

EMBARGOED UNTIL 10 A.M. E.T. AUGUST 10, 2017

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The Trust Train: Who will be on board and why?

Experts say the future of trust in online interactions is up for grabs

Washington, D.C. (August 11, 2017) – Trust in the internet is friable, fickle and often unfounded, yet it is necessary. Its future is hotly in dispute.

When asked to predict what will happen to trust in online interactions in the next decade, 1,233 technology experts gave far-ranging answers in a canvassing by the [Pew Research Center](#) and [Elon University's Imagining the Internet Center](#). Some expressed confidence that online security and privacy will be improved through advances in artificial intelligence, encryption, blockchain approaches and technology policy and regulation. Others had little faith that such progress will quell threats. Many observed that people are willing to accept or even ignore risks in exchange for the convenience of online interactions, trusted or not. Some said they expect the very nature of trust will change.

Most respondents agreed that the use of the internet for important transactions will grow, trusted or not. One corporate marketing officer put it this way: “The trust train has left the station, continues to gain speed and shows very little chance of slowing down... Breaches may continue and even proliferate, but the technologies will be so embedded in our lives that they will be considered a mere inconvenient side effect of progress.” (A large sampling of additional expert quotes is included in this news release.)

[Lee Rainie](#), director of internet and technology research for Pew, and a co-author of the report, said these experts see trust becoming more multifaceted. “They predict there will be a greater fluidity in trust and distrusting behaviors as technology embeds itself evermore into human relationships,” he explained. “Trust itself will become more contingent and transactional. Some argued that, as the public’s trust in institutions declines and as online social spaces become filled with disputed facts, people will start to allocate trust on a case-by-case, even a moment-to-moment basis.”

This report is the last in a five-part series on the future of the internet emerging from a nonscientific canvassing conducted from July 1 to Aug. 12, 2016. Invited participants were asked the following question *Billions of people use cell phones and the internet now and hundreds of millions more are expected to come online in the next decade. At the same time, more than half of those who use the internet and cell phones still do not use that connectivity for shopping, banking other important transactions and key social interactions. As more people move online globally both opportunities and threats grow. Will people’s trust in their online interactions, their work, shopping, social connections, pursuit of knowledge and other activities be strengthened or diminished over the next 10 years?*

Some **48%** of these respondents chose the option that trust will be strengthened; **28%** said they believe that trust will stay the same; and **24%** predicted that trust will be diminished.

“A significant share of participants made the argument that a large increase in online activity in the next decade might make it *appear* as if the level of trust is fairly high, but actually most people will have become resigned to operating in an environment where there are generally no alternatives—no real choice to opt out of online activities,” said [Janna Anderson](#), director of the Imagining the Internet Center. “They said trust will not grow, but online interaction will rise as it becomes the ‘new normal,’ more people in the world continue to come online and there are generally no other options for many interactions.”

One particular focus of participants' answers involved blockchain technology because the follow-up prompt specifically asked people to consider its role in the future of trust online. Blockchain is an encryption-protected digital ledger designed to facilitate transactions and interactions that are validated in a way that cannot be edited. A share of respondents were hopeful about blockchain as a way to supplant "trust intermediaries" like banks and government agencies in facilitating confidence in online interactions. However, others were skeptical of the far-reaching claims that are made about its impact.

The following six themes were found to be most common in the experts' responses:

- Trust will strengthen because systems will improve and people will adapt to them and more broadly embrace them

- Better technology plus regulatory and industry changes will help increase trust
- The younger generation and people whose lives rely on technology the most are the vanguard of those who most actively use it, and these groups will grow larger

- The nature of trust will become more fluid as technology embeds itself into human and organizational relationships

- Trust will be dependent upon immediate context and applied differently in different circumstances
- Trust is not binary or evenly distributed; there are different levels of it

- Trust will not grow, but technology usage will continue to rise, as a "new normal" sets in

- 'The trust train has left the station'; sacrifices tied to trust are a 'side effect of progress'
- People often become attached to convenience and inured to risk
- There will be no choice for users but to comply and hope for the best

- Some say blockchain could help; some expect its value might be limited

- Blockchain has potential to improve things
- There are reasons to think blockchain might not be as disruptive and important as its advocates expect it to be

- The less-than-satisfying current situation will not change much in the next decade

- Trust will diminish because the internet is not secure, and powerful forces threaten individuals' rights

- Corporate and government interests are not motivated to improve trust and protect the public
- Criminal exploits will diminish trust

A sample of insights shared by participants in the survey:

David Karger, professor of computer science at MIT, urges a "healthy distrust" and encourages the public be more vigilant in working to understand the risks and limitations of emerging technologies. "On the one hand, I believe we are just at the beginning of development of good online tools and I expect significant improvement—even over the next 10 years—that will draw more users to these better tools. On the flip

side, I at least *hope* that people will become generally more educated about the risks and limitations of online interactions, which may lead to a certain healthy distrust even as usage becomes more widespread.”

Naomi Baron, a professor of linguistics at American University, replied, “I suspect that what in fact will be happening is that people will increasingly stop thinking about the trust issue, sensing they have no other option but the internet for conducting the business of daily life. Much as internet users today commonly believe they have no choice when it comes to giving up privacy, I predict users will feel the same way about trust.”

Brad Templeton, chair for computing at Singularity University, wrote, “Trust will be strengthened even though that may be an unjustified trust. Our systems are today extremely insecure and we trust them, and those who are not using them are not staying away because of [a lack of] trust. Also, I think billions more will come online, not hundreds of millions. Biggest impacts will be in economic activity and cultural life.”

Mike Roberts, Internet Hall of Fame member and first president and CEO of ICANN, wrote, “The rise of an entrepreneurial culture among developers has accelerated the diffusion of these systems but there is far to go. Because of the tangible benefits in convenience, quality, quantity, etc., of using such systems, humans will develop advanced techniques for protection from criminal behavior on the ‘Net,’ but such activity will persist online as it does offline. You don’t stop going to the grocery store because there was a carjacking incident last week.”

danah boyd, founder of Data & Society, commented, “Actually, trust will be both strengthened and diminished, depending on context. People will stop seeing it as ‘the internet’ and focus more on particular relationships. Increasingly, large swaths of the population in environments where tech is pervasive will have no other model.”

Gus Hosein, executive director at Privacy International, commented, “Oh, stop talking about blockchains—it’s just the latest in the trend of ‘tech X shall solve woe Alpha.’ We have the knowledge and the capabilities with technologies that have been around for years but a lack of imagination and political understanding has inhibited useful dispersion.”

Vinton Cerf, vice president and chief internet evangelist at Google, a co-inventor of the Internet Protocol and member of the Internet Hall of Fame, noted, “Trust is rapidly leaking out of the internet environment. Unless we strengthen the ability of content and service suppliers to protect users and their information, trust will continue to erode. Strong authentication to counter hijacking of accounts is vital.”

Marc Rotenberg, executive director of the Electronic Privacy Information Center, commented, “Technology is far outpacing security, privacy and reliability. The problem will intensify with the Internet of Things, as the internet connects more machines in the physical world.”

Glenn Ricart, Internet Hall of Fame member and founder and CTO of U.S. Ignite, said, “Trust will be strengthened over the next decade because there is a strong generational shift to interacting online. The expectation of Millennials and others is that they can and should be able to trust online transactions. That expectation will provide fuel to efforts improving trust.”

Dan McGarry, media director at the Vanuatu Daily Post, wrote, “Trust will change in its nature. It will no longer be invested so much in systems and institutions as in individuals. Relationships will matter. On the negative side, much behaviour will be defined by allegiance, which will allow some actors to motivate significant numbers to act against their own interests at times. The human capacity to invest trust in others won’t change unless we undergo significant evolutionary change.”

Cory Doctorow, writer, computer science activist-in-residence at MIT Media Lab and co-owner of Boing Boing, responded, “The increased impoverishment/immiseration of larger and larger segments of society thanks to mounting wealth inequality will drive more reliance on informal networks, barter, sharing, etc., that will be enabled through online activity.”

Bob Frankston, internet pioneer and software innovator, commented, “Trust is not binary. We need to have new forms of trust and Plan B’s for when trust fails. This is where algorithms can help—as with credit card companies seeing patterns—but it cuts both ways.”

Ebenezer Baldwin Bowles, editor at The Indie Tribune, wrote, “Trust will be strengthened, but it will be blind trust enforced by the ceaseless demands of The System, hell-bent to drive everyone online. ‘Resistance is futile,’ the alien superpower said to the altruistic starship captain. Resistance to the interests of the corporate state will be futile if one wants to participate in the commonplace activities of household management and personal finances, or seek diagnosis and treatment from medical practitioners, or pass a bricks-and-mortar course in high school or university.”

An **anonymous respondent** adapted a classic line from U.S. history, writing: “Give me convenience or give me death.” Another anonymous respondent commented, “When compliance can be mechanically enforced at scale, trust is unnecessary.”

An **anonymous head of privacy** said, “Wireless devices and security for IoT applications and online services will continue to improve. As devices and connectivity are made available to more individuals, positive economic and social opportunities will expand. Cross-border law enforcement and consumer and privacy protection, in addition to mobile authentication regimes, will encourage expanding trust.”

Tom Ryan, CEO of eLearn Institute, Inc., replied, “‘Trust’ is neither the inhibitor nor driver for adoption of online interactions. Convenience will drive adoption. For example, motor vehicle deaths in the U.S. reached as high as 51,091 in 1980 and still remain over 30,000 deaths annually yet the number of vehicles registered in the U.S. continues to grow. People accept the life-or-death consequences of driving for the convenience it provides.”

Susan Price, digital architect at Continuum Analytics, wrote, “The paradox is that in order for individuals to realize the incredible potential of technology, we must each uniquely self-identify. Doing so involves great risk. Individuals routinely surrender their rights and commit to legal agreements without studying or understanding the risks and value changing hands. What’s needed is a system (a human application programming interface, or API) that gives individuals appropriate control over their online activities and the data that most closely concerns them. Corporations and governments could ‘opt in’ to support such a system, but must not be the primary creators or maintainers of it. Unless such a system is created and popularized, trust in online systems overall will diminish because governments will continue to violate citizens’ privacy, hackers and thieves will thrive, and corporations will shift more and more of the burdens onto consumers. If an appropriate system emerges and everyone plays by the same rules, trust would ensue.”

Marcel Bullinga, trend watcher and keynote speaker @futurecheck, wrote, “Strengthened trust is my hope, not a prediction. It is the great promise of blockchain of course—in combination with a host of other privacy and trust technologies—that it will make trusted peer-to-peer transactions possible. This is not in the interest of current technology companies and powerful platforms like Google, Facebook, and Uber, so it will be heavily battled. Yet, it would revolutionize our economy into a true, trusted DIY [do-it-yourself] world.”

Jason Hong, associate professor at Carnegie Mellon University, noted, “The main reason trust won’t advance significantly in the near future is cybersecurity. Every single week there is news about some new massive data breach or malware attack. These kinds of cybersecurity problems rightfully erode people’s trust in the internet, and they are only getting worse over time as script kiddies, criminals and state-sponsored hackers get more sophisticated.”

Charlie Firestone, communications and society program executive director and vice president at The Aspen Institute, wrote, “Security measures and hacking are in an arms race. For every advance there will be setbacks. I expect the balance to remain about where it is, with peaks and valleys as the race continues. With trust, people will increase use of online media for transactions. Blockchain technology is a net plus in this ongoing saga.”

Richard Stallman, president of the Free Software Foundation and member of the Internet Hall of Fame, wrote, “I expect people will learn to distrust online commerce more, as they see servers will be cracked and their personal information will become available to bad actors (both criminals and states).”

Henning Schulzrinne, a professor at Columbia University and Internet Hall of Fame member, wrote, “Under the current system, almost all the risks of breaches are borne by individuals, particularly in terms of time and effort of fixing problems. Data once leaked cannot be un-leaked. I’m assuming that the current sorry state of system security will persist, with buggy IoT software, slow upgrades of Android and websites that are still subject to SQL injection and other common programming problems. Currently, blockchain systems do not seem to address any real problems, except if you are in the business of distributing ransomware.”

Jim Warren, longtime technology entrepreneur and activist, responded, “As much as I use, enjoy and am mostly an enthusiastic user of online interactions, sadly, I have to say that it is becoming more and more difficult to do many of them in a reliably secure fashion.... It certainly doesn’t help when governments do everything possible to make sure that such activities—notably some ‘types’ of communications—are difficult or impossible.”

Jamais Cascio, distinguished fellow at the Institute for the Future, observed, “The strengthening of trust is contingent upon the lack of a big ‘asteroid-impact’ event, and assumes that the dynamics currently at play (tension between crime and law enforcement, surveillance and privacy, etc.) continue. Blockchain and similar technologies will help drive this increased trust, but not simply because of broader use of encryption. Blockchain, etc., will make possible truly novel approaches to banking, shopping, learning and nearly every other kind of online interaction.”

Amy Webb, futurist and CEO at the Future Today Institute, observed, “Our trust in our devices tends to stay constant until a catastrophic event—like our accounts being hacked, or a national news story about surveillance, or our devices being stolen.... We willingly put our trust in our devices and digital networks when the benefits of convenience outweigh our fears about privacy. Over time, as our codependent relationship with our devices becomes more acute, the very notion of privacy, and indeed its importance, begins to erode. Those areas of life which will ask for more and more of our personal data include health care, state and national government, travel, commerce, and of course, personal communications—technology companies and social networks. We will put up a fight unless the benefits are immediately understandable and daily life is a little bit better for the exchange.”

David Sarokin, author of *Missed Information: Better Information for Building a Wealthier, More Sustainable Future* (MIT Press), wrote, “I’m not sure ‘trust’ is the right word here. It’s more a matter of attrition and familiarity. As more and more activities migrate online, and as ever larger numbers of people

simply grow up with the internet, it seems inevitable that its use will expand, both in terms of overall numbers people using it, as well as the types and scopes of activities available.”

An **anonymous programmer and data analyst** said, “Corporations grant us access to technology and services in order to increase revenue. This will not change, as the basic infrastructure of the internet is not amenable to privacy and security. Instead we’ve seen a series of patchwork solutions that ultimately always fail or are subverted. Without a total rebuild of the internet itself this will not change, therefore, trust is an illusion.”

Jonathan Grudin, principal researcher at Microsoft, commented, “Mass media stories make it clear that many people trust online media too much and come to regret it. A little reduction in trust could be healthy. The other questions are: Will online media become more trustworthy? Will most people become better at assessing when to trust it? It could become more trustworthy, but I won’t hold my breath. I think people will become somewhat better at assessing trustworthiness.”

Jeff Jarvis, a professor at the City University of New York Graduate School of Journalism, said, “We have many tools at hand to govern our own use of technology—norms, laws, regulation, the market—and we are using them. Sadly, media do not help with this process by usually donning dystopian glasses, asking what could go wrong with any technology rather than also exploring what could go right. Moral panic—#technopanic—often ensues.... So it is important for the technologists to do a better job of acknowledging and addressing what could go wrong and of exploring and promoting what could go right. It is important for other institutions—government, media, education—to help explore the opportunities, if for no other reason than to remain competitive in the world. We’re smart. We’ll figure it out. We always have, eventually.”

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Elon University’s [Imagining the Internet Center](#) holds a mirror to humanity’s use of communications technologies, informs policy development, exposes potential futures and provides a historic record.