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The Future of Well-Being in a Tech-Saturated World

A third of experts predict digital life will mostly harmful to individuals' in the next decade. Many are more hopeful, but the vast majority agrees measures should be taken to improve people's ties to technology

Washington, D.C. (April 17, 2018) – Over the past 18 months, concerns about the personal and societal impacts of digital life have been growing. Those concerns could be seen on display last week as Facebook CEO Mark Zuckerberg faced two days of questioning from members of Congress over the company's power and impact on American life. A [new canvassing of technology experts](#) finds that a third of them (32%) believe digital life will produce more harm than help when it comes to people's well-being in the coming decade. However, nearly half of those in this canvassing (47%) say it will produce more help than harm. The vast majority (92%) of both the hopeful and the worried recommend that government policies, technology company practices and user norms need to change to mitigate the harms and accentuate the benefits of digital tech.

The sampling of expert views is part of the "[Future of the Internet](#)" studies led by [Pew Research Center](#) and [Elon University's Imagining the Internet Center](#). The primary question asked of experts was, "Over the next decade, how will changes in digital life impact people's overall well-being physically and mentally?" Some 32% of the 1,150 respondents in this sample said people's well-being will be more harmed than helped by digital life, 47% said people's well-being will be more helped than harmed and 21% said there will not be much change in the coming decade.

"We undertook this study to explore how experts feel about the growing level of concern among commentators that digital life poses challenges to people's health and welfare," said Lee Rainie, director of Internet and Technology studies at Pew Research. "Nearly all of the experts expressed their deep appreciation for the continually expanding benefits of digital life. But many are also worried and almost all of them have ideas about how to mitigate problems like distraction, addiction and polarization that are in the news environment now."

Janna Anderson, director of the Imagining the Internet Center at Elon University said, "Ninety-two percent of these experts said there are potential solutions. They urge that digital and human systems be reimagined, hardware and software be reconfigured, laws, rules and standards be expanded, education efforts refocused and expectations recalibrated."

A few of examples of the many proposed solutions:

- Crafting new anti-trust laws to regulate large technology companies.
- Holding algorithms, and the companies responsible for them, accountable for their role in shifting and shaping social and political power dynamics.
- Creating "nudge" systems to remind people when their data are being collected and reminding them how algorithms work to deliver content to them.
- Developing a "digital bill of rights" that privileges human dignity over the profit motive. A few argued tech companies should be turned into regulated utilities.
- Creating laws and regulations offering more privacy protection to users and rights when they are under surveillance – or "dataveillance" – from both technology firms and government activities.
- Integrating better-targeted digital media literacy more deeply into educational systems.
- Reexamining the industrial-era social contract of expected rights and obligations of companies and workers when it comes to jobs and of governments and citizens when it comes to safety nets.

Among the hundreds of comments about technology and well-being in the next decade:

Participant **Rob Reich**, professor of political science at Stanford University: “The massive and undeniable benefits of digital life – access to knowledge and culture – have been mostly realized. The harms have begun to come into view just over the past few years, and the trendline is moving consistently in a negative direction. I am mainly worried about corporate and governmental power to surveil users (attendant loss of privacy and security), about the degraded public sphere and its new corporate owners that care not much for sustaining democratic governance. And then there are the worries about AI [artificial intelligence] and the technological displacement of labor. And finally, the addictive technologies that have captured the attention and mindspace of the youngest generation. All in all, digital life is now threatening our psychological, economic and political well-being.”

Rich Salz, principal engineer at Akamai Technologies: “We have already seen some negative effects, including more isolation, less ability to focus, more ability to be deceived by bad actors (fake news) and so on. I do not see those lessening. Sadly.”

Leora Lawton, executive director of the Population Center, University of California-Berkeley: “Long-term effects of children growing up with screen time are not well understood but early signs are not encouraging: poor attention spans, anxiety, depression and lack of in-person social connections are some of the correlations seen, as well as the small number who become addicts and non-functioning adults.”

Nicholas Carr, author of numerous books and articles on technology and culture: “We now have a substantial body of empirical and experiential evidence on the personal effects of the internet, social media and smartphones. The news is not good... In general, the kind of constant, intrusive connectedness that now characterizes people's lives has harmful cognitive and emotional consequences. Among other things, the research reveals a strong association, and likely a causal one, between heavy phone and internet use and losses of analytical and problem-solving skill, memory formation, contextual thinking, conversational depth and empathy as well as increases in anxiety.”

Michael Kleeman, senior fellow at the University of California-San Diego and board member at the Institute for the Future: “The early promise of the Net has been realized, but the financial incentives to use it for harmful purposes, including legal and illegal ones, has proven too attractive. ‘Digital Life’ will continue to erode personal interactions, reduce the diversity of ideas and conversation and contribute to negative health impacts. Other than the use of data analytics we have virtually no proof that wearables, etc., alter health trajectories. We do have evidence of a radical reduction in privacy, increase in criminal activity (as digital means reduce the cost of major financial and personal crimes), reduction of engagement with and caring for the environment as a result of increased interaction with online and digital devices.”

Judith Donath, author of “The Social Machine, Designs for Living Online”: “We need to ask, ‘Who profits from our well-being and who profits from our anxiety? ... Improving our well-being is not necessarily the aim of corporations developing new products nor, unfortunately at this point, of the U.S. government that controls the direction of much technological development... Keeping people in a continual state of anxiety, anger, fear, or just haunted by an inescapable, nagging sense that everyone else is better off than they are can be very profitable... We will see a big increase in the ability of technologies to affect our sense of well-being. The ability to both monitor and manipulate individuals is rapidly increasing.”

Dewayne Hendricks, CEO of Tetherless Access: “It is important to consider just how much of digital life is provided/controlled by cyber monopolies. Those entities will have an ever-increasing ability to control/shape the factors that make up that digital life. I see individuals for the most part having less control as time passes.”

Sherry Turkle one of the world's foremost researchers into human-computer interaction was one of the experts who offered up solutions for improving digital life's impacts on individuals' well-being. She suggested: “**1**) Working with companies in terms of design – [digital tools] should not be designed to engage people in the manner of slot machines. **2**) [Starting] a movement on every level to make software

transparent. This is a large-scale societal goal! **3)** Working with companies to collaborate with consumer groups to end practices that are not in the best interests of the commons or of personal integrity. **4)** A fundamental revisiting of the question of who owns your information. **5)** A fundamental revisiting of the current practices that any kind of advertisement can be placed online (for example, ads that are against legal norms, such as ageist, sexist, racist ads). **6)** Far more regulation of political ads online. **7)** An admission from online companies that they are not 'just passive internet services.' **8)** Finding ways to work with them so they are willing to accept that they can make a great deal of money even if they accept to be called what they are! This is the greatest business, political, and social and economic challenge of our time, simply learning to call what we have created what it really is and then regulate and manage it accordingly, bring it into the polity in the place it should really have."

Joseph Turow, professor of communication at University of Pennsylvania's Annenberg School of Communication, said, "The responses will require a complex combination of public education, government activity and corporate agreement. Some of the harms – for example, those relating to issues of surveillance and privacy – unfortunately result from corporate and government activities in the political and business realms... Vested interests will make it extremely difficult to address privacy and surveillance practices so that they match the public interest, but advocacy groups will keep trying and they may make some progress with increasing public awareness."

Daniel Weitzner, principle research scientist, MIT Internet Policy Research Initiative, explained, "Human beings want and need connection, and the internet is the ultimate connection machine. Whether on questions of politics, community affairs, science, education, romance or economic life, the internet does connect people with meaningful and rewarding information and relationships... I have to feel confident that we can continue to gain fulfillment from these human connections."

Rob Atkinson, president of the Information Technology and Innovation Foundation, said, "Like most technologies, the overall benefit is positive, otherwise people would not adopt them. The internet and its continuing evolution is no different. With all the popularity of 'internet-is-harmful' books, articles and talks these days, they overlook the amazing good that it provides for most people. As the internet has matured and become more ubiquitous we have all too often taken for granted the amazing improvement in our lives."

Vint Cerf, Internet Hall of Fame member and vice president and chief internet evangelist at Google, commented, "I am persuaded that we will have more tools at our disposal to improve our ability to do knowledge work, to discover relevant information, to keep ourselves and others informed. Machine learning will be part of that toolkit. Autonomous software running in the background (think: Google Alert for example) will also prove useful. Automatic translations (spoken and written) will improve our ability to conduct international business or maintain relationships. New businesses will form around these advanced information-processing capabilities."

Ethan Zuckerman, director of the Center for Civic Media at MIT, wrote, "We're at a moment of waking up to downsides and figuring out how to address them – this isn't a moment to back away from the internet as a space for interaction."

Paul Saffo, a leading Silicon-Valley-based technological forecaster and consulting professor in the School of Engineering at Stanford University, said, "Heraclitus put it eloquently over two millennia ago – 'nothing new comes into our lives without a hidden curse.' The greater the marvel, the greater the unexpected consequences. Five centuries ago, the advent of the printing press utterly atom-smashed the social, religious and ultimately the political order of Europe. It ushered in a half century of chaos and conflict. But it also opened the door to the Enlightenment and the rise of representative political orders. The optimistic internet visionaries of the 1990s were neither naive nor mistaken. The expected future always arrives late and in unexpected ways. We are in for a wild period of disorder, but beyond is a sunny upland."

Themes About the Future of Well-Being and Digital Life

MORE HELPED THAN HARMED

- Connection** Digital life links people to people, knowledge, education and entertainment anywhere globally at any time in a nearly frictionless manner.
- Commerce, Government and Society** Digital life revolutionizes civic, business, consumer and personal logistics, opening up a world of opportunity and options.
- Crucial Intelligence** Digital life is essential to tapping into an ever-widening array of health, safety, and science resources, tools and services in real time.
- Contentment** Digital life empowers people to improve, advance or reinvent their lives, allowing them to self-actualize, meet soulmates and make a difference.
- Continuation Toward Quality** Emerging tools will continue to expand the quality and focus of digital life; the big-picture results will continue to be a plus overall for humanity.

MORE HARMED THAN HELPED

- Digital Deficits** People’s cognitive capabilities will be challenged in multiple ways, including their capacity for analytical thinking, memory, focus, creativity and mental resilience.
- Digital Addiction** Internet businesses are organized around dopamine-dosing tools designed to hook the public.
- Digital Distrust/ Divisiveness** Personal agency will be reduced and emotions such as shock, fear, indignation and outrage will be further weaponized online, driving divisions and doubts.
- Digital Duress** Information overload + declines in trust and face-to-face skills + poor interface design = rises in stress, anxiety, depression, inactivity and sleeplessness.
- Digital Dangers** The structure of the internet and pace of digital change invite ever-evolving threats to human interaction, security, democracy, jobs, privacy and more.

POTENTIAL REMEDIES

- Reimagine Systems** Societies can revise both tech arrangements and the structure of human institutions, – including their composition, design, goals and processes.
- Reinvent Tech** Things can change by reconfiguring hardware and software to improve their human-centered performance and by exploiting tools like artificial intelligence (AI), virtual reality (VR), augmented reality (AR) and mixed reality (MR).
- Regulate** Governments and/or industries should create reforms through agreement on standards, guidelines, codes of conduct, and passage of laws and rules.
- Redesign Media Literacy** Formally educate people of all ages about the impacts of digital life on well-being and the way tech systems function, as well as encourage appropriate, healthy uses.
- Recalibrate Expectations** Human-technology coevolution comes at a price; digital life in the 2000s is no different. People must gradually evolve and adjust to these changes.
- Fated to Fail** A share of respondents say all this may help somewhat, but – mostly due to human nature – it is unlikely that these responses will be effective enough.

PEW RESEARCH CENTER and ELON UNIVERSITY’S IMAGINING THE INTERNET CENTER, 2018

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