theme 1: Things will stay bad because to troll is human; anonymity abets anti-social behavior; inequities drive at least some of the inflammatory dialogue; and the growing scale and complexity of Internet discourse makes this difficult to defeat

While some respondents saw issues with uncivil behavior online on somewhat of a plateau at the time of this canvassing in the summer of 2016 and a few expect solutions will cut hate speech, misinformation, and manipulation, the vast majority shared at least some concerns that things could get worse, thus two of the four overarching themes of this report start with the phrase "Things will stay bad."

A number of expert respondents observed that negative online discourse is just the latest example of the many ways humans have exercised social vitriol for millennia. **Jerry Michalski**, founder at REX, wrote, "I would very much love to believe that discourse will improve over the next decade, but I fear the forces making it worse haven't played out at all yet. After all, it took us almost 70 years to mandate seatbelts. And we're not uniformly wise about how to conduct dependable online conversations, never mind debates on difficult subjects. In that long arc of history that bends toward justice, particularly given our accelerated times, I do think we figure this out. But not within the decade."

Vint Cerf, Internet Hall of Fame member, Google vice president, and co-inventor of the Internet Protocol, summarized some of the harmful effects of disruptive discourse:

"The Internet is threatened with fragmentation," he wrote…."People feel free to make unsupported claims, assertions, and accusations in online media…. As things now stand, people are attracted to forums that align with their thinking, leading to an echo effect. This self-reinforcement has some of the elements of mob (flash-crowd) behavior. Bad behavior is somehow condoned because 'everyone' is doing it…. It is hard to see where this phenomenon may be heading…. Social media bring every bad event to our attention, making us feel as if they all happened in our back yards—leading to an overall sense of unease. The combination of bias-reinforcing enclaves and global access to bad actions seems like a toxic mix. It is not clear whether there is a way to counter-balance their socially harmful effects."

Subtheme: Trolls have been with us since the dawn of time; there will always be some incivility

An **anonymous respondent** commented, "The tone of discourse online is dictated by fundamental human psychology and will not easily be changed." This statement reflects the attitude of expert Internet technologists, researchers, and pundits, most of whom agree that it is the people using the network, not the network, that is the root of the problem.

Paul Jones, clinical professor and director of ibiblio.org at the University of North Carolina, commented, "The id unbound from the monitoring and control by the superego is both the originator of communication and the nemesis of understanding and civility."

John Cato, a senior software engineer, wrote, "Trolling for arguments has been an Internet tradition since Usenet. Some services may be able to mitigate the problem slightly by forcing people to use their real identities, but wherever you have anonymity you will have people who are there just to make other people angry."

And an anonymous **software engineer** explained why the usual level of human incivility has been magnified by the Internet, noting, "The individual's voice has a much higher perceived value than it has in the past. As a result, there are more people who will complain online in an attempt to get attention, sympathy, or retribution."

Subtheme: Trolling and other destructive behaviors often result because people do not recognize or don't care about the consequences flowing from their online actions

Michael Kleeman, formerly with Boston Consulting, Arthur D. Little, and Sprint, now senior fellow at the Institute on Global Conflict and Cooperation at the University of California-San Diego, explained: "Historically, communities of practice and conversation had other, often physical, linkages that created norms of behavior. And actors would normally be identified, not anonymous. Increased anonymity coupled with an increase in less-than-informed input, with no responsibility by the actors, has tended and will continue to create less open and honest conversations and more one-sided and negative activities."

An expert **respondent who chose not to be identified** commented, "People are snarky and awful online in large part because they can be anonymous." And another such **respondent** wrote, "Trolls now know that their methods are effective and carry only minimal chance of social stigma and essentially no other punishment. If Gamergate can harass and dox any woman with an opinion and experience no punishment as a result, how can things get better?"

Anonymously, **a professor at MIT** commented, "We see a dark current of people who equate free speech with the right to say anything, even hate speech, even speech that does not sync with respected research findings. They find in unmediated technology a place where their opinions can have a multiplier effect, where *they* become the elites."

Subtheme: Inequities drive at least some of the inflammatory dialogue

Some leading participants in this canvassing said the tone of discourse will worsen in the next decade due to inequities and prejudice, noting wealth disparity and the hollowing out of the middle class and homophily (the tendency of people to bond with those similar to themselves and thus also at times to shun those seen as "the other").

Cory Doctorow, writer, computer science activist-in-residence at MIT Media Lab and co-owner of Boing Boing, offered a bleak assessment, writing, "Thomas Piketty, etc., have correctly predicted that we are in an era of greater social instability created by greater wealth disparity which can only be solved through either the wealthy collectively opting for a redistributive solution (which feels unlikely) or everyone else compelling redistribution (which feels messy, unstable, and potentially violent). The Internet is the natural battleground for whatever breaking point we reach to play out, and it's also a useful surveillance, control, and propaganda tool for monied people hoping to forestall a redistributive future. The Chinese Internet playbook—the 50c army, masses of astroturfers, libel campaigns against 'enemies of the state,' paranoid war-on-terror rhetoric—has become the playbook of all states, to some extent (see, e.g., the HB Gary leak that revealed U.S. Air Force was putting out procurement tenders for 'persona management' software that allowed their operatives to control up to 20 distinct online identities, each). That will create even more inflammatory dialogue, flamewars, polarized debates, etc."

And an anonymous **professor at MIT** remarked, "Traditional elites have lost their credibility because they have become associated with income inequality and social injustice…. This dynamic has to shift before online life can play a livelier part in the life of the polity. I believe that it will, but slowly."

Axel Bruns, a professor at the Queensland University of Technology's Digital Media Research Centre, said, "Unfortunately, I see the present prevalence of trolling as an expression of a broader societal trend across many developed nations, towards belligerent factionalism in public debate, with particular attacks directed at women as well as ethnic, religious, and sexual minorities."

Subtheme: The ever-expanding scale of Internet discourse and its accelerating complexity make it difficult to deal with problematic content and contributors

As billions more people are connected online and technologies such as AI chatbots, the Internet of Things, and virtual and augmented reality mature, complexity is always on the rise. Some respondents said well-intentioned attempts to raise the level of discourse are less likely to succeed in a rapidly changing and widening information environment.

Matt Hamblen, senior editor at Computerworld, commented, "[By 2026] social media and other forms of discourse will include all kinds of actors who had no voice in the past; these include terrorists, critics of all kinds of products and art forms, amateur political pundits, and more."

An **anonymous respondent** wrote, "Bad actors will have means to do more, and more significant bad actors will be automated as bots are funded in extra-statial ways to do more damage—because people are profiting from this."

Jessica Vitak, an assistant professor at the University of Maryland, commented, "Social media's affordances, including increased visibility and persistence of content, amplify the volume of negative commentary. As more people get Internet access—and especially smartphones, which allow people to connect 24/7—there will be increased opportunities for bad behavior."

Bryan Alexander, president of Bryan Alexander Consulting, added, "The number of venues will rise with the expansion of the Internet of Things and when consumer-production tools become available for virtual and mixed reality."

Theme 2: Things will stay bad because tangible and intangible economic and political incentives support trolling. Participation = profits and power

Many respondents said power dynamics push trolling along. The business model of social media platforms is driven by advertising revenues generated by engaged platform users. The more raucous and incendiary the material, at times, the more income a site generates. The more contentious a political conflict is, the more likely it is to be an attention-getter. Online forums lend themselves to ever-more hostile arguments. [1]

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[1] A recent Pew Research Center analysis of communications by members of the 114th Congress found that the public engagement with the social media postings of these lawmakers was most intense when the citations were negative, angry and resentful.

Subtheme: 'Hate, anxiety, and anger' drive up participation, which equals profits and power, so online social platforms and mainstream media support and even promote uncivil acts

Frank Pasquale, professor of law at the University of Maryland and author of *Black Box Society,* commented, "The major Internet platforms are driven by a profit motive. Very often, hate, anxiety, and anger drive participation with the platform. Whatever behavior increases ad revenue will not only be permitted, but encouraged, excepting of course some egregious cases."

Kate Crawford, a well-known Internet researcher studying how people engage with networked technologies, observed, "Distrust and trolling is happening at the highest levels of political debate, and the lowest. The Overton Window has been widened considerably by the 2016 U.S. presidential campaign, and not in a good way. We have heard presidential candidates speak of banning Muslims from entering the country, asking foreign powers to hack former White House officials, retweeting neo-Nazis. Trolling is a mainstream form of political discourse."

Andrew Nachison, founder at We Media, said, "It's a brawl, a forum for rage and outrage. It's also dominated social media platforms on the one hand and content producers on the other that collude and optimize for quantity over quality. Facebook adjusts its algorithm to provide a kind of quality—relevance for individuals. But that's really a ruse to optimize for quantity. The more we come back, the more money they make off of ads and data about us. So the shouting match goes on. I don't know that prevalence of harassment and 'bad actors' will change—it's already bad—but if the overall tone is lousy, if the culture tilts negative, if political leaders popularize hate, then there's good reason to think all of that will dominate the digital debate as well."

Subtheme: Technology companies have little incentive to rein in uncivil discourse, and traditional news organizations—which used to shape discussions—have shrunk in importance

Several of the expert respondents said because algorithmic solutions tend "to reward that which keeps us agitated," it is especially damaging that the pre-Internet news organizations that once employed fairly objective and well-trained (if not well-paid) armies of arbiters of taste as democratic shapers of the defining climate of social and political discourse have fallen out of favor, replaced by creators of clickbait headlines read and shared by short-attention-span social sharers.

David Clark, a senior research scientist at MIT and Internet Hall of Famer commented that he worries over the loss of character in the Internet community. "It is possible, with attention to the details of design that lead to good social behavior, to produce applications that better regulate

negative behavior," he wrote. "However, it is not clear what actor has the motivation to design and introduce such tools. The application space on the Internet today is shaped by large commercial actors, and their goals are profit-seeking, not the creation of a better commons. I do not see tools for public discourse being good 'money makers,' so we are coming to a fork in the road—either a new class of actor emerges with a different set of motivations, one that is prepared to build and sustain a new generation of tools, or I fear the overall character of discourse will decline."

An anonymous **principal security consultant** wrote, "As long as success—and in the current climate, profit as a common proxy for success—is determined by metrics that can be easily improved by throwing users under the bus, places that run public areas online will continue to do just that."

Steven Waldman, founder and CEO of LifePosts, said, "It certainly sounds noble to say the Internet has democratized public opinion. But it's now clear: It has given voice to those who had been voiceless because they were oppressed minorities _and_ to those who were voiceless because they are crackpots… It may not necessarily be 'bad actors'—i.e., racists, misogynists, etc.—who win the day, but I do fear it will be the more strident. I suspect there will be ventures geared toward counter-programming against this, since many people are uncomfortable with it. But venture-backed tech companies have a huge bias toward algorithmic solutions that have tended to reward that which keeps us agitated. Very few media companies now have staff dedicated to guiding conversations online."

John Anderson, director of journalism and media studies at Brooklyn College, wrote, "The continuing diminution of what Cass Sunstein once called ['general-interest intermediaries'](#) such as newspapers, network television, etc., means we have reached a point in our society where wildly different versions of 'reality' can be chosen and customized by people to fit their existing ideological and other biases. In such an environment there is little hope for collaborative dialogue and consensus."

David Durant, a business analyst at UK Government Digital Service, argued, "It is in the interest of the paid-for media and most political groups to continue to encourage 'echo-chamber' thinking and to consider pragmatism and compromise as things to be discouraged. While this trend continues, the ability for serious civilized conversations about many topics will remain very hard to achieve."

Subtheme: Terrorists and other political actors are benefiting from the weaponization of online narratives implementing human- and bot-based misinformation and persuasion tactics

The weaponization of social media and "capture" of online belief systems, also known as "narratives," emerged from obscurity in 2016 due to the perceived impact of social media uses by terror organizations and political factions. Accusations of Russian influence via social media on the U.S. presidential election brought to public view the ways in which strategists of all stripes are endeavoring to influence people through the sharing of often false or misleading stories, photos, and videos. "Fake news" moved to the forefront of ongoing discussions about the displacement of traditional media by social platforms. Earlier, in the summer of 2016, participants in this canvassing submitted concerns about misinformation in online discourse creating distorted views.

Anonymously, **a futurist, writer, and author at *Wired***, explained, "New levels of 'cyberspace sovereignty' and heavy-duty state and non-state actors are involved; there's money, power, and geopolitical stability at stake now, it's not a mere matter of personal grumpiness from trolls."

Karen Blackmore, a lecturer in IT at the University of Newcastle, wrote, "Misinformation and anti-social networking are degrading our ability to debate and engage in online discourse. When opinions based on misinformation are given the same weight as those of experts and propelled to create online activity, we tread a dangerous path. Online social behaviour, without community-imposed guidelines, is subject to many potentially negative forces. In particular, social online communities such as Facebook also function as marketing tools where sensationalism is widely employed, and community members who view this dialogue as their news source, gain a very distorted view of current events and community views on issues. This is exacerbated with social network and search engine algorithms effectively sorting what people see to reinforce worldviews."

Laurent Schüpbach, a neuropsychologist at University Hospital in Zurich, Switzerland, focused his entire response about negative tone online on burgeoning acts of economic and political manipulation, writing, "The reason it will probably get worse is that companies and governments are starting to realise that they can influence people's opinions that way. And these entities sure know how to circumvent any protection in place. Russian troll armies are a good example of something that will become more and more common in the future."

David Wuertele, a software engineer at Tesla Motors, commented, "Unfortunately, most people are easily manipulated by fear…. Negative activities on the Internet will exploit those fears, and disproportionate responses will also attempt to exploit those fears. Soon, everyone will have to take off their shoes and endure a cavity search before boarding the Internet."

Theme 3: Things will get better because technical and human solutions will arise as the online world splinters into segmented, controlled social zones with the help of Artificial Intelligence (AI)

Most respondents said it is likely that the coming decade will see a widespread move to more-secure services, applications, and platforms and more-robust user-identification policies. Some said people born into the social media age will adapt. Some predict that more online systems will require clear identification of participants. This means that the online social forums could splinter into various formats, some of which are highly protected and monitored, and others of which could retain the free-for-all character of today's platforms.

Subtheme: AI sentiment analysis and other tools will detect inappropriate behavior, and many trolls will be caught in the filter; human moderation might catch others

Some experts in this canvassing say progress is already being made on some fronts toward better technological and human solutions.

Galen Hunt, a research manager at Microsoft Research NExT, replied, "As language-processing technology develops, technology will help us identify and remove bad actors, harassment, and trolls from accredited public discourse."

Stowe Boyd, chief researcher at Gigaom, observed, "I anticipate that AIs will be developed that will rapidly decrease the impact of trolls. Free speech will remain possible, although AI filtering will make a major dent on how views are expressed, and hate speech will be blocked."

Marina Gorbis, executive director at the Institute for the Future, added, "I expect we will develop more social bots and algorithmic filters that would weed out the some of the trolls and hateful speech. I expect we will create bots that would promote beneficial connections and potentially insert context-specific data/facts/stories that would benefit more positive discourse. Of course, any filters and algorithms will create issues around what is being filtered out and what values are embedded in algorithms."

Jean Russell of Thrivable Futures wrote, "First, conversations can have better containers that filter for real people who consistently act with decency. Second, software is getting better and more nuanced in sentiment analysis, making it easier for software to augment our filtering out of trolls. Third, we are at peak identity crisis and a new wave of people want to cross the gap in dialogue to connect with others before the consequences of being tribal get worse (Brexit, Trump, etc.)."

David Karger, a professor of computer science at MIT, said, "My own research group is exploring several novel directions in digital commentary. In the not too distant future all this work will yield results. Trolling, doxxing, echo chambers, click-bait, and other problems can be solved. We will be able to ascribe sources and track provenance in order to increase the accuracy and trustworthiness of information online. We will create tools that increase people's awareness of opinions differing from their own, and support conversations with and learning from people who hold those opinions.... The future Web will give people much better ways to control the information that they receive, which will ultimately make problems like trolling manageable (trolls will be able to say what they want, but few will be listening)."

Subtheme: There will be partitioning, exclusion, and division of online outlets, social platforms, and open spaces

Facebook, Twitter, Instagram, Google, and other platform providers already "shape" and thus limit what the public views via the implementation of algorithms, and as people have become disenchanted with uncivil discourse "open" platforms they stop using them or close their accounts, sometimes moving to smaller online communities of people with similar needs or ideologies. Some experts expect that these trends will continue and even more partitions, divisions, and exclusions may emerge, as measures are taken to clean things up. For instance, it is expected that the capabilities of AI-based bots dispatched to assist with information sorting, security, and the regulation of the tone and content of discourse will continue to be refined.

Lindsay Kenzig, a senior design researcher, said, "Technology will mediate who and what we see online more and more, so that we are drawn more toward communities with similar interests than those who are dissimilar. There will still be some places where you can find those with whom to argue, but they will be more concentrated into only a few locations than they are now."

Valerie Bock, of VCB Consulting, commented, "Spaces where people must post under their real names, and where they interact with people with whom they have multiple bonds, regularly have a higher quality of discourse.... In response to this reality, we'll see some consolidation as it becomes easier to shape commercial interactive spaces to the desired audience. There will be free-for-all spaces and more-tightly-moderated walled gardens, depending on the sponsor's strategic goals. There will also be private spaces maintained by individuals and groups for specific purposes."

Lisa Heinz, a doctoral student at Ohio University, commented, "Humanity's reaction to negative forces will likely contribute more to the ever-narrowing filter bubble, which will continue to create an online environment that lacks inclusivity by its exclusion of opposing viewpoints. An increased demand for systemic Internet-based AI will create bots that will begin to interact—as proxies for

the humans that train them—with humans online in real-time and with what would be recognized as conversational language, not the word-parroting bot behavior we see on Twitter now…. When this happens, we will see bots become part of the [filter bubble](#) phenomenon as a sort of mental bodyguard that prevents an intrusion of people and conversations to which individuals want no part. The unfortunate aspect of this iteration of the filter bubble means that while free speech itself will not be affected, people will project their voices into the chasm, but few will hear them."

Bob Frankston, Internet pioneer and software innovator, wrote, "I see negative activities having an effect but the effect will likely be from communities that shield themselves from the larger world. We're still working out how to form and scale communities."

The expert comments in response to this canvassing were recorded in the summer of 2016; by early 2017, after many events (Brexit, the U.S. election, others mentioned earlier in this report) surfaced concerns about civil discourse, misinformation, and impacts on democracy, an acceleration of activity tied to solutions emerged. Facebook, Twitter, and Google announced some new efforts toward technological approaches, many conversations about creating new methods of support for public affairs journalism began to be undertaken, and consumer bubble-busting tools including "[Outside Your Bubble](#)" and "[Escape Your Bubble](#)" were introduced.

Subtheme: Trolls and other actors will fight back, innovating around any barriers they face

Some participants in this canvassing said they expect the already-existing continuous arms race dynamic will expand, as some people create and apply new measures to ride herd over online discourse while others constantly endeavor to thwart them.

Cathy Davidson, founding director of the Futures Initiative at the Graduate Center of the City University of New York, said, "We're in a spy vs. spy Internet world where the faster that hackers and trolls attack, the faster companies (Mozilla, thank you!) plus for-profits come up with ways to protect against them and then the hackers develop new strategies against those protections, and so it goes. I don't see that ending…. I would not be surprised at more publicity in the future, as a form of cyber-terror. That's different from trolls, more geo-politically orchestrated to force a national or multinational response. That is terrifying if we do not have sound, smart, calm leadership."

Sam Anderson, coordinator of instructional design at the University of Massachusetts-Amherst, said, "It will be an arms race between companies and communities that begin to realize (as some online games companies like Riot have) that toxic online communities will lower their long-term viability and potential for growth. This will war with incentives for short-term gains that can arise

out of bursts of angry or sectarian activity (Twitter's character limit inhibits nuance, which increases reaction and response)."

Theme 4: Oversight and community moderation come with a cost. Some 'solutions' could further change the nature of the Internet because surveillance will rise; the state may regulate debate; and these changes will polarize people and limit access to information and free speech

A share of respondents said greater regulation of speech and technological solutions to curb harassment and trolling will result in more surveillance, censorship, and cloistered communities. They worry this will change people's sharing behaviors online, limit exposure to diverse ideas, and challenge freedom.

Subtheme: Pervasive surveillance will become even more prevalent

While several respondents indicated that there is no longer a chance of anonymity online, many say privacy and choice are still options and they should be protected.

Longtime Internet civil libertarian **Richard Stallman**, Internet Hall of Fame member and president of the Free Software Foundation, spoke to this fear. He predicted, "Surveillance and censorship will become more systematic, even in supposedly free countries such as the U.S. Terrorism and harassment by trolls will be presented as the excuses, but the effect will be dangerous for democracy."

Rebecca MacKinnon, director of Ranking Digital Rights at New America, wrote, "I'm very concerned about the future of free speech given current trends. The demands for governments and companies to censor and monitor Internet users are coming from an increasingly diverse set of actors with very legitimate concerns about safety and security, as well as concerns about whether civil discourse is becoming so poisoned as to make rational governance based on actual facts impossible. I'm increasingly inclined to think that the solutions, if they ever come about, will be human/social/political/cultural and not technical."

James Kalin of Virtually Green wrote, "Surveillance capitalism is increasingly grabbing and mining data on everything that anyone says, does, or buys online. The growing use of machine learning processing of the data will drive ever more subtle and pervasive manipulation of our purchasing, politics, cultural attributes, and general behavior. On top of this, the data is being stolen routinely by bad actors who will also be using machine learning processing to steal or destroy things we value as individuals: our identities, privacy, money, reputations, property,

elections, you name it. I see a backlash brewing, with people abandoning public forums and social network sites, in favor of intensely private 'black' forums and networks."

Subtheme: Dealing with hostile behavior and addressing violence and hate speech will become the responsibility of the state instead of the platform or service providers

A number of respondents said they expect governments or other authorities will begin implementing regulation or other reforms to address these issues, most indicating that the competitive instincts of platform providers do not work in favor of the implementation of appropriate remedies without some incentive.

Michael Rogers, author and futurist at Practical Futurist, predicted governments will assume control over identifying Internet users. He observed, "I expect there will be a move toward firm identities—even legal identities issued by nations—for most users of the Web. There will as a result be public discussion forums in which it is impossible to be anonymous. There would still be anonymity available, just as there is in the real world today. But there would be online activities in which anonymity was not permitted. Clearly this could have negative free-speech impacts in totalitarian countries but, again, there would still be alternatives for anonymity."

Paula Hooper Mayhew, a professor of humanities at Fairleigh Dickinson University, commented, "My fear is that because of the virtually unlimited opportunities for negative use of social media globally we will experience a rising worldwide demand for restrictive regulation. This response may work against support of free speech in the U.S."

Marc Rotenberg, executive director of the Electronic Privacy Information Center (EPIC), wrote, "The regulation of online communications is a natural response to the identification of real problems, the maturing of the industry, and the increasing expertise of government regulators."

Subtheme: Polarization will occur due to the compartmentalization of ideologies

John Markoff, senior writer at the New York Times, commented, "There is growing evidence that that the Net is a polarizing force in the world. I don't believe to completely understand the dynamic, but my surmise is that it is actually building more walls than it is tearing down."

Marcus Foth, a professor at Queensland University of Technology, said, "Public discourse online will become less shaped by bad actors…. because the majority of interactions will take place inside walled gardens…. Social media platforms hosted by corporations such as Facebook and Twitter use algorithms to filter, select, and curate content. With less anonymity and less diversity, the two

biggest problems of the Web 1.0 era have been solved from a commercial perspective: fewer trolls who can hide behind anonymity. Yet, what are we losing in the process? Algorithmic culture creates filter bubbles, which risk an opinion polarisation inside echo chambers."

Emily Shaw, a U.S. civic technologies researcher for mySociety, predicted, "Since social networks…. are the most likely future direction for public discourse, a million (self)-walled gardens are more likely to be the outcome than is an increase in hostility, because that's what's more commercially profitable."

Subtheme: Increased monitoring, regulation, and enforcement will shape content to such an extent that the public will not gain access to important information and possibly lose free speech

Experts predict increased oversight and surveillance, left unchecked, could lead to dominant institutions and actors using their power to suppress alternative news sources, censor ideas, track individuals, and selectively block network access. This, in turn, could mean publics might never know what they are missing out on, since information will be filtered, removed, or concealed.

Thorlaug Agustsdottir of Iceland's Pirate Party, said, "Monitoring is and will be a massive problem, with increased government control and abuse. The fairness and freedom of the Internet's early days are gone. Now it's run by big data, Big Brother, and big profits. Anonymity is a myth, it only exists for end-users who lack lookup resources."

Joe McNamee, executive director at European Digital Rights, said, "In the context of a political environment where deregulation has reached the status of ideology, it is easy for governments to demand that social media companies do 'more' to regulate everything that happens online. We see this with the European Union's 'code of conduct' with social media companies. This privatisation of regulation of free speech (in a context of huge, disproportionate, asymmetrical power due to the data stored and the financial reserves of such companies) raises existential questions for the functioning of healthy democracies."

Randy Bush, Internet Hall of Fame member and research fellow at Internet Initiative Japan, wrote, "Between troll attacks, chilling effects of government surveillance and censorship, etc., the Internet is becoming narrower every day."

Dan York, senior content strategist at the Internet Society, wrote, "Unfortunately, we are in for a period where the negative activities may outshine the positive activities until new social norms can develop that push back against the negativity. It is far too easy right now for anyone to launch a

large-scale public negative attack on someone through social media and other channels—and often to do so anonymously (or hiding behind bogus names). This then can be picked up by others and spread. The 'mob mentality' can be easily fed, and there is little fact-checking or source-checking these days before people spread information and links through social media. I think this will cause some governments to want to step in to protect citizens and thereby potentially endanger both free speech and privacy."

Responses from additional key experts regarding the future of online social climate

This section features responses by several more of the many top analysts who participated in this canvassing. Following this wide-ranging set of comments on the topic, a much-more expansive set of quotations directly tied to the set of four themes begins on Page 33.

'We'll see more bad before good because the governing culture is weak and will remain so'

Baratunde Thurston, a director's Fellow at MIT Media Lab, Fast Company columnist, and former digital director of The Onion, replied, "To quote everyone ever, things will get worse before they get better. We've built a system in which access and connectivity are easy, the cost of publishing is near zero, and accountability and consequences for bad action are difficult to impose or toothless when they do. Plus consider that more people are getting online everyday with no norm-setting for their behavior and the systems that prevail now reward attention-grabbing and extended time online. They reward emotional investment whether positive or negative. They reward conflict. So we'll see more bad before more good because the governing culture is weak and will remain so while the financial models backing these platforms remains largely ad-based and rapid/scaled user growth-centric."

We should reach 'peak troll' before long but there are concerns for free speech

Brad Templeton, one of the early luminaries of Usenet and longtime Electronic Frontier Foundation board member, currently chair for computing at Singularity University, commented, "Now that everybody knows about this problem I expect active technological efforts to reduce the efforts of the trolls, and we should reach 'peak troll' before long. There are concerns for free speech. My hope is that pseudonymous reputation systems might protect privacy while doing this."

'People will find it tougher to avoid accountability'

Esther Dyson, founder of EDventure Holdings and technology entrepreneur, writer, and influencer, wrote: "Things will get somewhat better because people will find it tougher to avoid accountability. Reputations will follow you more than they do now…. There will also be clever services like CivilComments.com (disclosure: I'm an investor) that foster crowdsourced moderation rather than censorship of comments. That approach, whether by CivilComments or future competitors, will help. (So would sender-pays, recipient-charges email, a business I would *like* to invest in!) Nonetheless, anonymity is an important right—and freedom of speech with impunity (except for actual harm, yada yada)—is similarly important. Anonymity should be discouraged in general, but it is necessary in regimes or cultures or simply situations where the truth is avoided and truth-speakers are punished."

Chatbots can help, but we need to make sure they don't encode hate

Amy Webb, futurist and CEO at the Future Today Institute, said, "Right now, many technology-focused companies are working on 'conversational computing,' and the goal is to create a seamless interface between humans and machines. If you have young child, she can be expected to talk to—rather than type on—machines for the rest of her life. In the coming decade, you will have more and more conversations with operating systems, and especially with chatbots, which are programmed to listen to, learn from and react to us. You will encounter bots first throughout social media, and during the next decade, they will become pervasive digital assistants helping you on many of the systems you use. Currently, there is no case law governing the free speech of a chatbot. During the 2016 election cycle, there were numerous examples of bots being used for political purposes. For example, there were thousands of bots created to mimic Latino/ Latina voters supporting Donald Trump. If someone tweeted a disparaging remark about Trump and Latinos, bots that looked and sounded like members of the Latino community would target that person with tweets supporting Trump. Right now, many of the chatbots we interact with on social media and various websites aren't so smart. But with improvements in artificial intelligence and machine learning, that will change. Without a dramatic change in how training databases are built and how our bots are programmed, we will realize a decade from now that we inadvertently encoded structural racism, homophobia, sexism, and xenophobia into the bots helping to power our everyday lives. When chatbots start running amok—targeting individuals with hate speech—how will we define 'speech'? At the moment, our legal system isn't planning for a future in which we must consider the free speech infringements of bots."

A trend toward decentralization and distributed problem solving will improve things

Doc Searls, journalist, speaker, and director of Project VRM at Harvard University's Berkman Center for Internet and Society, wrote: "Harassment, trolling… these things thrive with distance,

which favors the reptile brains in us all, making bad acting more possible and common….Let's face it, objectifying, vilifying, fearing, and fighting The Other has always been a problem for our species…. The Internet we share today was only born on 30 April 1995, when the last backbone that forbade commercial activity stood down. Since then we have barely begun to understand, much less civilize, this new place without space…. I believe we are at the far end of this swing toward centralization on the Net. As individuals and distributed solutions to problems (e.g., blockchain [a digital ledger in which transactions are recorded chronologically and publicly]) gain more power and usage, we will see many more distributed solutions to fundamental social and business issues, such as how we treat each other."

There are designs and tech advances 'that would help tremendously'

Judith Donath of Harvard University's Berkman Center, author of *The Social Machine: Designs for Living Online*, wrote, "With the current practices and interfaces, yes, trolls and bots will dominate online public discourse. But that need not be the case: there are designs and technological advances that would help tremendously. We need systems that support pseudonymity: locally persistent identities. Persistence provides accountability: people are responsible for their words. Locality protects privacy: people can participate in discussions without concern that their government, employer, insurance company, marketers, etc., are listening in (so If they are, they cannot connect the pseudonymous discourse to the actual person). We should have digital portraits that succinctly depict a (possibly pseudonymous) person's history of interactions and reputation within a community. We need to be able to quickly see who is new, who is well-regarded, what role a person has played in past discussions. A few places do so now (e.g., StackExchange) but their basic charts are far from the goal: intuitive and expressive portrayals. 'Bad actors' and trolls (and spammers, harassers, etc.) have no place in most discussions—the tools we need for them are filters; we need to develop better algorithms for detecting destructive actions as defined by the local community. Beyond that, the more socially complex question is how to facilitate constructive discussions among people who disagree. Here, we need to rethink the structure of online discourse. The role of discussion host/ moderator is poorly supported by current tech—and many discussions would proceed much better in a model other than the current linear free for all. Our face-to-face interactions have amazing subtlety—we can encourage or dissuade with slight changes in gaze, facial expression, etc. We need to create tools for conversation hosts (think of your role when you post something on your own Facebook page that sparks controversy) that help them to gracefully steer conversations."

The 'reward systems favor outrage-mongering and attention-seeking almost exclusively'

Seth Finkelstein, writer and pioneering computer programmer, believes the worst is yet to come: "One of the less-examined aspects of the 2016 U.S. presidential election is that Donald

Trump is demonstrating to other politicians how to effectively exploit such an environment. He wasn't the first to do it, by far. But he's showing how very high-profile, powerful people can adapt and apply such strategies to social media. Basically, we're moving out of the 'early adopter' phase of online polarization, into making it mainstream. The phrasing of this question conflates two different issues. It uses a framework akin to 'Will our kingdom be more or less threatened by brigands, theft, monsters, and an overall atmosphere of discontent, strife, and misery?' The first part leads one to think of malicious motives, and thus to attribute the problems of the second part along the lines of outside agitators afflicting peaceful townsfolk. Of course deliberate troublemakers exist. Yet many of the worst excesses come from people who believe in their own minds that they are not bad actors at all, but are fighting a good fight for all which is right and true (indeed, in many cases, both sides of a conflict can believe this, and where you stand depends on where you sit). When reward systems favor outrage-mongering and attention-seeking almost exclusively, nothing is going to be solved by inveighing against supposed moral degenerates."

Some bad behavior is 'pent-up' speech from those who have been voiceless

Jeff Jarvis, a professor at the City University of New York Graduate School of Journalism, wrote, "I am an optimist with faith in humanity. We will see whether my optimism is misplaced. I believe we are seeing the release of a pressure valve (or perhaps an explosion) of pent-up speech: the 'masses' who for so long could not be heard can now speak, revealing their own interests, needs, and frustrations—their own identities distinct from the false media concept of the mass. Yes, it's starting out ugly. But I hope that we will develop norms around civilized discourse. Oh, yes, there will always be … trolls. What we need is an expectation that it is destructive to civil discourse to encourage them. Yes, it might have seemed fun to watch the show of angry fights. It might seem fun to media to watch institutions like the Republican Party implode. But it soon becomes evident that this is no fun. A desire and demand for civil, intelligent, useful discourse will return; no society or market can live on misinformation and emotion alone. Or that is my hope. How long will this take? It could be years. It could be a generation. It could be, God help us, never."

Was the idea of 'reasoned discourse' ever reasonable?

Mike Roberts, Internet Hall of Fame member and first president and CEO of ICANN, observed, "Most attempts at reasoned discourse on topics interesting to me have been disrupted by trolls in last decade or so. Many individuals faced with this harassment simply withdraw…. There is a somewhat broader question of whether expectations of 'reasoned' discourse were ever realistic. History of this, going back to Plato, is one of self-selection into congenial groups. The Internet, among other things, has energized a variety of anti-social behaviors by people who get satisfaction from the attendant publicity. My wife's reaction is 'why are you surprised?' in regard to seeing behavior online that already exists offline."

Our disembodied online identity compels us to 'ramp up the emotional content'

Barry Chudakov, founder and principal at Sertain Research and StreamFuzion Corp., wrote, "In the next decade a number of factors in public discourse online will continue to converge and vigorously affect each other:

1) Nowness is the ultimate arbiter: the value of our discourse (everything we see or hear) will be weighted by how immediate or instantly seen and communicated the information is. Real-time search, geolocation, just-in-time updates, Twitter, etc., are making of now, the present moment, an all-subsuming reality that tends to bypass anything that isn't hyper-current.

2) Faceless selfism rocks: With photos and video, we can present ourselves dimensionally, but due to the lack of 'facework' in the online sim, our faces are absent or frozen in a framed portrait found elsewhere, and so there is no face-to-face, no dynamic interactivity, no responsive reading to our commentary, except in a follow-up comment. Still, we will get better at using public discourse as self-promotion.

"3) Anonymity changes us: identity-shielding leads to a different set of 'manners' or mannerisms that stem from our sense (not accurate, of course) that online we are anonymous.

4) Context AWOL: Our present 'filter failure,' to borrow Clay Shirky's phrase, is almost complete lack of context, reality check, or perspective. In the next decade we will start building better contextual frameworks for information.

5) Volume formula: the volume of content, from all quarters—anyone with a keypad, a device—makes it difficult to manage responses, or even to filter for relevance but tends to favor emotional button-pushing in order to be noticed.

"6) Ersatz us: Online identities will be more made-up, more fictional, but also more malleable than typical 'facework' or other human interactions. We can pretend, for a while, to be an ersatz version of ourselves.

7) Any retort in a (tweet) storm: Again, given the lack of 'facework' or immediate facial response that defined human response for millennia, we will ramp up the emotional content of messaging to ensure some kind of response, frequently rewarding the brash and outrageous over the slow and thoughtful."

We will get better at articulating and enforcing helpful norms

David Weinberger, senior researcher at the Harvard Berkman Klein Center for Internet & Society, said, "Conversations are always shaped by norms and what the environment enables. For example, seating 100 dinner guests at one long table will shape the conversations differently than putting them at ten tables of ten, or 25 tables of four. The acoustics of the room will shape the conversations. Assigning seats or not will shape the conversations. Even serving wine instead of

beer may shape the conversations. The same considerations are even more important on the Net because its global nature means that we have fewer shared norms, and its digital nature means that we have far more room to play with ways of bringing people together. We're getting much better at nudging conversations into useful interchanges. I believe we will continue to get better at it."

Anonymity is on its way out, and that will discourage trolling

Patrick Tucker, author of *The Naked Future* and technology editor at Defense One, said, "Today's negative online user environment is supported and furthered by two trends that are unlikely to last into the next decade: anonymity in posting and validation from self-identified subgroups. Increasingly, marketers need to better identify and authentication APIs (authentication through Facebook for example) are challenging online anonymity. The passing of anonymity will also shift the cost benefit analysis of writing or posting something to appeal to only a self-identified bully group rather than a broad spectrum of people."

Polarization breeds incivility and that is reflected in the incivility of online discourse

Alice Marwick, a fellow at Data & Society, commented, "Currently, online discourse is becoming more polarized and thus more extreme, mirroring the overall separation of people with differing viewpoints in the larger U.S. population. Simultaneously, several of the major social media players have been unwilling or slow to take action to curb organized harassment. Finally, the marketplace of online attention encourages so-called 'clickbait' articles and sensationalized news items that often contain misinformation or disinformation, or simply lack rigorous fact-checking. Without structural changes in both how social media sites respond to conflict, and the economic incentives for spreading inaccurate or sensational information, extremism and therefore conflict will continue. More importantly, the geographical and psychological segmentation of the U.S. population into 'red' and 'blue' neighborhoods, communities, and states is unlikely to change. It is the latter that gives rise to overall political polarization, which is reflected in the incivility of online discourse."

'New variations of digital malfeasance [will] arise'

Jamais Cascio, distinguished fellow at the Institute for the Future, replied, "I don't expect a significant shift in the tone of online discourse over the next decade. Trolling, harassment, etc., will remain commonplace, but not be the overwhelming majority of discourse. We'll see repeated efforts to clamp down on bad online behavior through both tools and norms; some of these efforts will be (or seem) successful, even as new variations of digital malfeasance arise."

It will get better and worse

Anil Dash, technologist, wrote, "I expect the negative influences on social media to get worse, and the positive factors to get better. Networks will try to respond to prevent the worst abuses, but new sites and apps will pop up that repeat the same mistakes."

Sites will ban the 'unvouched anonymous'; look for the rise of 'registered pseudonyms'

David Brin, author of *The Transparent Society* and a leader of at the University of California-San Diego's Arthur C. Clarke Center for Human Imagination, said, "Some company will get rich by offering registered pseudonyms, so that individuals may wander the Web 'anonymously' and yet vouched-for and accountable for bad behavior. When this happens, almost all legitimate sites will ban the unvouched anonymous."

Back around 20 BC, Horace understood these problems

Fred Baker, fellow at Cisco Systems, commented, "Communications in any medium (the Internet being but one example) reflects the people communicating. If those people use profane language, are misogynistic, judge people on irrelevant factors such as race, gender, creed, or other such factors in other parts of their lives, they will do so in any medium of communication, including the Internet. If that is increasing in prevalence in one medium, I expect that it is or will in any and every medium over time. The issue isn't the Internet; it is the process of breakdown in the social fabric.… If we worry about the youth of our age 'going to the dogs,' are we so different from our ancestors? In *Book III of Odes*, circa 20 BC, Horace wrote: 'Our sires' age was worse than our grandsires. We, their sons, are more worthless than they; so in our turn we shall give the world a progeny yet more corrupt.' I think the human race is not doomed, not today any more than in Horace's day. But we have the opportunity to choose to lead them to more noble pursuits, and more noble discussion of them."

'Every node in our networked world is potentially vulnerable'

Mike Liebhold, senior researcher and distinguished fellow at the Institute for the Future, wrote, "After Snowden's revelations, and in context accelerating cybercrimes and cyberwars it's clear that every layer of the technology stack and every node in our networked world is potentially vulnerable. Meanwhile both magnitude and frequency of exploits are accelerating. As a result users will continue to modify their behaviors and Internet usage and designers of Internet services, systems, and technologies will have to expend growing time and expense on personal and collective security."

Politicians and companies could engage 'in an increasing amount of censorship'

Jillian York, director for international freedom of expression at the Electronic Frontier Foundation, noted, "The struggle we're facing is a societal issue we have to address at all levels, and that the structure of social media platforms can exacerbate. Social media companies will need to address this, beyond community policing and algorithmic shaping of our newsfeeds. There are many ways to do this while avoiding censorship; for instance, better-individualized blocking tools and upvote/downvote measures can add nuance to discussions. I worry that if we don't address the root causes of our current public discourse, politicians and companies will engage in an increasing amount of censorship."

Sophisiticated mathematical equations are having social effects

An **anonymous professor at City University of New York**, wrote, "I see the space of public discourse as managed in new, more-sophisticated ways, and also in more brutal ones. Thus we have social media management in Mexico courtesy of Peñabots, hacking by groups that are quasi-governmental or serving nationalist interests (one thinks of Eastern Europe). Alexander Kluge once said, 'The public sphere is the site where struggles are decided by other means than war.' We are seeing an expanded participation in the public sphere, and that will continue. It doesn't necessarily mean an expansion of democracy, per se. In fact, a lot of these conflicts are cross-border. In general the discussions will stay ahead of official politics in the sense that there will be increasing options for participation. In a way this suggests new kinds of regionalisms, intriguing at a time when the European Union is taking a hit and trade pacts are undergoing re-examination. This type of participation also means opening up new arenas, e.g., Facebook has been accused of left bias in its algorithm. That means we are acknowledging the role of what are essentially sophisticated mathematical equations as having social effects."

The flip side of retaining privacy: Pervasive derogatory and ugly comments

Bernardo A. Huberman, senior fellow and director of the Mechanisms and Design Lab at Hewlett Packard Enterprise, said, "Privacy as we tend to think of nowadays is going to be further eroded, if only because of the ease with which one can collect data and identify people. Free speech, if construed as the freedom to say whatever one thinks, will continue to exist and even flourish, but the flip side will be a number of derogatory and ugly comments that will become more pervasive as time goes on."

Much of 'public online discourse consists of what we and others don't see'

Stephen Downes, researcher at National Research Council, Canada, noted, "It's important to understand that our perception of public discourse is shaped by two major sources: first, our own experience of online public discourse, and second, media reports (sometimes also online)

concerning the nature of public discourse. From both sources we have evidence that there is a lot of influence from bad actors, harassment, trolls, and an overall tone of griping, distrust, and disgust, as suggested in the question. But a great deal of public online discourse consists of what we and others don't see."

How about a movement to teach people to behave?

Marcel Bullinga, trendwatcher and keynote speaker @futurecheck, wrote, "Online we express hate and disgust we would never express offline, face-to-face. It seems that social control is lacking online. We do not confront our neighbours/children/friends with antisocial behaviour. The problem is not [only] anonymous bullying: many bullies have faces and are shameless, and they have communities that encourage bullying. And government subsidies stimulate them—the most frightening aspect of all. We will see the rise of the social robots, technological tools that can help us act as polite, decent social beings (like the REthink app). But more than that we need to go back to teaching and experiencing morals in business and education: back to behaving socially."

About this canvassing of experts

The expert predictions reported here about the impact of the Internet over the next 10 years came in response to one of eight questions asked by Pew Research Center and Elon University's Imagining the Internet Center in an online canvassing conducted between July 1 and Aug. 12, 2016. This is the seventh Internet study the two organizations have conducted together. For this project, we invited nearly 8,000 experts and members of the interested public to share their opinions on the likely future of the Internet, and 1,537 responded to at least one of the questions we asked. Some 728 of them gave answers to the follow-up question asking them to elaborate on their answers about the future of online discourse:

> *In the next decade, will public discourse online become more or less shaped by bad actors, harassment, trolls, and an overall tone of griping, distrust, and disgust?*

The answer options were:

- Online communication becomes **more** shaped by negative activities
- Online communications becomes **less** shaped by negative activities
- I expect **no major change** in the tone of online interaction

Then we asked:

> *Please also consider addressing these issues in your response. You do not have to consider any of these. We have added them because we hope they might prompt your thinking on important related issues: How do you expect social media and digital commentary will evolve in the coming decade? Do you think we will see a widespread demand for technological systems or solutions that encourage more inclusive online interactions? What do you think will happen to free speech?*

Some 39% of these respondents opted for the prediction that online activity would be more shaped by negative activities, while 19% predicted online communication would become less shaped by negative activities. Some 41% chose the option that they expect no major tone in online interaction.

The web-based instrument was first sent directly to a list of targeted experts identified and accumulated by Pew Research and Elon University during the previous six "Future of the Internet" studies, as well as those identified across 12 years of studying the Internet realm during its

formative years. Among those invited were people who are active in global Internet governance and Internet research activities, such as the Internet Engineering Task Force (IETF), Internet Corporation for Assigned Names and Numbers (ICANN), Internet Society (ISOC), International Telecommunications Union (ITU), Association of Internet Researchers (AoIR), and the Organization for Economic Cooperation and Development (OECD). We also invited a large number of professionals and policy people from technology businesses; government, including the National Science Foundation, Federal Communications Commission and European Union; think tanks and interest networks (for instance, those that include professionals and academics in anthropology, sociology, psychology, law, political science and communications); globally located people working with communications technologies in government positions; technologists and innovators; top universities' engineering/computer science, business/entrepreneurship faculty and graduate students and postgraduate researchers; plus many who are active in civil society organizations such as Association for Progressive Communications (APC), Electronic Privacy Information Center (EPIC), Electronic Frontier Foundation (EFF) and Access Now; and those affiliated with newly emerging nonprofits and other research units examining ethics and the digital age. Invitees were encouraged to share the survey link with others they believed would have an interest in participating, thus there was a "snowball" effect as the invitees were joined by those they invited to weigh in.

Since the data are based on a non-random sample, the results are not projectable to any population other than the individuals expressing their points of view in this sample. *The respondents' remarks reflect their personal positions and are not the positions of their employers; the descriptions of their leadership roles help identify their background and the locus of their expertise.* About 80% of respondents identified themselves as being based in North America; the others hail from all corners of the world. When asked about their "primary area of Internet interest," 25% identified themselves as research scientists; 7% as entrepreneurs or business leaders; 8% as authors, editors or journalists; 14% as technology developers or administrators; 10% as advocates or activist users; 9% as futurists or consultants; 2% as legislators, politicians or lawyers; and 2% as pioneers or originators; an additional 25% specified their primary area of interest as "other."

More than half of the expert respondents elected to remain anonymous. Because people's level of expertise is an important element of their participation in the conversation, anonymous respondents were given the opportunity to share a description of their Internet expertise or background, and this was noted where relevant in this report.

Here are *some* of the key respondents in this report:

Robert Atkinson, president of the Information Technology and Innovation Foundation; **Fred Baker**, fellow at Cisco Systems; **danah boyd**, founder of Data & Society; **Stowe Boyd**, chief researcher at Gigaom; **Marcel Bullinga**, trend watcher and keynote speaker; **Randy Bush**, Internet Hall of Fame member and research fellow at Internet Initiative Japan; **Jamais Cascio**, distinguished fellow at the Institute for the Future; **Barry Chudakov**, founder and principal at Sertain Research and StreamFuzion Corp.; **David Clark**, Internet Hall of Fame member and senior research scientist at MIT; **Cindy Cohn**, executive director at the Electronic Frontier Foundation; **Anil Dash**, technologist; **Cathy Davidson**, founding director of the Futures Initiative at the Graduate Center of the City University of New York; **Cory Doctorow**, writer, computer science activist-in-residence at MIT Media Lab and co-owner of Boing Boing; **Judith Donath**, Harvard University's Berkman Klein Center for Internet & Society; **Stephen Downes**, researcher at the National Research Council of Canada; **Bob Frankston,** Internet pioneer and software innovator; **Oscar Gandy**, emeritus professor of communication at the University of Pennsylvania; **Marina Gorbis**, executive director at the Institute for the Future; **Jeff Jarvis**, a professor at the City University of New York Graduate School of Journalism**; Jon Lebkowsky**, CEO of Polycot Associates; **Peter Levine**, professor and associate dean for research at Tisch College of Civic Life; **Mike Liebhold**, senior researcher and distinguished fellow at the Institute for the Future; **Rebecca MacKinnon**, director of Ranking Digital Rights at New America Foundation; **John Markoff**, author of *Machines of Loving Grace: The Quest for Common Ground Between Humans and Robots* and senior writer at The New York Times; **Jerry Michalski**, founder at REX; **Andrew Nachison**, founder at We Media; **Frank Pasquale**, author of *The Black Box Society: The Secret Algorithms That Control Money and Information* and professor of law at the University of Maryland; **Demian Perry**, director of mobile at NPR; **Justin Reich**, executive director at the MIT Teaching Systems Lab; **Mike Roberts**, Internet Hall of Fame member and first president and CEO of ICANN; **Michael Rogers**, author and futurist at Practical Futurist; **Marc Rotenberg**, executive director of the Electronic Privacy Information Center; **David Sarokin**, author of *Missed Information: Better Information for Building a Wealthier, More Sustainable Future*; **Henning Schulzrinne**, Internet Hall of Fame member and professor at Columbia University; **Doc Searls**, journalist, speaker, and director of Project VRM at Harvard University's Berkman Klein Center for Internet & Society; **Ben Shneiderman**, professor of computer science at the University of Maryland; **Richard Stallman**, Internet Hall of Fame member and president of the Free Software Foundation; **Brad Templeton**, chair for computing at Singularity University; **Baratunde Thurston**, a Director's Fellow at MIT Media Lab, Fast Company columnist, and former digital director of The Onion; **Patrick Tucker**, author and technology editor at Defense One; **Steven Waldman**, founder and CEO of LifePosts; **Jim Warren**, longtime technology entrepreneur and activist; **Amy Webb**, futurist and CEO at the Future Today Institute; and **David Weinberger**, senior researcher at the Harvard Berkman Klein Center for Internet & Society.

Here is a selection of some of the institutions at which respondents work or have affiliations:

AAI Foresight, Access Now, Adobe, Altimeter, The Aspen Institute, AT&T, Booz Allen Hamilton, California Institute of Technology, Carnegie Mellon University, Center for Digital Education, Center for Policy on Emerging Technologies, Cisco, Computerworld, Craigslist, Cyber Conflict Studies Association, Cyborgology, DareDistrupt, Data & Society, Digital Economy Research Center, Digital Rights Watch, dotTBA, Electronic Frontier Foundation, Electronic Privacy Information Center, Ethics Research Group, European Digital Rights, Farpoint Group, Federal Communications Commission, Flipboard, Free Software Foundation, Future of Humanity Institute, Future of Privacy Forum, Futurewei, Gartner, Genentech, George Washington University, Georgia Tech, Gigaom, Gilder Publishing, Google, Groupon, Hack the Hood, Harvard University's Berkman Klein Center for Internet & Society, Hewlett Packard, Human Rights Watch, IBM, InformationWeek, Innovation Watch, Institute for Ethics and Emerging Technologies, Institute for the Future, Institute of the Information Society, Intelligent Community Forum, International Association of Privacy Professionals, Internet Corporation for Assigned Names and Numbers, Internet Education Foundation, Internet Engineering Task Force, Internet Initiative Japan, Internet Society, Jet Propulsion Laboratory, Karlsruhe Institute, Kenya ICT Network, KMP Global, The Linux Foundation, Lockheed Martin, Logic Technology, MediaPost, Michigan State University, Michigan State University, Microsoft, MIT, Mozilla, NASA, National Institute of Standards and Technology, National Public Radio, National Science Foundation, Neustar, New America, New Jersey Institute of Technology, The New York Times, Nokia, Nonprofit Technology Network, NYU, OpenMedia, Oxford University's Martin School, Philosophy Talk, Privacy International, Queensland University of Technology, Raytheon BBN, Red Hat, Rensselaer Polytechnic Institute, Rice University Humanities Research Center, Rochester Institute of Technology, Rose-Hulman Institute of Technology, Semantic Studios, Singularity University, Social Media Research Foundation, Spacetel, Square, Stanford University Digital Civil Society Lab, Syracuse University, Tech Networks of Boston, Telecommunities Canada, Tesla Motors, U.S. Department of Defense, U.S. Ignite, UCLA, UK Government Digital Service, Unisys, United Steelworkers, University of California-Berkeley, University of California-Irvine, University of California-Santa Barbara, University of Copenhagen, University of Michigan, University of Milan, University of Pennsylvania, University of Toronto, Vodaphone, We Media, Wired, Worcester Polytechnic Institute, Yale University, York University.

Complete sets of for-credit and anonymous responses to the question can be found here:

http://www.elon.edu/e-web/imagining/surveys/2016_survey/social_future_of_the_Internet.xhtml
http://www.elon.edu/e-web/imagining/surveys/2016_survey/social_future_of_the_Internet_credit.xhtml
http://www.elon.edu/e-web/imagining/surveys/2016_survey/social_future_of_the_Internet_anon.xhtml

More details: A fuller examination of the key points

Theme 1: Things will stay bad, Part I

Respondents to this canvassing were very focused on human nature and the special character of online interactions. They offered a series of ideas along these lines: **To troll is human; anonymity abets anti-social behavior; inequities are motivating inflammatory dialogue; and the growing scale and complexity of Internet discourse makes this difficult to overcome**

Trolls are the Internet's primary bad social actors. Due in part to the focus of this question, many of the respondents in this canvassing generalized most socially disruptive activities including harassment, threats, hate speech, "flaming," "griefing," and "doxing" under the umbrella terms "troll" and "trolling."

Many pointed out that negative behaviors online are encouraged by actors' lack of physical proximity and said they are mostly empowered by a lack of attribution, or anonymity.

While there is likely no way to quantify the percentage of "positive" discourse as compared with the "negative" online, it is quite possible that the socially beneficial declarations and conversations being carried on really outweigh those that are not. So why do experts perceive the tone of online social discourse to be troubling? Bad actors and propaganda pushers are motivated to command center stage—in fact they crave it and they generally get it—and their actions can create states of fear, mistrust, polarization, anger, withdrawal that cause significant damage.

At the time of this canvassing, the summer of 2016, a vast majority of respondents expressed opinions ranging from disappointment to deep concern about the social climate of the Internet.

- Those among the 42% in this canvassing who said they "expect no major change" in online tone by 2026 generally see the state of online discourse to be raising important challenges and they expressed worries in their written elaborations.

- The 19% who said they expect the Internet will be "*less* shaped" by bad actors by 2026 said things are bad now but they expressed confidence in technological and human solutions.

- And the 39% who said they expect the future to be "more shaped" by negative activities had little hope for effective solutions.

Trolls have been with us since the dawn of time; there will always be some incivility

Many respondents observed that prickly and manipulative behaviors are a fundamental part of human nature due to group identification and intercultural conflict. They added that the particular affordances of the Internet make trolling especially potent.

David Krieger, director of the Institute for Communication & Leadership at IKF in Lucerne, Switzerland, said, "Trolls we will always have with us. Despite everything, they serve the useful purpose of challenging and improving the evolution of the social immune system. The pressure for more transparency and authenticity that comes with increasing connectivity and flow of information will tend to make life more difficult for the trolls…. Privacy will yield to 'publicy' in knowledge economy of abundance…. What we need is Network Publicy Governance instead of market individualism and bureaucratic hierarchies."

Jim Warren, Internet pioneer and longtime technology entrepreneur and activist, wrote, "It seems clear—at least in the U.S.—that 'bad actors,' children of all ages who have never been effectively taught civility and cooperation, are becoming more and more free to 'enjoy' sharing the worst of their 'social' leanings."

Jan Schaffer, executive director at J-Lab, commented, "I expect digital public discourse to skew more negative for several reasons, including: the polarization of the country, which is a barrier to civil discourse; the rise of websites, Twitter accounts, and Facebook pages dedicated to portraying an opponent in a bad light; and the awful online trolling and harassment of women who are active in social media. I do not think things will get better on their own."

Simon Gottschalk, a sociology professor at the University of Nevada, Las Vegas, wrote, "Public discourse online seems to have been hurled into a negative spiral (witness Donald Trump's tweets as the most grotesque example of this trend)."

An **anonymous** respondent said, "Human nature has not much changed over the past 2,000 years; I don't expect much change over the next 10."

Daniel Menasce, professor of computer science at George Mason University, said, "While social media and digital commentary have some very positive aspects, they also serve as tools for the dissemination of lies, propaganda, and hatred. It is possible that technological solutions may be developed to assign crowdsourced reputation values for what is posted online. This, in my opinion, will not stop people from consuming and re-posting information of low value provided it conforms with their way of thinking."

An **anonymous** respondent remarked, "Trolls online are trolls in real life. It's just the person you are. The Internet has provided closet trolls an outlet."

Paul Edwards, professor of information and history at the University of Michigan, commented, "Social media will continue to generate increasingly contentious, angry, mob-like behavior. The phenomenon that underlies this behavior has been consistently observed since the early days of email, so there is no reason to think that some new technique or technology will change that. Mediated interaction tends to disinhibit people's expression of strong opinions, use of inappropriate language, and so on. It also makes it easier to misunderstand others' tone. Emoticons have at least given a means of indicating the intended tone. Fact-checking sites have also helped to control the spread of rumors, but not very much. The very rapid interaction cycle on social media causes it to be governed by 'fast' thinking (see Daniel Kahneman's *Thinking Fast and Slow*), which is intuitive, reactive, and often emotionally based. For this reason, social media discourage long-form arguments and long, complex exchanges of nuanced views."

Paul Jones, clinical professor and director of ibiblio.org at the University of North Carolina, briefly quoted earlier, had a fuller comment: "The id unbound from the monitoring and control by the superego is both the originator of communication and the nemesis of understanding and civility. As we saw in *Forbidden Planet*, the power of the id is difficult to subdue if not impossible. Technologies of online discourse will continue to battle with the id, giving us, most recently, Yik Yak (id-freeing) and comment control systems like Disqus (id-controlling). Like civility in all contexts, controlling the id is more social and personal in the end. Technologies will nonetheless attempt to augment civility—and to circumvent it."

The comment by **Dean Landsman**, digital strategist and executive director of PDEC (Personal Data Ecosystem Consortium), represents the experts' who expect online tone to improve despite the state of affairs today. He wrote, "With each new communications medium comes fear, loathing, abuse, misuse, and then a calming down. Gutenberg printed a bible, and shortly thereafter the printed word represented a danger, a system used for wrongdoing…. Free speech is made possible and more freely distributed by technology. Capture (read: production) and distribution are burgeoning. The individual has more than a soapbox; he or she or they have video and streaming or 'store now and play later' with repositories in the cloud becoming cheaper by the moment."

Trolling and other destructive behaviors result from a disconnect between anonymous actions online and consequences that might result from those actions

A large share of these respondents said that the natural tendency of humans to be nasty at times to each other is especially enabled by the terms of online engagement. People are more emboldened when they can be anonymous and not ever confront those they are attacking.

An **anonymous** respondent wrote, "In any setting where there is a disconnect between speech and social consequences, whether that's a chat room, a mob, talk radio, a pulpit, whatever, a large minority of humans will be hateful. That's humans, as a species."

Robert Bell, co-founder of the Intelligent Community Forum, commented, "The nature of instantaneous online communications is to vastly amplify that which attracts or threatens us, and a very small number of actors can make a very loud noise, despite the fact that they are less than 1% of the conversation."

Tim Norton, chair of Digital Rights Watch, wrote, "Anonymity (or at least the illusion of it) feeds a negative culture of vitriol and abuse that stifles free speech online. Social media allows people to take part in a public debate that they may have not previously had access to. But alongside this an increasing culture of attack language, trolls, and abuse online has the potential to do more damage to this potential."

An anonymous respondent commented, "People are snarky and awful online in large part because they can be anonymous, or because they don't have to speak to other people face-to-face."

Andrew Walls, managing vice president at Gartner, noted, "The quality of online discourse ebbs and flows. In certain environments, trollish behavior is more noticeable, while in others trollish behavior is largely absent. Anonymity fuels a lack of accountability for some online discourse, producing, at times, an online *Lord of the Flies* (LoF) situation. LoF situations have persisted in human social groups for eons and are not created by the availability of online fora. Despite the poor behavior of some, the world of social discourse in online environments is growing in depth, diversity, and levels of participation. Free speech is readily available, but the speaker may lack the protections afforded by a close social group."

Barry Chudakov, founder and principal at Sertain Research and StreamFuzion Corp., replied, "In trolling, even challenging or calling out those who agree with you, self-presentation becomes a game of catch-me-if-you-can. What shapes our discourse? Our hidden physical state. Online our identity is disembodied, only a simulation of what we do in the physical presence of others; it is

missing our moving countenance, the mask that encounters—and counters—the world. As online discourse becomes more app-enabled, our ability to disembody ourselves will only grow more dexterous. Online, our face is absent—a snapshot at best, a line of code or address at worst. Politeness, sociologists tell us, is about 'facework'—presenting a face, saving face, smiling, reassuring, showing. But online we are disembodied; our actual faces are elsewhere. This present-yet-absent dynamic not only affects our identity, whether people can identify us behind the shield of online presentation, it also affects our speech and, ultimately, our 'performance.' Into this pool jump the hackers and mischief-makers and deadly serious manipulators who realize that they can do their work behind the shield with impunity—until they are caught or 'outed.'"

Some argued that trolling *has to* recede because it has reached its peak and resistance to trolls is growing.

Bailey Poland, author of *Haters: Harassment, Abuse, and Violence Online*, wrote, "We are close to a tipping point in terms of online dialogue. Things are likely to get much worse before they get any better, but the state of online discourse has been ugly for a very long time, and people are beginning to rally for real changes."

Chris Zwemke, a Web developer, commented, "People feel empowered to say hateful things and complain and shame those hateful things if they aren't face to face. Shaming a harasser or a troll is definitely negative noise (I don't know that it is wrong, but it is negative noise). We haven't reached peak argument yet online. Folks will continue in the next decade to speak ill of each other in either true hate or trolling. Either way, the people who visit 'public' places online will have worse content to consume. Best to avoid the comment sections for the foreseeable future. My hope is that online discussion can solve the echo chamber problem of online discourse so that people can see the other side with more clarity."

Lee McKnight, associate professor of information studies at Syracuse University, wrote, "In the year that WWE-trained Donald Trump became presidential it is hard to imagine bad actors, harassment, trolling, griping, distrust, and disgust—what we used to call flaming and then learned not to do online—becoming more plentiful and empowered worldwide than those so engaged do now."

"Although I believe the online environment today is extremely negative, I also believe this environment has reached peak negativity and it will remain at this level," replied an **anonymous** respondent.

Ryan Sweeney, director of analytics at Ignite Social Media, commented, "Online discourse is new, relative to the history of communication. The optimist in me believes we're in the worst of it right now and within a decade the kinks will have been worked out. There are a lot of tough and divisive but crucial conversations occurring online at this moment in time. People are more open with their communication. Groups that have previously had minimal access to mass communication are able to have a voice and those who previously had the microphone aren't quite sure how to react pleasantly. Technological evolution has surpassed the evolution of civil discourse. We'll catch up eventually. I hope. We are in a defining time."

"I don't think it can get worse," wrote an **anonymous r**espondent. There should be better methods to filter and block 'bad actors' in the near future."

Anonymously, a **leader of city government in a Silicon Valley community** said, "There are a number of largely unmoderated forums like NextDoor which in my city have been taken over by anti-politics—people use false identities to promote their points of view and squelch everyone else's."

Tiffany Shlain, filmmaker and founder of The Webby Awards, optimistically said, "As we connect our identity more to what we say, there will be more accountability. Since it is easier to say harsh words anonymously, the continued direction of transparency will lead to more civil discourse."

An anonymous **technology writer**, expressed a great deal of frustration, arguing, "The presence of harassment and mobs online effectively silences me from voicing opinions where they can be heard. Doxxing is dangerous to my family and neighbors, and I can't risk it. The ability for anyone anywhere to find and publicize personal information for any member of any minority group who might draw ire is incredibly, incredibly dangerous. Anonymity and privacy are already more-or-less mythical. Either we, as a society, start designing explicitly for inclusivity or we accept that only the loudest, angriest voices have a right to speak and the rest of us must listen in silence."

Inequities drive at least some of the inflammatory dialogue

Some respondents noted that "anger gets translated into trolling and other really bad behavior," and many of the participants in this canvassing noted that social and economic bifurcations or inequities are the motivation behind online angst.

Dara McHugh, a respondent who shared no additional identifying details, said, "The overall trend in society is toward greater inequality and social conflict, and this will be reflected in online discourse."

Richard Lachmann, a professor of sociology at the University at Albany, wrote, "The Internet will reflect greater conflict in most societies [in the future], as economic decline and environmental pressures lead to conflicts that will be reflected online."

Giacomo Mazzone, head of institutional relations at the European Broadcasting Union, commented, "Social media are simply the reflex of the society in which they are encapsulated. In Europe, the US and all rich countries of the world, the social media debate will worsen because in the next decade the populations there will become older and poorer. It's demography, stupid!"

"The most important issues of our time are complex, and social media does not allow for a complex discourse. Furthermore, algorithmically selected content based on our existing interests also steers us towards more ideological isolation, not openness," added an **anonymous consulting partner**.

Robin James, an associate professor of philosophy at the University of North Carolina-Charlotte, commented, "The problem with online harassment isn't a technological problem, it's a sociopolitical problem: sexism, racism, etc. These systems of domination motivate harassment online, in the street, in homes. As technology changes and adapts, so do the underlying systems of domination. So online harassment may look different in the future, but it will still exist. Sexism and racism also impact how we need to talk about free speech: the issue here isn't censorship but power inequities. The language of 'free speech' misidentifies the actual problem: punching down, people in positions of power and privilege using speech to harass and assault people in minority positions."

Axel Bruns, a professor at the Queensland University of Technology's Digital Media Research Centre, said, "Unfortunately, I see the present prevalence of trolling as an expression of a broader societal trend across many developed nations, towards belligerent factionalism in public debate, with particular attacks directed at women as well as ethnic, religious, and sexual minorities."

Annette Markham, an expert in information studies, observed, "Two factors seem relevant to mention here: Historically, new media for communication have been accompanied by large spikes in impact on forms of interaction. This tends to decline as technologies move from novel to everyday. This suggests that extreme uses tend to normalize. The second factor to add to this is that many stakeholders are responding to extreme homophily."

Masha Falkov, artist and glassblower, wrote, "Online, speech becomes more than just printed word on paper. It becomes a vector for the binding of a community. People who wish to speak hatefully against their targets—women, minorities, LGBT, etc.— seem to bind together with much more force than people who speak to defend those same targets. Hate speech online isn't the polar opposite of supportive conversation or polite discourse. It's a weapon made to cause its targets to feel fear, inadequacy, and it has real-world effects on those people, with virtually no consequences for the speaker save for disapproval for the community…. Whether limits on hate speech and abuse online are part of a larger trend toward limits on freedom of speech should be evaluated on a case-by-case basis rather than shouting an alarm that our freedoms are being eroded."

Randy Albelda, a professor of economics at the University of Massachusetts, Boston, confidently predicted, "Inequality will play out badly for online interactions. The 'haves' will not need it for their own communications and interactions but will have more power/resources to control the venues, messages, and even research on how data collected from the Internet is used (and then thrown back to us in the form of ads, etc.). The 'have-nots'—but mostly those on the bottom rungs without much mobility will be angrier and angrier. (Let's face it, Trump nor Clinton will provide short-run or long-term policies toward more equality, making people even more politically disaffected). Anger gets translated into trolling and other really bad behavior generally, but especially online."

Nicholas V. Macek, digital director at political firm, wrote, "As Internet access becomes more expansive due to the increasing affordability of smart phones, the socioeconomic gap between the world's poorest and richest members of society will unfortunately become evident in their interactions on the Web. Especially in the context of political and social movements, and civil rights, the lack of understanding between people of different backgrounds will become more pronounced."

Luis Miron, professor at Loyola University-New Orleans, wrote, "Although I am not a pessimist I am deeply worried that in the next decade, and perhaps beyond, racial and economic conflict will likely exacerbate. And social and economic inequality will widen before narrowing. Globally. My fear is that terrorism will continue to strike fear in the hearts and minds of ordinary citizens, furthering the online negativity."

Elisabeth Gee, a professor at Arizona State University, wrote, "The growing economic and social divides are creating a large number of disenfranchised people and undoubtedly they will express their frustration online, but they'll mostly be interacting with each other. Just as 'public' places like city parks have become mostly the realm of the poor, so will public online spaces. I suspect that the

real trend will be toward increasingly segmented and exclusive online interactions. We know that's already happening."

Dave Kissoondoyal, CEO of KMP Global, located in Mauritius, commented, "With the rapid change in the human environment today—be it in a social context, or professional, or even societal—people have the tendency to be stressed, frustrated, and demotivated…. People use social media to express anger, disgust, and frustration. This tendency will continue and it will expand in the next decade."

Pamela Rutledge, director of the Media Psychology Research Center, observed, "Communications are a reflection of local and global sentiment—online public discourse reflects how people feel offline. We are in a period of considerable economic and political chaos across the globe. All people instinctively seek certainty and stability to offset the fear of chaos and change. This increases tribalism and 'othering,' as people seek to make their worlds feel more stable and controllable. Media provides a means of identifying tribes and groups and these tendencies have deep evolutionary roots. The problem won't be trolls and general troublemakers—these have always been a minority. The problem is the tendency of the cacophony of negative media voices to increase the social schisms contributing to the rising anger over a world undergoing massive shifts. We are watching what happens when the audience becomes accustomed to 'having a voice' and begins to assume that being heard entitles one's opinion to dominate rather than be part of a collaborative solution."

Alan Moore, a software architect based in the U.S., framed his comment within the environment of the raucous 2016 presidential campaign, arguing, "The tone of the Internet, especially social media, is driven by people being frustrated by our system of government and especially the corporatocracy that money in politics brings. Those without the money to pay for access will vent online…. We want to be free from manipulation and coercion, from incessant tracking of our every move. As technology lures us into its comforting ease and convenience many, not all, will slowly lose whatever sense of privacy we have left."

Joshua Segall, a software engineer, said he doesn't think that technology is capable of solving many of these problems, "Online activity is already heavily shaped by negative activities and there's no reason to expect the trend to reverse. The effect is due to two broad drivers. First, the social media companies have taken a false neutral stance in which they apparently believe that technology will solve social issues as opposed to amplifying them…. Abusive activity is much more of a threat to free speech than almost any policy or action that could be taken by these companies. I think there is demand for more-inclusive systems but I don't see a pure technology play that will enable it. Abuse is already widespread, so it's unclear how much more demand there can be. The

second driver is the ongoing economic stagnation across the globe, which is increasing tension between groups and fueling a sharp rise in nationalism, racism, fascism, and violence. This will be reflected online by increased abuse and negative activity, especially on social networks. Technical solutions and social media have little control over this aspect, but the underlying forces will affect them nonetheless. I don't think this has anything to do with anonymity, privacy, or free speech. It's a reflection of society, and people will find a way to use any system to express themselves. Any systemic change would have to be more broad-based than a single company's online policies. However, there is a role for these companies to play in shaping public discourse by encouraging inclusiveness, civility, and true discussion."

Chris Kutarna, a fellow at the Oxford Martin School and author of *Age of Discovery* wrote, "Part of the context we need to understand is that unpleasant shocks are becoming more frequent and more severe in their effect. This is a consequence of rising concentrations and complexity within society, and within social and natural systems. Our global entanglement makes us more vulnerable, while also making it harder to see cause and effect and assign accountability and responsibility to the injuries we suffer. Anger and frustration are a predictable consequence, and I expect public discourse online to reflect it."

Scott McLeod, associate professor of educational leadership at University of Colorado-Denver, was optimistic that something can be done, writing, "The Internet will continue to serve as an outlet for voices to vent in ways that are both productive and necessary. Societal and political 'griping' and 'disgust' often are necessary mechanisms for fostering change. We are going to find ways to preserve anonymity where necessary but also evolve online mechanisms of trust and identity verification—including greater use of community self-moderation tools—that foster civil discourse in online communities that desire it. Yes, there will be marginalized communities of disgust but many of these will remain on the fringes, out of the mainstream. The ideas that bubble up from them and gain greater traction will represent the larger public and probably deserve some constructive attention."

An anonymous **professor of public relations** wrote about the origins of the most volatile and outspoken rage being expressed publicly in online fora arguing, "We are on a downward spiral, but I disagree that it is because of bad actors, trolls, etc. This is a time of great unrest in this country with distrust of media, academic experts, and government. The voices of anger, anxiety, and frustration are loud, and discourse by elites that these are uneducated or uninformed disgruntled citizens, contributes to the malaise and feelings of disempowerment. I continually hear, 'What the hell can the average person do?' voiced by these angry citizens as they shake their heads in disgust. This negativity will spiral out of control without leaders' recognition of the legitimacy of these concerns."

The ever-expanding scale of Internet discourse and its accelerating complexity make it difficult to deal with problematic content and contributors

Do you think online discourse seems to be increasingly contentious now? Wait until a billion more humans are connected. There are 7.5 billion people on the planet, and about 3.6 billion are Internet users today.[2] A billion more are expected to get online in the next decade or so. The expectation is that some of them are likely to be trolls or people who are motivated to manipulate others, maybe quite a few. Respondents also noted that rising layers of complexity due to the expansion of the Internet of Things and new tech like the further development of virtual- and augmented-reality will create even more new challenges.

M.E. Kabay, a professor of computer information systems at Norwich University, predicted, "As the global economy increases the number of people with modest disposable income, increasing numbers of people in developing countries around the world will use smartphones to access the Internet (or the restricted portions of the Net permitted by increasingly terrified dictatorships). We will see increasing participation in social networks, including increasing numbers of comments by new users. The widespread availability of anonymity and pseudonymity will encourage social disinhibition; without real-world consequences for intemperate remarks and trolls (attempts to provoke angry responses), the amount of negativity will increase. The numbers of new users will overwhelm the resources dedicated to monitoring and purging (some) social networks of abusive language—even today, networks such as Facebook are experiencing difficulty in taking down abusers… Perhaps we will see the development of social media sites with stringent requirements for traceable identity. These systems may have to demand evidence of real-world identity and impose strong (e.g., multifactor) authentication of identity. Even so, malefactors will continue to elude even the best of the attempts to enforce consequences for bad behavior."

Jessica Vitak, an assistant professor at the University of Maryland, commented, "Social media's affordances, including increased visibility and persistence of content, amplify the volume of negative commentary. As more people get Internet access—and especially smartphones, which allow people to connect 24/7—there will be increased opportunities for bad behavior."

An **anonymous respondent** wrote, "With more people gaining access, there will be less tolerance, counter-reactions. There will be expansion but also contestation."

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[2] To put this into context, in 1995 less than 1% of the global population was online; today about 40% of the global population has and uses Internet access. The ITU reports 81% Internet penetration in developed countries, 40% in developing countries, and 15% in least-developed countries.

Itır Akdoğan, research communication director at Istanbul Bilgi University/TESEV, commented, "My perspective is from the developing world: Turkey. Gradually, those who are less-educated start being active in social media/digital commentary. As much as it sounds democratic at first, we then observe an increase in hate speech, harassment, and trolls. Statistically, the less-educated are the majority of the population. In this sense, I can say that the future of digital commentary will *not* be more democratic."

Jon Lebkowsky, CEO of Polycot Associates, said, "With more voices in the discussion, facilitated by the Internet, negative elements have become more visible/audible in civil discourse. This could be seen as the body politic releasing toxins—and as they are released, we can deal with them and hopefully mitigate their effect."

Bryan Alexander, president of Bryan Alexander Consulting, wrote, "The negative comments will occur wherever they can, and the number of venues will rise, with the expansion of the Internet of Things and when consumer production tools become available for virtual and mixed reality. Moreover, the continued growth of gaming (where trash talk remains), the persistence of sports culture (more trash talk and testosterone), and the popularity of TV news among the over-50 population will provide powerful cultural and psychological backing for abusive expression."

Wendy M. Grossman, a science writer and author of *net.wars* wrote, "It's clear that the level of abusive attacks on sites like Twitter or those that leverage multiple sites and technologies operates at a vastly different scale than the more-confined spaces of the past."

Matt Hamblen, senior editor at Computerworld, commented, "[By 2026] social media and other forms of discourse will include all kinds of actors who had no voice in the past; these include terrorists, critics of all kinds of products and art forms, amateur political pundits, and more. Free speech will reign free but will become babble and almost incomprehensible to many listeners."

Lindsay Kenzig, a senior design researcher, said, "Given that so much of the world is so uneducated, I don't see that more-inclusive online interactions will be the norm for many years."

While some predict that adding a billion more people online might raise the level of negative discourse, one disagrees. **Christopher Mondini**, a leader for a major Internet organization, said, "Taking a global perspective, the billion Internet users who will be newly connected in the next four years will have the same initial surge of productive and valuable interactions experienced by more mature online markets a dozen years ago. This will counterbalance growing pockets of self-important and isolated pockets of griping and intolerance that we see in these mature markets."

Theme 2: Things will stay bad, Part II

Many of these respondents also cited another reason for concern about the future of the social climate online. They focused on the incentive structures of online life and argued: **Things will stay bad because tangible and intangible economic and political incentives support trolling because participation = power and profits.**

They said there are particular affordances of the Internet and commercial realities that reward bad behavior. Many noted there is money to be made and there are reputations to build in "echo chambers." Some suggested that Internet service providers and media organizations do not have a meaningful incentive to moderate activities or act as "police" on their own properties, because conflicts between users—and groups of users—typically lead to higher levels of engagement. And that produces more clicks and advertising revenue.

Additionally, respondents point to the 2016 U.S. presidential election and the UK "Brexit" as examples of the way that hyper-partisan activity and attacks on opponents on social media drive more-profitable traffic and sway public opinion.

'Hate, anxiety, and anger drive up participation,' which equals profits and power, so online social platforms and mainstream media support and even promote uncivil acts

Randy Albelda, a professor of economics at the University of Massachusetts, Boston, said, "There is a tendency for the companies with the largest Internet/social media interfaces (Facebook, Google, Twitter, etc.) to want to make more and more money. They will use the Internet to sell more things. This shapes the technology and how we use it. While there is lots of 'free choice' in what we can buy, this does not contribute to the expansion of democratic practices."

An **anonymous respondent** wrote, "I expect to see more effectively manipulative interactions to become a core part of the experience of Internet content. It is clear that many professionals involved in the design and monetization of the Internet see only another tool to influence people's behavior and have steered the infrastructure design and practical use in such a way to emphasize rather than balance out less desirable parts of our human natures. The current general professional effort to build perceptual and behavioral control into the system has too much emphasis on commercial reward and not enough on human service and is therefore negative in the whole. I would prefer a more neutral communication network."

Andrew Nachison, founder at We Media, said, "It's a brawl, a forum for rage and outrage. It's also dominated social media platforms on the one hand and content producers on the other that collude and optimize for quantity over quality. Facebook adjusts its algorithm to provide a kind of

quality—relevance for individuals. But that's really a ruse to optimize for quantity. The more we come back, the more money they make off of ads and data about us. So the shouting match goes on. I don't know that prevalence of harassment and 'bad actors' will change—it's already bad—but if the overall tone is lousy, if the culture tilts negative, if political leaders popularize hate, then there's good reason to think all of that will dominate the digital debate as well. But I want to stress one counterpoint: There's much more to digital culture than public affairs and public discourse. The Net is also intensely personal and intimate. Here, I see the opposite: friends and family focus on a much more positive discourse: humor, love, health, entertainment, and even our collective head shakes are a kind of hug, a positive expression of common interest, of bonding over the mess out there. It would be wrong to say the Net is always negative."

Dave McAllister, director at Philosophy Talk, wrote, "The ability to attempt to build up status by tearing down others will result in even more bad actors, choosing to win by volume. It is clear that the concept of the 'loudest' wins is present even now in all aspects of life in the United States, as represented by the 2016 presidential campaign."

Micah Altman, director of research at MIT Libraries, replied, "The design of current social media systems is heavily influenced by a funding model based on advertisement revenue. Consequences of this have been that these systems emphasize 'viral' communication that allows a single communicator to reach a large but interested audience, and devalue privacy, but are not designed to enable large-scale collaboration and discourse. While the advertising model remains firmly in place there have been increasing public attention to privacy, and to the potential for manipulating attitudes enabled by algorithmic curation I am optimistic. I am optimistic that in the next decade social media systems will give participants more authentic control over sharing their information, and will begin to facilitate deliberation at scale."

The numbers show that social media platforms have already become the tail that wags the dog, as the profit woes of the mainstream media old guard cause those organizations to try to shape their content and performance to fit the social media and search environments established by digital platform providers.

Dave Burstein, editor at fastnet.news, wrote, "Most dangerous is the emerging monopoly-like power of Facebook and Google to impose their own censorship norms, 100,000's of thousands of times. Ask any newsvendor about the de facto power of Facebook. This is just one reason to reduce the market dominance by making sure others can take market share, interoperability, users' ability to take their data (social graph) to new services."

Jesse Drew, a professor of cinema and digital media at the University of California-Davis, wrote, "The mass media encourages negative and hateful speech by shifting the bulk of their media coverage to hot-button click-bait."

Ansgar Koene, senior research fellow at the Horizon Digital Economy Research Institute, replied, "For the most part people online want to interact and communicate constructively, same as they do offline. The perception of the level of negativity is stronger than it really is due to a current over reporting in the media."

An **anonymous respondent** noted, "Corporate media seems to rely progressively more heavily on the attention-getting antics of bad actors, the illusion that will pass for 'public discourse' in the future will be one of trolling, offense, and extremism."

Another **anonymous respondent** said errors and bias are more abundant due to the public's move to being "informed" via social media sites, writing, "The news media have become more unreliable as social interaction sites have become more prolific. People are now getting their 'news' from both places and sharing it rapidly, but already there is a dearth of fact-checking and more often than not, what is posted is emotionally charged and usually presents only one side of a story, often with a biased opinion at that."

David Durant, a business analyst at UK Government Digital Service, argued, "It is in the interest of the paid-for media and most political groups to continue to encourage 'echo-chamber' thinking and to consider pragmatism and compromise as things to be discouraged. While this trend continues, the ability for serious civilized conversations about many topics will remain very hard to achieve."

Trevor Owens, senior program officer at the Institute of Museum and Library Services, commented, "As more and more of the public square of discourse is created, managed, and maintained on platforms completely controlled by individual companies, they will continue to lack the kind of development required to develop the kind of governance that makes communities viable and functional. Given that the handful of technology companies that increasingly control discourse are primarily run by very privileged individuals it seems very likely that those individuals will continue to create systems and platforms that are not responsive to the issues that those who are vulnerable and less privileged face on the Web."

Christopher Wilkinson, a retired senior European Union official, commented, "Online interaction is already vast, and the experience is quite mixed. Numbers will grow, but quality will

not improve. There is no indication of a will to improve; I suspect that the advertising industry likes it that way."

An **anonymous respondent** said, "One of the more corrosive aspects of contemporary discourse, both online and off, is the increasing inability of the 'marketplace' of ideas to successfully adjudicate between credible accounts, evidence, conspiratorial, and fallacious accounts. This is the result of many factors, not simply the Internet, but the way in which it has been promoted and framed. The equation of interactivity with democratization has resulted in a kind of ersatz leveling of the deliberative field, wherein expertise is dismissed as merely a ruse of power, and the fact that one's opinion can be expressed vociferously, distributed widely, in unaccountable ways has contributed to an unwillingness to accept the results of deliberation. Or rather, it has circumvented deliberation altogether, replacing it with personal, one-way broadcasting. Rather than interactivity bolstering deliberation, it has turned everyone into a broadcaster. This is a sweeping claim meant to describe a general tendency rather than all online communication. But the result is clear: the rise of Donald Trump, the circulation of the idea of 'post-truth' politics, and Brexit all point to these shifts in deliberation…. once the register of deliberation no longer works to convince or legitimate, the other available option is violence. When we cannot meaningfully discuss, when our words have little purchase on one another, when everyone is so focused on broadcasting their own ideas rather than interacting with those of others, the result is fragmentation and, ultimately, violence."

An anonymous **professor at the Georgia Institute of Technology** was one of several expert respondents to mention the looming influence of bots—"social" computer algorithms written to act human in various social online settings to argue, persuade, manipulate, elicit emotional responses and otherwise influence human actions. He wrote, "As illustrated by the Microsoft experience with the Tay chatbot, the sophistication of negative contributions to social media is increasing. Another example is Chinese Weibo, which appears to contain more bot accounts than real people. Therefore, more control is already in place. The competition between real people and bot-generated content will intensify as more monetary rewards become available to bot participation. Abuses will be amplified by bots controlled by entities that maximize non-altruistic goals."

Technology companies have little incentive to rein in uncivil discourse, and traditional news organizations—which used to shape discussions—have shrunk in importance

In many other elaborations, respondents pointed out that emboldening uncivil discourse is "business as usual" in today's online world. They said moderating online spaces to be more civil, plural, and factually accurate requires a lot of effort and has not been proven to boost profits. Traditional news organizations used to perform the function of shaping and guiding cultural

debates, but the Internet has curtailed their role and their businesses. These respondents say this has changed the information environment and had some impact.

Glenn Ricart, Internet Hall of Fame member and founder/CTO of US Ignite, replied, "The predominance of Internet tools that assume you want 'relevant' information, or information that your friends recommend, or that match your own communications, all these reinforce an 'echo chamber' Internet. Instead of seeing the wide diversity of opinion present on the Internet, you are subtly guided into only seeing and hearing the slice of the Internet featuring voices like your own. With such reinforcement, there's little social pressure to avoid negative activities. It is of great concern that we have yet to find a funding model that will replace the Fourth Estate functions of the press. This problem only exacerbates the issue of Internet communication tools featuring voices like your own. We desperately need to create interest in serious, fact-laden, truth-seeking discourse. The Internet could be, but it largely isn't, doing this."

Jason Hong, an associate professor at Carnegie Mellon University, wrote, "We've already seen the effects of trolls, harassers, and astroturfers in attacking and silencing others online, and there's very little on the horizon in terms of improving discourse. It's all too easy for bad actors to organize and flood message boards and social media with posts that drive people away. Or, to paraphrase Gresham's law, bad posts drive out the good."

Barry Chudakov, founder and principal at Sertain Research and StreamFuzion Corp., wrote, "Regarding solutions that encourage more-inclusive online interactions, there is no editorial board for public discourse online. We haven't found, or even thought up, the rules of online engagement. We've just borrowed them, mostly unconsciously, from the last place we got comfortable: our newspapers and magazines."

Joe Mandese, editor in chief of MediaPost, predicted, "Digital, not just online, communication will continue to expand, providing more platforms for all forms of public discourse, including 'negative' ones. Of course, negative is in the eye of the beholder, but since there is no regulator on the open marketplace of digital communications, it will create as much opportunity for negative discourse as anything else."

Oscar Gandy, emeritus professor of communication at the University of Pennsylvania, wrote, "I see the forces within the market, with Facebook in particular pushing us toward narrower and narrower spheres of interaction. My sense is that 'widespread demand' will be seen as re-affirming that push by social platforms."

Louisa Heinrich, founder at Superhuman Limited, observed, "Highly regarded media outlets set the tone of public discourse to a great degree—when the media we see is brash, brazen, and inflammatory, we adopt that language. I hope we will see a conscious shift in social networks to promote diversity of ideas and of thinking, and also a return to journalistic standards (i.e., factual truth as well as opinion), but I fear that will only come when we are able to come up with business models that don't depend on hyper-targeting content for advertising dollars."

Stephen J. Neveroski, a respondent who shared no additional identifying details, commented, "I increasingly see news as both condensed and homogenized. Headlines are deceptive, click-bait abounds. Mainstream media all report the same thing, differing little in the opinions they proffer instead of facts. A turnstile of sources of 'information' crop up, but they don't keep pace with our need for *relevant* information. Unfortunately I see a generalized dumbing down of the population. People on the news today couldn't even recite the first line of the Declaration of Independence. Overall we are unable to process information, let alone form a cogent argument. Our intuition, rather than being shaped by the great thinkers of civilization, has been more affected by the Kardashians, and nobody seems to care."

An **anonymous** respondent, wrote, "The amount of labor required to do effective moderation is at odds with the business model of the for-profit publishers generating the majority of content, and the traffic commenting generates benefits them in page/ad views. I can't see the current state of affairs changing as a result."

An **anonymous** respondent noted, "Mainstream platforms need to do a better job of establishing rules of the road for use of their service. They are hiding behind free speech arguments so they don't have to invest in solving hard problems. I don't think it is contrary to free speech to have standards of behavior for use of a commercial service. The major platforms are hiding behind that argument."

Ian Peter, an Internet pioneer and historian based in Australia, wrote, "The continued expansion of sale of personal data by social media platforms and browser companies is bound to expand to distasteful and perhaps criminal activities based on the availability of greater amounts of information about individuals and their relationships."

Christine Maxwell, program manager of learning technologies at the University of Texas, Dallas, said, "Recently, referring to the House Benghazi Report, Wired magazine described the beauty and the tragedy of the Internet age: 'As it becomes easier for anyone to build their own audience, it becomes harder for those audience members to separate fact from fiction from the gray area in between.' To make meaningful and actionable—contextualized—decisions today,

individuals need an unbiased knowledge discovery platform to assess information objectively. Without this becoming widely available, coupled with the ability to learn how to ask better questions I fear that online communication will indeed become more shaped by negative activities."

Tse-Sung Wu, a project portfolio manager at Genentech, wrote, "As long as there are relatively small barriers to participation and low barriers to innovation the Internet will serve as a reflection of society, both good and bad. On the one hand, you have the Internet echo chamber, which allows for extreme political or social positions to gain hold. Online communities are quite different from actual, face-to-face communities. In the former, there is no need for moderation or listening to different points of view; if you don't like what you're reading, you can leave; there is no loyalty. In an actual community where one lives, one is more likely to compromise, more likely to see differing viewpoints."

An **anonymous respondent** wrote, "Social media is driven by novelty. Large amounts of 'content' are quickly consumed, generate chatter, and then disappear. They are loaded with click-bait and spam. I question the lasting impact this media can truly have. Identity politics appear to be creating rigid tribes of believers, and big data is biased to locking people into boxes defined by their past preferences. I am skeptical there will be more-inclusive online interactions. Lots of communities are appearing online for casual interests and hobbies. This is a great thing, but how much farther can it go?"

Legacy print media such as newspapers and magazines traditionally published a limited and tightly edited set of public comments. When they went digital—a form that allowed for unlimited responses to be filed instantly by the public—it opened the floodgates for vitriol as well as well-considered and thoughtful discourse. While there is some agreement that "comments" sections online facilitate an abundance of negative discourse, there is less consensus on whether the current trend of disabling comment sections entirely—to preempt trolling and other "negative noise," including the public harassment of journalists, celebrities, politicians, and content creators—is a productive strategy.

Richard Forno, a senior lecturer in computer science and electrical engineering at the University of Maryland-Baltimore County, commented, "Online interactions are already pretty horrid—just look at the tone of many news site comment sections…. or the number of sites that simply remove user feedback/forum sections altogether."

Henning Schulzrinne, a professor at Columbia University and Internet Hall of Fame member predicted that, in future, "There may be a segregation into different types of public discourse…. it

seems likely that many newspapers will have to resort to human filtering or get rid of comment sections altogether. Twitter will remain unfiltered, but become more of a niche activity. Facebook is more likely to develop mechanisms where comments can be filtered, or people will learn to ignore comments on all but personal messages. (Recent announcements by Facebook about selecting fewer news stories are an indirect indicator. Heated debates about gun control don't mix well with pictures of puppies.)"

Leah Stokes, an assistant professor at the University of California-Santa Barbara, wrote, "I am hopeful that online discourse will become more regulated over time, and less anonymous. The New York Times comment section—where people have to register, can up-vote, and be flagged in a positive way by editors—leads to a mature, interesting dialogue. Without this semi-moderated atmosphere, many newspaper comments devolve."

Anonymously, **an IT manager** commented, "The comment section for news and blog sites has become a sounding chamber for insults and spurious attacks, and the ready availability of any number of hate-filled lies that would normally be ignored by the mainstream seems to be increasing over time, filtering from the hidden corners of the Web into our daily lives...Most sites should absolutely ditch their comment function if they aren't going to moderate the hate and rage machine it spawns."

An **anonymous respondent** wrote, "Sites allow comments because it generates page views, and folks are more likely to comment when they can do so anonymously. A trolling comment generates more comments, which means even more page views. As long as site revenue is based on views, anonymous inflammatory comments will continue."

Some say comments sections have already begun to evolve to provide a more valuable stream of public input.

Alexander Halavais, director, MA in social technologies at Arizona State University, said, "Particularly over the last five years, we have seen the growth of technologies of reputation, identity, and collaborative moderation. Newspapers that initially rejected comment streams because of their tendency of toxicity now embrace them. YouTube, once a backwater of horrible commentary, has been tamed. While there are still spaces for nasty commentary and activities, they are becoming destinations that are sought out by interested participants rather than the default."

Terrorists and other political actors are benefiting from weaponization of online narratives implementing human- and bot-based misinformation and persuasion tactics

To troll is human, yes. But also to mislead, misinform, manipulate, lie, persuade, to create an atmosphere of anger, fear, and distrust, to work to gain power at nearly any cost is also human. Some experts in this canvassing pointed out that the weaponization of the narrative is much more of a threat than trolling.

The rise of ISIS (also known as ISIL or Daesh), the jihadist militant group, was facilitated by its uses of social media as a weapon of divisive propaganda beginning in 2014. A number of respondents referred to its activities in mentioning how terrorists use persuasive hate speech and lies online.

This canvassing of experts took place in the summer of 2016 – before largescale press coverage of how foreign trolls operated to undermine politics in the U.S. and Europe – this problem was mentioned by some of these respondents. In November and December dozens of news organizations broke stories assessing the influence of social media in the 2016 U.S. presidential election and "fake news" became the term most commonly applied by headline writers to describe propaganda items disguised as "news."

Anonymously, a **futurist, writer, and author at *Wired***, explained, "New levels of 'cyberspace sovereignty' and heavy-duty state and non-state actors are involved; there's money, power, and geopolitical stability at stake now, it's not a mere matter of personal grumpiness from trolls."

Matt Hamblen, senior editor at Computerworld, warned, "Traditional institutions and people working within those institutions will be under greater attack than now… Social media and other forms of discourse will include all kinds of actors that had no voice in the past; these include terrorists, critics of all kinds of products and art forms, amateur political pundits, and more."

Laurent Schüpbach, a neuropsychologist at University Hospital in Zurich, Switzerland, focused his entire response about negative tone online on burgeoning acts of political manipulation, writing , "The reason it will probably get worse is that companies and governments are starting to realise that they can influence people's opinions that way. And these entities sure know how to circumvent any protection in place. Russian troll armies are a good example of something that will become more and more common in the future."

Karen Blackmore, a lecturer in IT at the University of Newcastle, wrote, "Misinformation and anti-social networking are degrading our ability to debate and engage in online discourse. When

opinions based on misinformation are given the same weight as those of experts and propelled to create online activity, we tread a dangerous path. Online social behaviour, without community-imposed guidelines, is subject to many potentially negative forces. In particular, social online communities such as Facebook also function as marketing tools, where sensationalism is widely employed, and community members who view this dialogue as their news source, gain a very distorted view of current events and community views on issues. This is exacerbated with social network and search engine algorithms effectively sorting what people see to reinforce worldviews."

An anonymous **professor at a U.S. polytechnic institute** said, "Russia has found it extremely useful to use such media to flood political and social discourse; other nations have or will follow suit. Cybersecurity will generally increase, but the potential for bad actors to take targeted aim will remain, and it will definitely impact security, privacy, and public discourse."

Stephan G. Humer, head of the Internet sociology department at Hochschule Fresenius Berlin, noted, "Social media and especially digital commentary will be used in a more strategic way [by 2026]. In my research I have seen that social media in general and digital commentary in a very special way reflects societal moods and thoughts, so influencing this discourse level will be much more interesting in the near future."

Norah Abokhodair, information privacy researcher at the University of Washington, commented, "There is a very clear trend that social media is already being shaped by the bad guys. Already automation (creating social bots on social media platforms) is amplifying the voices of the bad people most of the time. Terrorist organizations are able to recruit many young people through these platforms and many more examples. Privacy and anonymity are double-edged swords online because they can be very useful to people who are voicing their opinions under authoritarian regimes however the same technique could be used by the wrong people and help them hide their terrible actions."

Susan Mernit, CEO and co-founder at Hack the Hood, wrote, "Humans universally respond to anger and fear. For balanced dialogue, this is a challenging combination."

David Wuertele, a software engineer at Tesla Motors, commented, "Unfortunately, most people are easily manipulated by fear. Donald Trump's success is a testament to this fact. Negative activities on the Internet will exploit those fears, and disproportionate responses will also attempt to exploit those fears. Soon, everyone will have to take off their shoes and endure a cavity search before boarding the Internet."

Lauren Wagner, a respondent who shared no additional identifying details, replied, "While there may be a utopian wish for technological systems that encourage more-inclusive online interactions, polarizing pieces will result in more engagement from users and be financially advantageous to online platforms. Consequently, online public discourse will be shaped by a more divisive tone and 'bad' actors. Writers are becoming more adept at authoring articles that engage their core readership online, whether it's a broad audience using general clickbait tactics or a more specific audience with, for example, an article supporting a specific political candidate. With the rise of Donald Trump we are seeing that this phenomenon is not only limited to writers. Subjects are learning how to persuade the media to ensure that they receive a certain type of online coverage, which tends to be divisive and inciting."

An **anonymous respondent** wrote, "Commentary has become more and more extreme as people are more and more comfortable having and expressing more radical or extreme values. This spreads negativity, as these comments are often negative in nature and people are more likely to respond such comments with their own commentary. As people become less moderate in their political views, religious values, etc., the Internet will reflect that. Trends in our politics and society show movement towards more extremism, hate, fear; so too will our social media and digital commentary move towards more negativity. As opposing groups of whatever issue become more zealous and disconnected from each other, they will become less likely to accept each other's opinions, speech, and expression. This is the case of groups on all sides of issues, whether political, religious, social, etc. You can already see a sort of vigilantism as people are quick to throw out condemnations and fall into mob mentality as they attack commentary they find offensive or unacceptable or anti-(whatever). I believe that this is as far as it will go, with users trying to self-police. While I don't think major social media services will infringe on free speech because the backlash would be intense, the desire for services that favor a 'safe zone' mentality over free speech will increase."

Karl M. van Meter, sociological researcher and director of the *Bulletin of Methodological Sociology*, Ecole Normale Supérieure de Paris, wrote, "There will probably continue to be new systems invented and new fashions of use that will wash over the world's social media users. This, of course, will also bring use in 'bad faith,' including criminal and even terrorist use, but that will always be part of this expanding market and the debate about Internet use."

Theme 3: Things will get better

The more hopeful among these respondents cited a series of changes they expect in the next decade that could improve the tone of online life. They expect: **Technical and human solutions will arise as the online world splinters into segmented, controlled social zones with the help of Artificial Intelligence (AI).**

While these experts were unanimous in expressing a level of concern about online discourse today many did express an expectation for improvement. These respondents said it is likely the coming decade will see a widespread move to more-secure services, applications, and platforms, reputation systems and more-robust user-identification policies. They predict more online platforms will require clear identification of participants; some expect that online reputation systems will be widely used in the future. Some expect that online social forums will splinter into segmented spaces, some highly protected and monitored while others retain much of the free-for-all character of today's platforms. Many said they expect that due to advances in artificial intelligence (AI), "intelligent agents" or bots will begin to more thoroughly scour forums for toxic commentary in addition to helping users locate and contribute to civil discussions.

Jim Hendler, professor of computer science at Rensselaer Polytechnic Institute, wrote, "Technologies will evolve/adapt to allow users more control and avoidance of trolling. It will not disappear, but likely will be reduced by technological solutions."

Trevor Hughes, CEO at the International Association of Privacy Professionals, wrote, "Negative activities will always be a problem…. However, controlling forces will also continue to develop. Social norms, regulations, better monitoring by service providers, all will play a role in balancing the rise of negative activities."

Robert Matney, COO at Polycot Associates, wrote, "Reputation systems will evolve to diminish the negative impact that bad actors have on online public discourse, and will become as broadly and silently available as effective spam systems have become over the last decade."

Jean Russell of Thrivable Futures wrote, "We are learning better how, as a collective, we can modify protocols for contributing content online that reduce the ability of trolls to act without repercussions. It is still pretty ugly, but we are at the turning point. First, conversations can have better containers that filter for real people who consistently act with decency. Second, software is getting better and more nuanced in sentiment analysis, making it easier for software to augment our filtering out of trolls. Third, we are at peak identity crisis and a new wave of people want to

cross the gap in dialogue to connect with others before the consequences of being tribal get worse (Brexit, Trump, etc.).”

Tom Sommerville, agile coach, commented, “As people trade elements of their privacy for benefits in the online world, online personas will be more transparently associated with the people behind them. That transparency will drive more civil discourse.”

Peter Brantley, director of online strategy at the University of California-Davis, replied, “I expect there will be more technologically-mediated tools to condition parameters of community participation. There is a great interest in helping to create 'safe' or self-regulating communities through the development of metrics of mutual ratification. However at the same time, there will be an enlargement in the opportunities and modes for engagement, through annotation or development of new forums, and these will be characterized by the same range of human discourse as we see now.”

“Anti-harassment is a technologically solvable problem. As the tools to prevent harassment improve, the harassers will be robbed of their voices, and the overall tone will improve,” wrote an **anonymous** senior security engineer at a major U.S.-based Internet services company.

Of course figuring out just how to set the technology up to accomplish all of this isn't as easy as it may seem. It requires a thorough assessment and weighing of values. **Isto Huvila**, a professor at Uppsala University in Sweden, noted, “Currently the common Western ideology is very much focused on individuals and the right to do whatever technologies allow us to do—the problem is that it might not be a very good approach from the perspective of humankind as a whole. More-focused ideas of what we would like human society to be as a whole would be much needed. The technology comes first after that.”

While many participants in this canvassing have faith in the technology, none specifically addressed the ways in which values might be fairly and universally defined so they may be equitably applied across platforms in order that people actively moving from one to another and another can have a relatively good understanding and expectation of the filtering or other rules being applied to discourse.

AI sentiment analysis and other tools will detect inappropriate behavior, and many trolls will be caught in the filter; human oversight by moderators might catch others

Some respondents predicted that AI or people teaming with algorithms in hybrid systems will create and maintain “smart” moderation solutions. They expect increasingly powerful algorithms

are likely to do most of the filtering work and, in some cases, all of it. Some expect that ID will be required or that people will self-identify through reputation systems allowing their identity to be established across online platforms. Some participants in this canvassing suggested there will be a back-and-forth socio-technological arms race between those moderating the systems and those who oppose and work to override the moderators.

David Karger, a professor of computer science at MIT, said, "We are still at the early stages of learning how to manage online public discourse. As we've rushed to explore ways to use this new medium, our lack of experience has led to many surprises both about what does work (who would have imagined that something like Wikipedia could succeed?) and what doesn't (why aren't online discussion forums just as friendly as grandma's book club?).... My own research group is exploring several novel directions in digital commentary. In the not-too-distant future all this work will yield results. Trolling, doxxing, echo chambers, click-bait, and other problems can be solved. We will be able to ascribe sources and track provenance in order to increase the accuracy and trustworthiness of information online. We will create tools that increase people's awareness of opinions differing from their own, and support conversations with and learning from people who hold those opinions."

Ryan Hayes, owner of Fit to Tweet, predicted, "We may have augmented-reality apps that help gauge whether assertions are factually correct, or flag logical fallacies, etc. Rather than just argue back and forth I imagine we'll invite bots into the conversation to help sort out the arguments and tie things to underlying support data, etc."

Scott Amyx, CEO of Amyx+, an Internet of Things business consultancy, said, "Free speech will be amplified through peer-to-peer multicast, mesh network technologies. Earlier-generation platforms that enabled free speech—such as Open Garden's FireChat—will usher in even broader and more pervasive person-to-person (P2P) communication technologies, powered by the Internet of Things. Billions of IoT-connected devices and nodes will increase the density to support vibrant P2P global wireless sensor networks. IoT is transitioning our computing model from centralized to a decentralized computing paradigm. This enables self-forming, self-healing networks that enable messaging, communication and computing without the need for a central system or the traditional Internet. Everything becomes node-to-node. These technological enablements will amplify the voices of the people, especially in closed, censored nations. For clarity, new technologies will not necessarily foster greater griping, distrust, and disgust but rather it will allow private individual thoughts and conversations to surface to public discourse."

Dave Howell, a senior program manager in the telecommunications industry, predicted, "Identity will replace anonymity on the Internet. Devices will measure how a human interacts with

them and compare to Web cookie-like records to match persons with an advertising database. This will become public knowledge and accessible to law enforcement and courts within the decade. There will be 'Trust Providers' at the far end of transaction blockchains who keep an official record of identity (interaction patterns), and these may be subpoenable. Individuals will learn that public utterances (on the Internet) won't/don't go away, and can have consequences. Whether or not organizations (e.g., ACLU) can pass 'Right to be Forgotten' and privacy/speech protection acts in the decade will probably be irrelevant, as social belief will likely be suspicious that individuals are tracked regardless."

An anonymous **senior program manager at Microsoft**, observed, "Online reputation will become more and more important in an economy with many online markets, for labor (the gig economy, Uberization) as well as products (Etsy, Ebay, etc.), or apartments (Airbnb), etc. Online personas will become more consolidated and thus trolling will be more discouraged."

Susan Price, digital architect at Continuum Analytics, predicted the rise of "affinity guilds." She said, "Until we have a mechanism users trust with their unique online identities, online communication will be increasingly shaped by negative activities, with users increasingly forced to engage in avoidance behaviors to dodge trolls and harassment…. New online structures something like affinity guilds will evolve that allow individuals to associate with and benefit from the protection of and curation of a trusted group. People need extremely well-designed interfaces to control the barrage of content coming to their awareness. Public discourse forums will increasingly use artificial intelligence, machine learning, and wisdom-of-crowds reputation-management techniques to help keep dialog civil. If we build in audit trails, audits, and transparency to our forums, the bad effects can be recognized and mitigated. Citizens tend to conflate a host individual or organization's enforcement of rules of civil exchange (such as removing an offensive post from one's own Facebook page) with free speech abridgement. There will continue to be many, many venues where individuals may exercise their right to free speech; one individual's right to speak (or publish) doesn't require any other individual to 'hear and attend.' Better education and tools to control and curate our online activities can help. Blockchain technologies hold much promise for giving individuals this appropriate control over their attention, awareness, and the data we all generate through our actions. They will require being uniquely identified in transactions and movements, and readable to holders of the keys. A thoughtful, robust architecture and systems can give individuals control over the parties who hold those keys."

An **anonymous respondent** put the two mostly likely solutions sucinctly, "AI controls will limit the blatantly obvious offensive trolling. That will take a lot of the sting out the problem. Identification controls will minimize a lot of the remaining negative elements, though it will also clearly lead to the suppression of unpopular opinions."

Klaus Æ. Mogensen, senior futurist at the Copenhagen Institute for Futures Studies, said, "I expect that automated context analysis will weed out most trolls and harassers the way that spam filters weed out most spam today."

Evan Selinger, professor of philosophy at the Rochester Institute of Technology, commented that companies must assure some level of comfort to keep growing their user base, adding, "Accordingly, they are working harder to ensure that their platforms are designed to optimize doing things like automatically detecting harassment, easily allowing for users to report harassment, and swiftly acting upon harassment complaints by applying sanctions derived from clear Community Guidelines and Terms of Service that revolve around expectations of civility…. I also imagine a robust software market emerging of digital ventriloquists that combines predictive analytics with algorithms that interpret that appropriateness of various remarks. For example, the software could detect you're communicating with a person or member of a group that, historically, you've have hard time being civil with. It could then data-mine your past conversations and recommend a socially acceptable response to that person that's worded in your own personal style of writing."

Thomas Claburn, editor-at-large at Information Week, wrote, "I expect more pressure on service providers to police their services more actively. And I suspect people will be more careful about what they say because it will be harder to hide behind pseudonyms. Also, I anticipate more attention will be paid to application and website design that discourages or mitigates negative interaction."

An anonymous **social scientist** said, "Advances will help reduce, filter or block the spam, harassment, and trolls and preserve the intents and purposes of an online space for public discourse. Without these steps, the online world will go the way of the telephone—it may 'ring,' but no one will pick it up."

An **anonymous respondent** wrote, "Curation is too difficult. Tools to manage negative responses will get better. It will probably be a combination of automated and crowdsourced management."

Jennifer Zickerman, an entrepreneur, commented, "More-active moderation will become the norm in online discourse. I expect that this will driven by: new anti-harassment laws; a greater sense of social responsibility among organizations that host spaces for discourse; and society's decreasing tolerance for racism, sexism, bullying, etc. We are already seeing this trend. While some technological solutions will help organizations moderate their discourse spaces, in the next ten years moderation will continue to be mostly a human task. This gives larger organizations with

bigger resources an advantage. Smaller organizations may not have the resources to have their own spaces for discourse."

While technological solutions are expected to lead the way in dealing with bad actors and misinformation online, some predict some degree of human moderation will continue to be an important part of the system in the next decade.

Demian Perry, mobile director at NPR (U.S. National Public Radio), said, "Jack Dorsey said it best: 'Abuse is not civil discourse.' As more of our lives move online, people will naturally gravitate, as they do in the real world, to healthy, positive relationships. The success of online communities will hinge on the extent to which they are able to prevent the emergence of a hostile environment in the spaces under their stewardship. Algorithms will play an increasing role, but probably never fully replace the need for human curators in keeping our online communities civil."

Annie Pettit, vice president of data awesomeness at Research Now, observed, "With the advent of artificial intelligence, many companies will build processes that are better able and more quickly able to detect and deal with inappropriate negativity. Simply seeing less negativity means that few people will contribute their own negativity or share other negativity."

There will be partitioning, exclusion, and division of online outlets, social platforms, and open spaces

Some respondents predicted the increased fragmentation of existing social platforms and online services. They expect that over the next decade non-hostile "safe spaces" will emerge where controlled discourse can flourish. Many pointed out the downsides of these approaches – a wider selection of those comments about the negatives of such segmentation is shared in the next section of this report.

Valerie Bock, of VCB Consulting, commented, "There will be free-for-all spaces and more-tightly-moderated walled gardens, depending on the sponsor's strategic goals. There will also be private spaces maintained by individuals and groups for specific purposes. These will tend to be more reliably civil, again, because people will be known to one another and will face consequences for behavior outside of group norms."

A **computer security professor** at Purdue University, said, "I fully expect we will also see further partitioning and divide among outlets—there will be few 'places' where many points of view can be expressed and discussed civilly. There also is likely to be an increase in slanted 'fact' sites, designed to bolster partisan views by how history and data is presented."

Bart Knijnenburg, assistant professor in human-centered computing at Clemson University, said, "We are still figuring out the netiquette of online social interaction. Networks seem to rearrange themselves over time (newsgroups -> IRC -> MySpace -> Facebook) and interaction becomes more inclusive and more structured. I believe we are at the point of highest integration but lowest regulation. Over the next decade social networks will become more fractured and in some cases more (self-)regulated. This will reduce the negative experiences, as the benevolent majority becomes relatively more vocal and crowds out the trolls. I say this with a worldview in mind; I feel that in the U.S. the current political reality will negatively impact online discourse in the short run, but this problem may resolve itself within the decade."

Garland McCoy, president of the Technology Education Institute, predicted there will more "Self-appointed 'PC' police, and for those engaged in public discourse on the Internet who share items deemed inappropriate or not 'PC' there will be swift consequences…. The Internet will evolve into a 'safe zone,' and the more spirited discussions will move onto darknets specifically set up to encourage open and uncensored discussion on topics of the day."

Will Ludwigsen, a respondent who shared no additional identifying details, said, "My suspicion (perhaps my hope, now that I think about it), is that the Internet will naturally bifurcate into a wild, anything-goes environment and a curated one. The need for safe spaces and reliable information will eventually lead to more 'trusted' and 'moderated' places, though of course the question is whom we're trusting to do the moderating (probably corporations) and what's in it for them."

Irina Shklovski, associate professor at the IT University of Copenhagen, observed, "There is no one public discourse online, but there are myriad spaces where public discourse happens. These are controlled by different actors, they develop different norms of engagement, and they may or may not fall victim to trolling and significant negative interactions. There are also many different publics that engage in different sorts of discourse, and this will only increase in number and diversity over time. Perhaps the current threat of trolling and harassment is one reason for an increasing fragmentation and focusing of public discourse into areas and spaces that are kept 'safe' for certain types of discourse, managed and protected. What the effect of this sort of fragmentation will be is hard to predict."

Michael Whitaker, vice president of emerging solutions at ICF International, commented, "I expect online communication to be less shaped by negative activities, but not necessarily because of behavior changes by the broader community…. We are likely headed toward more-insular online communities where you speak to and hear more from like-minded people. Obvious trolls will become easier to mute or ignore (either manually or by algorithm) within these communities.

This future is not necessarily desirable for meaningful social discourse that crosses ideologies but it is a trend that may emerge that will make online communications less negative within the spheres in which most people interact."

An **anonymous respondent** predicted, "It's more likely that we'll see more corporate-controlled, moderated, 'closed' spaces masquerading as open spaces in the next decade."

"Algorithms, driven by marketers seeking more predictive powers, will get more proficient at keeping people isolated to their own political-taste regimes," wrote an anonymous **design professor**.

Bob Frankston, Internet pioneer and software innovator, wrote, "I see negative activities having an effect but the effect will likely to be from communities that shield themselves from the larger world. We're still working out how to form and scale communities."

An anonymous **chief scientist** added, "Like the physical world, the online world will develop no-go zones. Polarization will continue and grow more accurate—who is in, who is out."

An anonymous **health information specialist** added, "The really awful, violent anonymous speech will get pushed to the darker recesses of the Internet where its authors find their own kind and support."

D. Yvette Wohn, assistant professor at the New Jersey Institute of Technology, commented, "Bad actors and harassment will not go away, and some services may lose users for trying to aggressively eliminate these forces while others do not, but certain technologies that target underage users will be able to create 'safe' places where negativity will be constrained to constructive criticism. These safe places will arise through a joint effort between community policing and system designs that encourage supportive behavior. Mainstream social media services will not be initiating this—rather it will arise from youth with coding and social skills who self-identify this need for a safe space."

An anonymous **senior account representative** stated, "It's a process of natural selection: non-safe environments disappear and safe environments develop better moderation techniques and spread those around to other communities."

Trolls and other bad actors will fight back, innovating around any barriers they face

Some respondents said they expect the level of angst and concern over social behaviors will fluctuate, depending upon a number of forces. **Peter Morville**, president of Semantic Studios, said, "The nature of public discourse online is in a state of persistent disequilibrium (see *Out of Control* by Kevin Kelly), so I expect the pendulum to swing back and forth between better and worse."

Many predict that human nature will remain the same and the trolls and misinformation-disseminating manipulators the filters and bots are aimed at will effectively "fight back" with altered behaviors and new technological approaches in a see-saw battle often described as an "arms race."

Axel Bruns, a professor at the Queensland University of Technology's Digital Media Research Centre, said, "There is an ongoing arms race between trolls and platform providers, and a real limit to the extent that trolling can be combatted using purely technological means without simultaneously undermining the open and free environment that makes many social media platforms so attractive to users. Just as important an approach to addressing trolling is social measures, including digital literacies education and peer pressure. Here, unfortunately, I see the present prevalence of trolling as an expression of a broader societal trend across many developed nations towards belligerent factionalism in public debate, with particular attacks directed at women as well as ethnic, religious, and sexual minorities. Unless this trend can be arrested and reversed, I don't expect the problem of trolling to be reduced, either."

Erik Johnston, an associate professor and director of the Center for Policy Informatics at Arizona State University, observed, "Simply, it will be an arms race of design between new technologies and the way they are exploited and used. We wrote a paper called *Crowdsourcing Civility* that talks about how once different threats to a community are identified, there are a wide variety of solutions for addressing these concerns."

Terry Langendoen, an expert at the U.S. National Science Foundation, said, "Management, including detection and suppression of the activities of bad actors, is a form of defensive warfare on the part of those we may call 'good actors,' so we can comfortably predict that the conflict will take the form of an arms race—in fact it already has, and while there is no counterpart of a nuclear deterrent, the means for controlling bad behavior in social media is now and will continue to be widely distributed, so that those who may be harmed by such behavior will increasingly have access to resources for defending themselves."

David Lankes, professor and director at the University of South Carolina's School of Library and Information Science, wrote, "I see the discourse on the Net evolving into a competition between trolls, advocates of free speech, and increased automation seeking to filter speech on public sites. We are already seeing the efforts of large search firms using natural language processing and advanced machine learning to create chatbots and filtering software to identify extremism and harassment. The complexity of this software will continue to increase in sophistication and effectiveness, however it is ultimately competing against nuances of interpretation and attempts to be heard by bad actors."

An **anonymous** respondent confidently expressed faith in communities overcoming assaults by trolls and manipulators, writing, "A mixture of lessening anonymity and improving technologies will work to combat new avenues of online harassment and continued fragmentation into echo chambers. Trolls will always be there and find ways around new tech, but communities will continue to move apart into their own spheres and help isolate them from general consumption."

An anonymous **senior security architect** who works with a national telecommunications provider predicted the opposite, writing, "I expect online communication to be more shaped by negative activities over the next decade. Social media and search engines…. are our tools for engaging in public discourse, finding venues for conversation, and attempting to learn about events. Previously, real efforts to maximize this effect for an intended outcome were the purview of organizations and specialists. This is being democratized and now any small, active group can make an effort to sway outcomes with very little monetary investment. We've already seen it used for commercial, military, political, and criminal ends. Manufactured urgency and outrage are triggers that people respond to…. The technological means to automate defenses against adversarial manipulation always trail behind. They must. Sometimes we really do need to see things urgently; sometimes we really do need to be outraged. I expect that some voices online will naturally be silenced as a result, to the detriment of free speech. This may happen naturally as people who would otherwise join in discourse will choose not to for various reasons. It may happen as legislation pushes toward a more-censored view of the Matrix through right-to-be-forgotten style rulings, attempts to automate filtering of offensive speech, or abuse of existing copyright and digital rights laws. It may happen as the companies providing these platforms filter what their users see algorithmically, further isolating the bubbles of conversation that are producing such negative activity today. And I'm hard-pressed to see which of those is the worse outcome. There is already a very negative consequence to privacy and I expect this to get worse. Doxxing of users has become nearly as common as short-lived DDOS [distributed denial of service] attacks against online gamers, which swings between idle amusement and revenge while continuing to be cheaper. Doxxing of companies has proven to be similarly damaging to the privacy of employees and clients. The Web has never taken security particularly seriously and this

trend is continuing. The current focus on end-to-end obfuscation is great for individual communications, but provides little support against the troves of information kept about us by every site, large and small, that we interact with. This has many carryover effects, as some kinds of discourse naturally lend themselves to vitriolic and privacy-damaging attacks. The overall state of privacy and security puts our services, histories, data trails, and conversation at risk whenever someone is sufficiently motivated to retribution. Normalizing this activity in society does not lessen the damage it does to speech."

Peter Levine, Lincoln Filene professor and associate dean for research at Tisch College of Civic Life, Tufts University, predicted a tie, commenting, "Lots of bad actors will continue to swarm online public discourse, but the designers and owners of Web properties will introduce tools to counter them. Not knowing who will prevail, I am predicting a stalemate."

Theme 4: Oversight and community moderation come with a cost

More monitoring equals more regulation and management, in the eyes of some of these experts. Their answers struck these notes: **Some solutions could change the nature of the Internet because surveillance will rise; the state may regulate discourse; and these changes will polarize people and limit access to information and free speech.**

A share of these experts predict that greater regulation of speech and the implementation of reputation systems, required identification, and other technological solutions to curb harassment and trolling will result in more surveillance and censorship. They expect that this could change many people's sharing behaviors online as they try to protect their privacy, limiting their contributions and stifling free speech. They also expect that widespread identity provision could shift the balance of power even more toward governments and corporations at the expense of citizens as the prospect of anonymous speech fades.

Pervasive surveillance will become even more prevalent

Thorlaug Agustsdottir of Iceland's Pirate Party, said anonymity is already dead. "Anonymity is a myth, it only exists for end-users who lack lookup resources. The Internet of Things will change our use of everyday technology. A majority of people will still rely on big corporations to provide platforms, willing to sacrifice their privacy for the comfort of computerized living. Monitoring is and will be a massive problem, with increased government control and abuse. The fairness and freedom of the Internet's early days are gone; now it's run by big data, Big Brother, and big profits."

Matt Hamblen, senior editor at Computerworld, commented, "[By 2026] many will be able to remain private if they know how to manipulate the technology, but many others will continue to express views with little regard to whether their privacy is secure or not. Privacy itself will have little meaning or value to average people."

David Karger, a professor of computer science at MIT, said, "I am convinced by David Brin's *Transparent Society* vision that the ever-decreasing cost/effort of surveillance will ultimately land us in a world where very little can be hidden. In a sense, I think we're headed back to the traditional small village where everyone knew everyone's business. I expect this will force us to cope with it in a similar way: by politely pretending not to know (and gossiping about people behind their backs)."

John Sniadowski, a systems architect for TrueBox predicted, "More and more countries are going to adopt similar social scoring systems such as those currently expanding in China. These kinds of systems will massively influence suitability choices for jobs, housing, social status, and government views of its citizens. This will stymie free speech because political control of systems will work negatively against individuals who wish to voice alternative views to the accepted norms in some territories."

Ian Peter, an Internet pioneer and historian based in Australia, wrote, "The continued expansion of sale of personal data by social media platforms and browser companies is bound to expand to distasteful and perhaps criminal activities based on the availability of greater amounts of information about individuals and their relationships."

Joe McNamee, executive director at European Digital Rights, observed, "In the context of a political environment where deregulation has reached the status of ideology, it is easy for governments to demand that social media companies do 'more' to regulate everything that happens online. We see this with the European Union's 'code of conduct' with social media companies. This privatisation of regulation of free speech (in a context of huge, disproportionate, asymmetrical power due to the data stored and the financial reserves of such companies) raises existential questions for the functioning of healthy democracies."

Barry Chudakov, founder and principal at Sertain Research and StreamFuzion Corp., replied, "In the very democratic act of engaging in public discourse and expressing our views, we are possibly targeting ourselves by identifying ourselves and ensuring that we will never have privacy or be anonymous. This was brought home recently when a prominent feminist writer dropped off social media after being harassed online by anonymous stalkers who posted rape and death threats against her 5-year-old daughter. And this never-anonymous realization brings with it a kind of nihilism, a bravado, that will further inspire many to create fake identities, fake histories, fake associations based on the thinnest of connections."

Matt Bates, programmer and concept artist at Jambeeno Ltd., commented, "Vis-a-vis anonymity and privacy, I foresee their continual and gradual erosion as technocracy inexorably expands. Shoshana Zuboff's Three Laws are apropos: **1)** Everything that can be automated will be automated. **2)** Everything that can be informated will be informated. **3)** Every digital application that can be used for surveillance and control will be used for surveillance and control. To paraphrase Dan Geer: when one-inch block letters can be seen from space, how does that change our calculus about what is and is not 'private'? When a kid with a small allowance can afford a drone that can peek through most peoples' windows? When all the streetlights installed in your town include 360-degree surveillance cameras? When anybody's phone can be trivially hacked to

record the sounds of their surroundings? The very notion of what is and is not private will, necessarily, be shifting at an increased rate. As a civil libertarian I view this as extremely regrettable, but I also see it as inevitable, especially given the rapidity with which technology undermines extant power structures and changes our mores and habits. Whether this leads to increased devolution of government to local modes or to more centralization and the dystopian intrusively-paranoid police states of science fiction is beyond my ken, but I expect the latter is more likely, at least in the short term."

Jean Burgess, a professor of digital media at Queensland University of Technology, wrote, "We'll see a growth in tools and systems to prevent or regulate hate speech and filter for quality discourse, but at the same time we'll see a retreat to safe spaces and closed groups, reducing the mutual visibility and recognition of diversity."

Randy Bush, Internet Hall of Fame member and research fellow at Internet Initiative Japan, wrote, "Between troll attacks, chilling effects of government surveillance and censorship, etc., the Internet is becoming narrower every day."

Anonymously, a communications professor at City University of New York added, "I see the space of public discourse as managed in new, more-sophisticated ways, and also in more brutal ones... We are seeing an expanded participation in the public sphere, and that will continue. It doesn't necessarily mean an expansion of democracy, per se."

Dealing with hostile behavior and addressing violence and hate speech in many spaces will become the responsibility of the state instead of the platform or service providers

Will governments or other authorities begin implementing regulation or other reforms to address these issues? Some respondents said this is likely. Some suggested that incentives must be formally put into place in order to motivate platform providers to begin to implementation of appropriate remedies.

Dan York, senior content strategist at the Internet Society, wrote, "The 'mob mentality' can be easily fed, and there is little fact-checking or source-checking these days before people spread information and links through social media. This will cause some governments to want to step in to protect citizens and thereby potentially endanger both free speech and privacy."

Joshua Segall, a software engineer, said, "Companies have taken very few steps to prevent online abuse, and those that have been taken are minimal and ineffective. Without strong action and new

ideas to foster inclusiveness and limit abuse from social media companies, the negative activities online will continue to escalate."

Fredric Litto, emeritus professor of communications at University of São Paulo, Brazil, shared the reasoning behind the need for identities to be public in some cases. "Anonymity and privacy, in general, deserve protection," he wrote, "but *not* when issues of life and death (singularly or in groups) are concerned. There must be limits set to protect life and well-being!"

Luis Lach, president of the Sociedad Mexicana de Computación en la Educación, A.C., wrote from a global point of view, noting, "In general terms, governments don't like people expressing thoughts in the network."

Dave Burstein, editor at fastnet.news, noted, "Barack Obama's comment that Omar Mateen was 'inspired by various extremist information that was disseminated over the Internet' ([quoted from the New York Times](#)) echoes calls by Angela Merkel and David Cameron for more censorship, which is almost inevitable."

Hume Winzar, associate professor in business at Macquarie University, Sydney, Australia, commented, "The panopticon will be real and growing in size. Online technologies will be less anonymous. What we do and say online will be held to account."

John Curran, CEO for the American Registry for Internet Numbers (ARIN), said, "The failure to provide for any effective attribution or remedy for bad actors will result in increasing amounts of poor behavior (volatile speech, harassment, etc.) as well an increase in actual crimes (hate speech, libel, theft) over the Internet. While the benefit of unfettered Internet to free speech and expression is quite high, its provision without any meaningful method of recourse when used for criminal acts deprives users of their basic human right of effective remedy."

Marc Smith, a sociologist at the Social Media Research Foundation, wrote, "While our organization does not endorse enforced registration for all content creation we predict that anonymous content authorship and network distribution will become a crime. We predict that all content will need to be associated with a 'licensed' and credentialed legal entity. In practice, we are not very far from this today."

Avery Holton, an assistant professor at the University of Utah, commented, "We have seen the struggles Twitter has faced recently with free speech. As more platforms open up to innovative forms of sharing and communicating, they will have to consider regulations that help police those who intend to hurt or damage individuals and networks. There's a delicate balance to be reached

between offering safe spaces for free speech and safe spaces that protect individuals against inciting, hateful speech."

Amy Zalman, principal owner at the Strategic Narrative Institute and professor at Georgetown University, replied, "In the next decade, we will see the contest over the nature of public digital space continue... Can this space be legislated? Can new norms be introduced and spread? Can public service campaigns be effective? Can we quantify the business and efficiency costs of bad behavior? These may the kinds of questions that those seeking to refine our public discourse in this new space may address."

Scott A. Hale, senior data scientist at the Oxford Internet Institute, wrote, "I very much hope that standards-based cross-platform protocols are developed and used in the future and that the enforcement of norms and laws moves from private companies to governments. While many companies might desire the latter, they are likely against the former."

Julian Hopkins, lecturer in communication at Monash University, Malaysia, wrote, "In most countries there will be the development of online accounts that are formally linked to a personal identity—i.e., through personal identification documents and/or relevant biometrics. This will increase security for online transactions, tax returns, etc. These will enable the creation of online spaces where only publicly identifiable persons can participate, and will make them more accountable."

Dara McHugh, a respondent who shared no additional identifying details, said, "There will be enhanced legislative and technical approaches to controlling the tone of online discourse, driven by a combination of genuine concern from activists and 'soft' opportunism from political elites who will attempt to use it to stifle criticism and police discourse."

William Ian O'Byrne, an assistant professor at the College of Charleston, said, "We need to consider who we mean by the 'bad actors' and the nuances of trust in online spaces. We will continue to see hacks, data breaches, and trolling behavior in online spaces. I hope that, as Web-literate citizens, we increasingly speak out against these behaviors, but also read, write, and participate more thoughtfully in online spaces. My concern is the chilling effect that we see in this post-Snowden era in which we have to be concerned about privacy and security and how these are controlled by businesses and governments."

"Government intervention or a grouping of industry advocates will be the only way to bring this issue mainstream enough to change policies and actively support all Internet users. Most

alarmingly, far too little is being done to make the Internet more inclusive," said an **e-resources staffer at Loyola University-Chicago.**

Polarization will occur due to the compartmentalization of ideologies

Some predict that the rise of these separately moderated spaces—many of them requiring valid ID for participation—will produce "a million walled gardens" and exclude important civil discourse that contributes to important social debates and meaningful conversation. Some say this could result in unmoderated public spaces becoming akin to "toxic waste dumps." The process of sorting out online social spaces will also be tied to people's different needs, some of these experts believe. Niche tribes will emerge.

An **anonymous respondent** wrote, "Sadly, the trend—at least, in American political discourse—seems to be fragmenting into increasingly disconnected echo chambers. Such conversations increasingly happen in siloed services that suffer from a combination of self-selection and automated curation. When the two echo chambers come into contact, the results are explosive and divisive. It's not clear that any emerging services or technologies are positioned to slow or reverse this trend, while many benefit greatly by the anger it generates. Even worse, users seem to seek out and wallow in their own echo chambers, so there is little demand to change the system. I caveated my initial statement by scoping it to American politics, but the problem appears to be quite large: A casual examination of comments on news articles shows that even the least political story devolves into partisan political bickering within a few exchanges. The problem does not appear to be uniquely American: The recent UK European Union referendum exhibited similar acrimony."

John Howard, former Microsoft Hololens creative director now a co-founder at LOOOK, a mixed-reality design and development studio, explained, "As the generation raised with social media comes of age, their ability to navigate this landscape will result in greater self-selection and a further narrowing/echo chamber of information sources."

Alf Rehn, professor and chair of management and organization at Åbo Akademi University in Turku, Finland, wrote, "As the public sphere moves evermore solidly onto the Internet, the fractious mood of our discussion climate will strengthen online filter bubbles, clamorous echo chambers, and walled gardens of discourse."

Jennifer Zickerman, an entrepreneur, commented, "A side effect of greater moderation will be the proliferation of 'underground' platforms for discourse, where people must be members in order to read or participate in discussions. These platforms will be highly toxic and may 'radicalize' people around certain causes and ideas, as closed groups are powerful tools in an 'us-versus-them'

mental model. Discussion around these causes and ideas will be less visible to the general Internet community, so people may have a false sense that there is less interest in and discussion around unsavory causes and ideas."

Aaron Chia Yuan Hung, an assistant professor of educational technology at Adelphi University, replied, "Neil Postman predicted in the 1990s that the Internet will lead to more balkanization of groups, and we have been seeing this increasingly more. For example, people who gravitate toward online communities that favor their social and political views seem to overestimate the popularity of their views. Blogs and news aggregates that lean left or right become particularly influential in political seasons, offering skewed perspectives."

An **anonymous respondent** wrote, "What will happen with online public discourse will mimic what we see with segregated communities. Folks will only go to the sites that reinforce their worldviews. Some online forums will be safe havens for polite discourse; others will be shouting matches. Unfortunately, in terms of discourse, as in much of civilization building, it is easier to blow up trains, than it is to make them run on time. As long as we have an extreme level of political polarization and civil disenfranchisement, we are likely to view the 'other' with suspicion and deride rather than engage."

Lindsay Kenzig, a senior design researcher, said, "Technology will mediate who and what we see online more and more, so that we are drawn more toward communities with similar interests than those who are dissimilar. There will still be some places where you can find those with whom to argue, but they will be more concentrated into only a few locations than they are now. Given that so much of the world is so uneducated, I don't see that more-inclusive online interactions will be the norm for many many years."

Gail Ann Williams, former director of the Internet-pioneering community The WELL and online community consultant, wrote, "Culture will evolve in small, gated interaction settings as well as in larger settings with less barrier to entry, just as private face-to-face conversation relies on private small-group expression as well as published or public speaking contributions to the public. The advantages and disadvantages to anonymity are enough that there will be a range of settings with a range of choices."

Lauren Wagner, a respondent who shared no additional identifying details, replied, "Hyper-targeted articles, like hyper-targeted ads, will prove the most lucrative for online platforms. While there may be a utopian wish for technological systems that encourage more-inclusive online interactions, polarizing pieces will result in more engagement from users and be financially advantageous to online platforms. Consequently, I believe online public discourse will be shaped

by a more divisive tone and 'bad' actors. Writers are becoming more adept at authoring articles that engage their core readership online, whether it's a broad audience using general clickbait tactics or a more specific audience with, for example, an article supporting a specific political candidate. With the rise of Donald Trump we are seeing that this phenomenon is not only limited to writers. Subjects are learning how to persuade the media to ensure that they receive a certain type of online coverage, which tends to be divisive and inciting."

Polina Kolozaridi, a researcher at the Higher School of Economics, Moscow, said, "Online interaction will become less in written form, even less than now. Voice messages, videos and photos, personal broadcasting, sharing of personal measurements (such as the number of steps you take and other quantities): This is the future of the interaction, even in work communication. Concerning commentary itself, it will tend to become simultaneously more personal (more people will communicate only with those whom they know) and at the same time it will become more massive. Many people globally who have never had experiences in a community will be coming online, therefore it will be more difficult to set norms and administrate big online resources. Free speech will become less regulated. That has its pros and cons. All people will able to express their opinion, but they will be less aware of consequences. Therefore the communication will be at the same time more structured in one cluster of the Internet-space and less structured in another. We see the example of such trends in the Brexit vote."

Some argued for programs that encourage digital literacy and civility. **Daniel Pimienta**, head of the Networks & Development Foundation, noted, "The key factor for the answer is the speed of the deployment of media and information literacy... A study—*Changes Over Time in Digital Literacy*, published in Cyberpsychology & Behavior—offers very worrying trend data. The study measured, at a five-year interval and using the same methodology, the respective levels of media and information literacy of students compared with those of their parents. In the first study appears a low level in digital literacy of the parents and in information literacy of the children. In the second, the level of digital literacy of parents improved and approached the children's, while the level of information literacy of children worsened, revealing the dangerous myth behind the fashionable concept of 'digital natives' and the urgent need to organize the information literacy of young people. The low level of information literacy is the cultural broth for conspiracy theories, disinformation, hate discourses, and so on."

Justin Reich, executive director at the MIT Teaching Systems Lab, said, "Human beings will continue to be terrible to one another online, but they will also be really wonderful to each other online as well. The attention that goes to acts of hatefulness and cruelty online overshadows the many ways that strangers answer each other's questions, tutor one another, and respectfully disagree... I'm quite encouraged by the work that Jeffrey Lin has done at Riot Games to create

sociotechnical systems that reward kindness, civility, and cooperation over disrespect and cruelty. There are smart people out there trying to engineer a more civil Internet, and in various spaces, they will be very successful."

An **anonymous** health information specialist added, "The really awful, violent anonymous speech will get pushed to the darker recesses of the Internet where its authors find their own kind and support."

Increased monitoring, regulation, and enforcement will shape content to such an extent that the public will not gain access to important information and possibly lose free speech

The most worried experts predict that increased oversight and surveillance, left unchecked, will allow dominant institutions and actors using their power to suppress alternative news sources, censor ideas, track individuals, and selectively block network access to shape connected resources that fall under their jurisdiction. They say this, in turn, could limit free speech (shaping how, when, where, and if people express themselves), and create such filtered and fragmented settings that individuals might never know what they are missing out on, since any information deemed in opposition to prevailing interests or assumed to not be of interest to them is likely to be selectively filtered, fully removed, or made unfindable.

An anonymous **freelance consultant** said, "I expect an increase in curated sites, increasingly effective AI filters to delete spam and trolls, and increases in news sites which lack any place for comments and feedback. These will reduce negativity within their realms, at the price of lack of diversity. However, this will be more than offset by niche 'rat holes' of conspiracy sites and narrow perspective 'reporting,' with abundant space for trolls and negativity. The online experience will involve tough choices: either choose to avoid diversity of perspectives and challenges to untruths and journalistic lapses, or choose to deal with negativity, trolls, and BS."

Lisa Heinz, a doctoral student at Ohio University, commented, "Humanity's reaction to those negative forces will likely contribute more to the ever-narrowing filter bubble, which will continue to create an online environment that lacks inclusivity by its exclusion of opposing viewpoints. An increased demand for systemic Internet-based AI will create bots that will begin to interact—as proxies for the humans that train them—with humans online in real-time and with what would be recognized as conversational language, not the word-parroting bot behavior we see on Twitter now.… When this happens, we will see bots become part of the filter bubble phenomenon as a sort of mental bodyguard that prevents an intrusion of people and conversations to which individuals want no part. The unfortunate aspect of this iteration of the filter bubble means that while free

speech itself will not be affected, people will project their voices into the chasm, but few will hear them."

Adrian Hope-Bailie, standards officer at Ripple, wrote, "Automated curation will continue to improve such that online discourse can be more carefully controlled, however the result may not all be positive, as online discourse becomes censored in a way that is more subtle and less obvious to casual observers or participants. Important voices may be shut down if their views contradict the rules defined by the moderators (which may not be limited to controlling abuse or hate-speech) because managing a censored forum that appears to be open will become easier thanks to AI-assisted moderation."

Dudley Irish, a software engineer, wrote, "It will become increasingly possible to tie an actual person to an otherwise anonymous account. This loss of anonymity will lead to a reduction in the trolling behavior seen. Not so much because the trolls behavior will change but because the ability to effectively target them and block them (shun them). This loss of anonymity will have a chilling affect on free speech. This could be addressed legally, but only a minority of government actors are interested in extending and increasing free speech…. The major corporations will act to protect the advertising channel and they have no interest in protecting free speech. These two factors mean that the behavior will be 'nicer' but at a tremendous cost in freedom of expression and free political speech."

Sunil Paul, entrepreneur, investor, and activist at Spring Ventures, wrote, "There are countervailing pressures, but the world of mass media is dead and buried. We are now cooperatively building our own echo chambers with the help of machine learning."

John Bell, software developer, data artist, and teacher at Dartmouth College, wrote, "There will be increasing demand for social networks that have more algorithmic separation of opinions. Rather than reputation- or karma-based systems that try to improve the behavior of all participants, software will respond to trolls by separating competing camps and enforcing filter bubbles. Over time, networks that take a more active hand in managing content (by banning trolls or applying community standards) will be abandoned by communities that feel repressed and replaced with networks that explicitly favor their points of view. This will mirror the self selection we've seen in news viewers in the U.S. who favor Fox News vs. other sources, etc."

Manoj, an engineer working in Singapore, replied, "Negative interaction will increase to a limit after which I feel there will be some self regulation coupled with governmental and procedural requirements. Free speech will be the big loser."

Simon Gottschalk, a sociology professor at the University of Nevada, Las Vegas, wrote, "I anticipate the issue of free speech to become altered beyond recognition and to alter our understanding of it. In the end, it matters little if what we write/say online is indeed already officially and legally surveilled or not. The reasonable hunch is that it shapes how we experience everyday life and what we're willing to write/say in that setting. According to a New York Times article, even Facebook CEO Mark Zuckerberg covers the camera/microphone of his computer."

David Karger, a professor of computer science at MIT, predicted that speech will be "free" but there's no guarantee anyone will be reading or listening to it, writing, "We *will* create tools that increase people's awareness of opinions differing from their own, that support conversations with and learning from people who hold those opinions. You ask about free speech. The Internet transforms free speech from a right to an inevitability. In the long term it will not be possible to prevent anyone from transmitting information; there are simply too many interesting distribution channels for them all to be blocked. However, we need to (and will) develop a better understanding that freedom to *speak* does not imply freedom to *be heard*."

Sam Punnett, research officer at TableRock Media, predicted, "Some intentions for sharing will likely endure but may become compromised due to the evolving realization that they are monitored by employers, businesses, and the state. All services will transform themselves as their business models mature with the intentions of their owners and their relationships to the commercial applications of big data."

An **anonymous respondent** predicted, "We will see, in the coming years, more legislation from governments restricting speech on the Internet. You see this already in the European Union with the rules about taking down 'terrorist' content and even closing websites. Many Internet giants will likewise institute policies that mirror legislation like the kind I mentioned, even if they are under no legal obligation to do so. This will further erode the Internet as a platform for free speech and the spread of ideas. Inevitably, laws and internal private corporation policies will be used to restrict all kinds of speech, not just the 'terrorist' content that the initial policies were ostensibly created to combat. People, companies, and some governments will continue to explore options for increased privacy. This will lead to an arms race of sorts, but as always, the most marginalized sectors of our society will lose out, as they are the ones who are in the weakest position to resist the onslaught of censorship, tracking, and spying. This means that movements that care about justice, equality, privacy, dignity, and human rights must make a point of working to create legislation that recognizes these rights; they must also organize the people into a movement that can make the Internet the promising place it used to be. We must resist the Internet becoming a place to be spied on, where speech is restricted—a place where the inequality of the world is reproduced online."

Marcus Foth, professor of interactive and visual design at Queensland University of Technology, asked, "Will there be a Sixth Estate?" writing:

> "Public discourse online will become less shaped by bad actors, harassment, trolls, and an overall tone of griping, distrust, and disgust, because the majority of interactions will take place inside walled gardens…. Social media platforms hosted by corporations such as Facebook and Twitter use algorithms to filter, select, and curate content. With less anonymity and less diversity, the two biggest problems of the Web 1.0 era have been solved from a commercial perspective: fewer trolls who can hide behind anonymity. Yet, what are we losing in the process? Algorithmic culture creates filter bubbles, which risk an opinion polarisation inside echo chambers. The media (the Fourth Estate) are failing us, and now the Internet (the Fifth Estate), too. So what's left? Will there be a Sixth Estate? Considering urban/digital hybrid activism (Arab Spring, Gezi Park, Vinegar Movement, Stuttgart 21, Occupy, Umbrella, etc.), perhaps networked (not 'smart') cities will become the Sixth Estate, making up for the flaws of the other five estates. I have written about this here: https://theconversation.com/why-we-should-design-smart-cities-for-getting-lost-56492."

A few closing general observations and predictions

Yutan Getzler, an associate professor and department chair at Kenyon College, wrote, "People are people. There was a tendency by people who were involved early on in things like BBS or IRC to overestimate how broadly friendly these spaces were, as they tended to be small and homogenous with regard to gender/race/interests. As much as there are flares of hateful speech, people also can support those who get hated on when it seems broadly unfair."

Paul Lehto, author, commented, "While the Internet powerfully facilitates communication, it doesn't facilitate all types of communication equally well. We all know that certain kinds of conversations should only take place (if we all wish successful outcomes) in person. Examples include mediation of disputes without an intermediary, sensitive conversations between friends, and finding common ground with political opponents. In examples such as these, the Internet helps political allies find each other, and helps amplify disagreements, but does not facilitate the more constructive forms of discourse for many subtle but powerful reasons. The Internet being a prominent form of communication causes me to conclude that communication in the next decade will erode in quality."

Laura Stockwell, digital strategy consultant and owner of Strat School, said, "We will see new types of interactions when Gen Z reaches maturity, in the next 20-30 years. This generation is incredibly collaborative…, and they are creating and consuming media from each other at a very early age. They will not only better understand how to communicate more clearly in the digital space, but, if you subscribe to theories of media ecology, they will think in a more tribal way."

Charlie Firestone, communications and society program executive director and vice president at The Aspen Institute, commented, "It will be more contentious in the coming four to five years because the world is continuing in that direction. But by about five years from now I think [the current level of influence of negative tone and misinformation online] will reverse itself. People will be fed up with the negativity, and solutions will start to work. I don't know which solutions will come to be adopted, but a move toward people staying in circles that are civil is one possibility."

Isto Huvila, a professor at Uppsala University in Sweden, said, "The emergence and current problems of negative online activities is not a digital problem but rather an issue related to the disintegration and reconfiguration of societies…. There could be (and should be) a social demand for tools that help to support social configurations and inclusivity. We can let technology (or

essentially technologists) take the lead but that might not be the best alternative. There seems to be major shift in the attitudes toward free speech. It is essentially a Western value and not everyone sees it as significant as we do. On the other hand the traditional mechanisms of communication that have been used to support, convey and limit that which is included in the idea of free speech are not valid anymore, which makes it difficult to apply the idea of free speech in practice…. We have to be explicit about what we want to see as the value and outcomes of speaking freely, what price we are willing to pay for it and how freely we really want ourselves and others to speak and to whom. Anonymity and privacy will be undoubtedly redefined as well; the current ideas of anonymity and privacy are rather recent concepts. Similarly to free speech, anonymity and privacy need to be defined in relation to digital tools."

"Those who are promoting the free and open Internet as a source of unbiased and representative media, that give a voice to the voiceless in direct competition with corporate-sponsored entertainment conglomerates, will easily find a willing coalition with those who see free speech as above any other concern," **David Morar**, a doctoral student and Google policy fellow at George Mason University, wrote hopefully.

And **Ben Railton**, professor of English and American studies at Fitchburg State University, wrote that online discourse in 2026 will be less shaped by negative activities, observing, "More and more of us—public scholars, but also interested and knowledgeable and engaged folks from all walks of life—are committed to being part of social media and online conversations. More and more of us are willing to read the comments, to engage in discussion and debate, to both add our voices and hear and respond to others. And the vast majority of us are doing so in respectful and collegial and communal ways. We're influencing the conversation, collectively, and will continue to do so."

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