# Imagining THE Digital Future

A research center focused on the impacts of the digital revolution and what lies ahead

ELON UNIVERSITY

# Forecasting the impact of technologies that are transforming our lives and the world

Message from
Connie Ledoux Book
Elon University president

As powerful new artificial intelligence systems immerse us more deeply in digital life and begin to generate knowledge, Elon is expanding its longstanding research focused on the future. The **Imagining the Digital Future Center** is collecting insights from people around the world, helping illuminate potential opportunities and threats.

Elon has established its position as a leading voice in anticipating the impact of accelerating technologies. We have created an unparalleled body of work that both documents the history of the digital revolution and imagines what lies ahead.

We are excited to welcome Lee Rainie to Elon to lead us forward on this critical research. In his 24 years as director of Internet and Technology Research at Pew Research Center, Lee established Pew as the "go-to" source for accurate, fair and thoughtful information on the evolution of the internet and technology. Prior to joining Pew, Lee spent 12 years as managing editor of U.S. News & World Report.

Lee brings his considerable expertise to Elon and his leadership will position our community as a prominent voice as we grapple with astonishing change. The Center's work begins with a deep-dive forecast of the impact of artificial intelligence by 2040.

## A UNIQUE HISTORY AND FORECAST

## IMAGINING THE DIGITAL FUTURE SINCE 2000

Researchers at Elon's Imagining the Internet Center have documented the evolution of digital life since the turn of the millennium. They have helped us understand these changes by gathering thousands of expert views and predictions about such key developments as cyberterrorism, mobile connectivity, the health impacts of always-on connectivity, challenges to democracy, weaponized disinformation, the metaverse and much more.

### EXPERT SURVEYS

- 48 long-form research reports with insights by thousands of experts from industry, government and academia
- Six books about the future of the internet, including insights from those who built the network about how well their dreams were realized
- Presentations at the invitation of the White House, European Parliament, World Bank, World Economic Forum, U.S. Congress, U.S. Department of State and communications regulators

### TIME CAPSULE

- Documentation and analysis of typical personal use of the early internet in the 1990s and 2000s
- A database of more than 4,000 predictions made in public media from 1990 to 1995 about the internet's potential future
- A database of publicly submitted predictions from 2004 to 2013 about the changes most likely to come

### GLOBAL EVENTS

- Students, faculty, staff and alumni have documented proceedings and conducted interviews at 30 global tech gatherings, including 12 U.N. Internet Governance Forums
- An online repository of 6,500 video interviews, 4,500 social media posts and hundreds of stories and photographs

# The need to carefully manage the digital revolution has never been more urgent

Message from
Lee Rainie
Imagining the Digital
Future Center Director

## Twenty-five years ago, I had a friendly meeting with some Elon University faculty members to chat about my new job as inaugural director of the Pew Internet & American Life Project.

The meeting soon became a brainstorming session for topics my new project might study. One great idea was to ask experts about the future of the internet and digital life. It was a time of tremendous ferment in digital technology, and there were exciting innovations on the immediate horizon – things like mobile connectivity (we didn't yet call them "smart phones") and social networking platforms (we didn't yet call that "social media"). So, off we charged. Elon partnered with Pew, creating its Imagining the Internet Center, run by Director Janna Anderson. Our first effort, in the early 2000s, was to create a database with thousands of predictions about the internet made by experts in the early 1990s.

Next, we turned our sights on the future. In 2004, we began a series of survey-style canvassings of experts, asking them to share their insights as to what might happen in the coming decade or so. In all, the partnership between Elon and the Pew Internet Project has fielded 16 such canvassings of experts, yielding 48 reports about the future covering dozens of trends and issues, from the rise of cyberterrorism and AI to the trajectory of the metaverse.

In 2024, Elon's expanded, more-ambitious and newly named Imagining the Digital Future Center advances this work with studies that will cover expert views, general public opinion, and computational analysis. We hope to provoke vigorous debate about the future, undergirded by data and diverse commentary.

# A VITAL MISSION FOR THE DIGITAL AGE

### ASKING DIFFICULT QUESTIONS TO SERVE THE PUBLIC GOOD

The Center will capture a diverse range of opinions and ideas and report on them in an independent, objective, non-partisan way. It will strive to inform existing debates and spark new conversations about the direction of digital change at tipping points when decisions can be influenced.

### ENGAGING WITH LEADERS WHO CAN SHAPE THE FUTURE

The Center will seek partnerships with key leaders across all fields: policy-makers, technology companies, media and other influencers. The goal is to discover and broadly share insights that can help produce positive change.

### INFORMING THE FUTURE THROUGH TODAY'S INSIGHTS

The Center's research will combine experts' views with public opinion polling in reports that reveal both elite predictions and citizens' opinions about vital issues. The content will be widely and freely distributed. It will inform policy debates via stakeholder presentations and be framed for coverage in media outlets.

## A NEW AGE OF ENLIGHTENMENT? A NEW THREAT TO HUMANITY?

# THE IMPACT OF ARTIFICIAL INTELLIGENCE BY 2040

This inaugural report from the Imagining the Digital Future Center builds on a 20-year effort by Elon University and the Pew Research Center to anticipate major societal changes spawned by the rise of digital technology. It carries on the spirit of the previous Elon-Pew collaborations, gathering, analyzing and reporting people's predictions about the likely impacts of artificial intelligence (AI) on individuals' lives and major institutions and societal systems by 2040.

**In a new approach, this two-part report includes the results of our first national public opinion survey plus the in-depth views of scores of experts who are technology developers, business and policy leaders, researchers, analysts and advocates.**

The public and expert groups were asked to share their opinions about how people's uses of AI might influence a variety of dimensions of life – ranging from changes ahead in individuals' personal lives, to its impact on bedrock institutions such as politics and elections, health care delivery, education and others. Results show that the general public and the experts were in fairly close agreement on some dimensions of the likely future, but not all.

Many of the experts submitted thought-provoking essays that challenge common opinions about the potential benefits and threats of AI.

**The experts' comments are organized around five key themes:**

1. **We will have to reimagine what it means to be human.**
2. **Societies must restructure, reinvent or replace entrenched systems.**
3. **Humanity could be greatly enfeebled by AI.**
4. **Don't fear the tech; people are the problem and the solution.**
5. **Key benefits will arise.**

**Read full details of this report and download a white paper at: bit.ly/AI2040**

# TWO APPROACHES TO ANTICIPATING THE CHANGES AHEAD

**This two-part report includes quantitative and qualitative insights, providing a fascinating vision of the potential "State of AI" by 2040. The findings document people's attitudes, hopes and fears as we forge new relationships with the technologies we have created – tools that one day are likely to rival or surpass us in many regards.**

## THE NATIONAL PUBLIC OPINION SURVEY

Imagining the Digital Future worked in consultation with the Elon Poll, the university's public opinion polling center established in 2000, to develop a national survey. The poll measured the general public's awareness of artificial intelligence and asked for their views about the future impact of AI technologies.


International market research and consulting firm Ipsos conducted the poll, using its KnowledgePanel® probability-based online survey, which is representative of the U.S. population. Some 1,021 people responded to the survey, which was conducted Oct. 20-22, 2023, and the margin of error is plus or minus 3.2%.

## THE 17TH "FUTURE OF DIGITAL LIFE" EXPERTS CANVASSING

This canvassing of experts continues the series of expert surveys that began in 2004 in a partnership with Pew Research. Elon University researchers have collected and shared tens of thousands of predictions about the challenges and opportunities of technological change over the past 20 years.

In all, 328 experts responded to at least one aspect of the canvassing, including 251 who answered multiple choice questions and 166 who provided written answers to the key open-ended question. The prompt for that query was:

*"Considering the likely changes created by the proliferation of AI in individuals' daily lives and in society's social, economic and political systems, how will life have changed by 2040? What stands out as most significant to you? Why? What is most likely to be gained and lost in the next 15 or so years?"*

A full rundown of the methodology and topline findings for both the public opinion survey and the expert canvassing can be found at: bit.ly/AI2040methodology

# AI's IMPACT ON PERSONAL LIVES

As Americans begin to encounter artificial intelligence (AI) tools in their daily lives, they are wary about the impact these technologies could have by 2040.

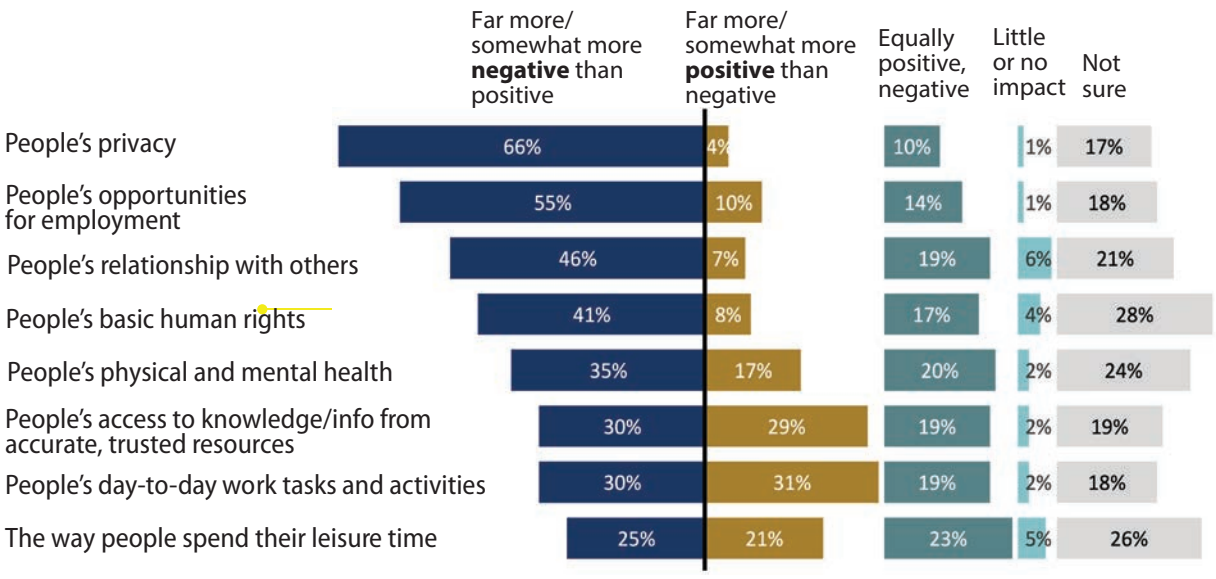
They are especially concerned about the continued erosion of personal privacy, their opportunities for employment in the AI age, how these systems might change their relationships with others and the potential impact on basic human rights.

Americans have more optimism about AI's potential effect on day-to-day work activities and people gaining greater access to accurate knowledge and information.

At the same time, many people say they are either not sure what lies ahead as AI expands, or they expect both positive and negative impacts.

## Artificial intelligence's level of impact on people's personal lives

*% of U.S. adults who say artificial intelligence will have ____ level of impact by the year 2040 on ...*




*Those who did not answer are not shown
**Numbers may not add up to 100% due to rounding

Source: Elon University poll of U.S. adults, Oct. 20-22, 2023

# AI's IMPACT ON SOCIETY

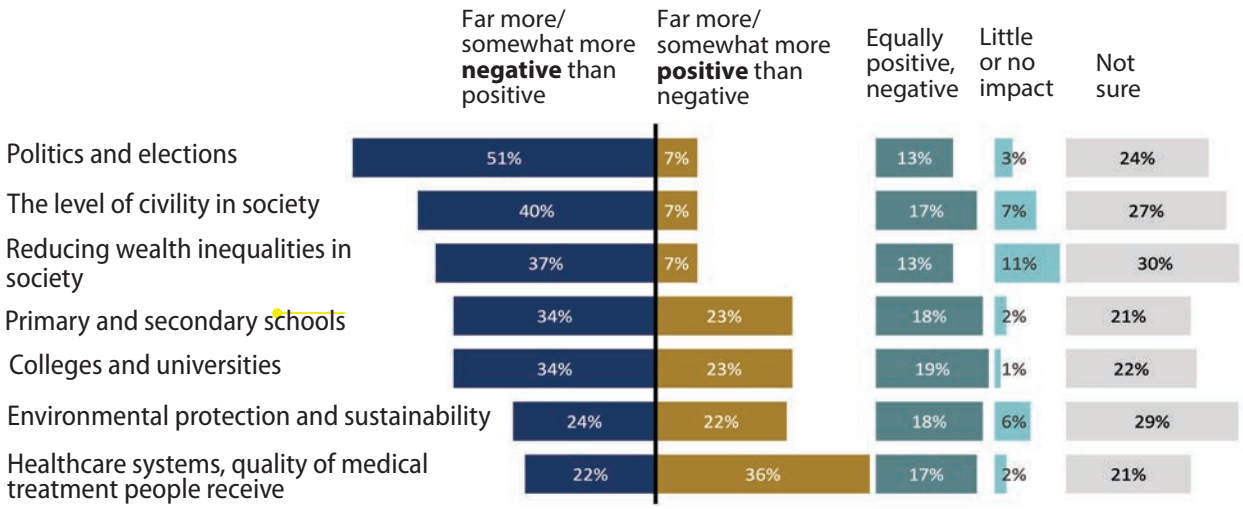
Americans are more likely than not to hope AI will improve the nation's healthcare systems and the quality of medical treatment by 2040. Still, they have deep concern that AI will negatively impact politics and elections and further erode the level of civility in society. They also are concerned that the level of wealth inequality will continue to grow.

Adults' opinions are more evenly split about the impact of AI on K-12 education and colleges and universities, as well as issues related to environmental protection.

On each of the issues we queried, about a quarter or more of Americans say they are not sure what the impact of AI will be on societal systems, or they expect little or no impact.

## Artificial intelligence's level of impact on societal institutions and systems

*% of U.S. adults who say artificial intelligence will have _____ level of impact by the year 2040 on ...*



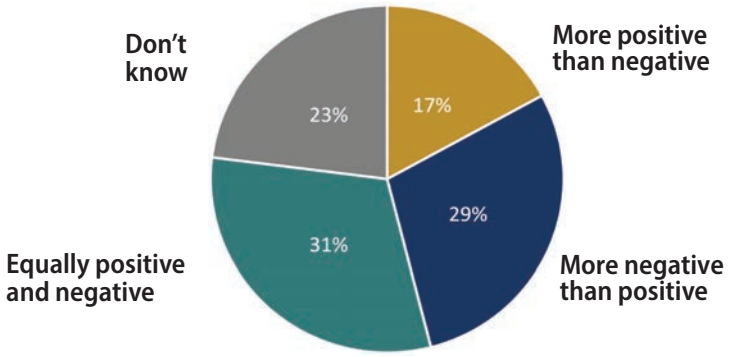

*Those who did not answer are not shown
**Numbers may not add up to 100% due to rounding

Source: Elon University poll of U.S. adults, Oct. 20-22, 2023

# BIG-PICTURE OPINIONS ABOUT AI

The results of this national survey make it clear that Americans are divided when they think about AI's impact on people's daily lives. Just 17% are more positive than negative. The rest are divided among those who say they are more positive than negative, those who are equally positive and negative and those who say they don't know which way things will unfold.

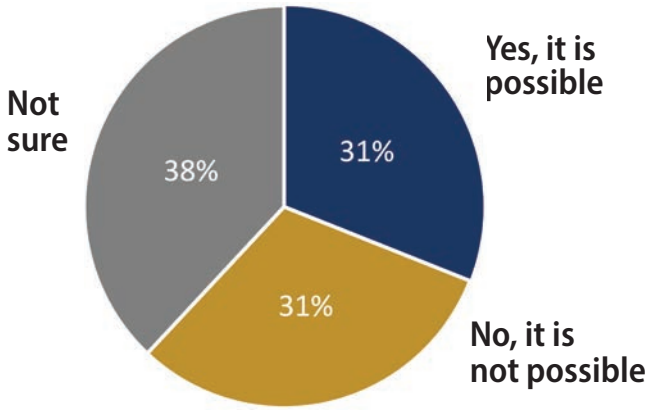
**Overall, how will the increased use of AI affect the quality of people's daily lives?**




*Those who did not answer are not shown
Source: Elon University poll of U.S. adults, Oct. 20-22, 2023

As they size AI up, Americans have a split verdict about the big question of whether AI systems can be designed to make decisions in people's best interests.

**Do you think it is possible or not possible for people to design AI computer programs that can consistently make decisions in people's best interest in complex situations?**



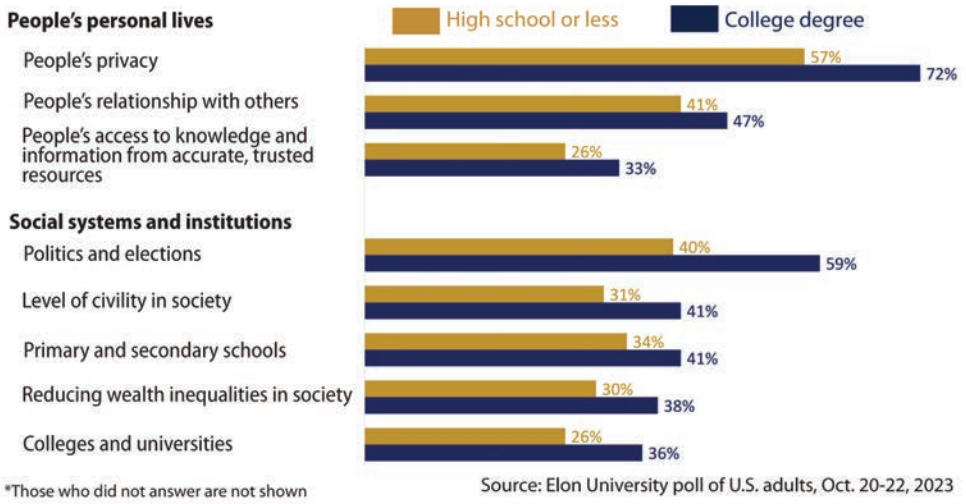

*Those who did not answer are not shown
Source: Elon University poll of U.S. adults, Oct. 20-22, 2023

# PATTERNS IN THE SURVEY FINDINGS

There are some patterns in the general public survey data that are worth noting. Those with higher levels of education – a college degree or more – are more likely than those with a high school education or less to say the effects of AI will be more negative than positive. Some areas where that shows up: concerns about people's privacy, politics and elections, colleges and universities, wealth inequalities and the level of civility in society.

**Those with higher levels of education are more likely to say the impact of artificial intelligence will be more negative in some areas of life**

*% of U.S. adults in each group who say the impact of AI by the year 2040 will be very or somewhat **more negative than positive** in these aspects of life*




*Those who did not answer are not shown

Source: Elon University poll of U.S. adults, Oct. 20-22, 2023

Those with higher levels of education are considerably more upbeat about the impact of AI on people's day-to-day work activities. Some 46% of those with college degrees say the effect of AI will be more positive than negative on people's day-to-day work tasks, while 21% of those with high school or less education think so.

Women and men at times have different views about the impact and outcomes of the technology. For instance, women are more pessimistic than men when it comes to the effect of AI on people's opportunities for employment and on their overall physical and mental health. Men are somewhat more doubtful about the impact of AI on people's leisure time.

There are also some differences by race and ethnicity. White Americans are generally more likely than Black Americans to say the impact of AI will be more negative than positive. That includes their views on the influence of AI when it comes to privacy, access to accurate information, the level of civility in society and politics and elections. The views of Hispanic Americans on these issues usually sit between Black Americans and White Americans. (There were not enough Asian Americans in the sample to do a statistically reliable analysis. At the same time, the views of Asian American adults were included in the overall sample.) On many of these issues, Black Americans and women were particularly likely to say they were not sure what the impact of AI would be on various aspects of life.

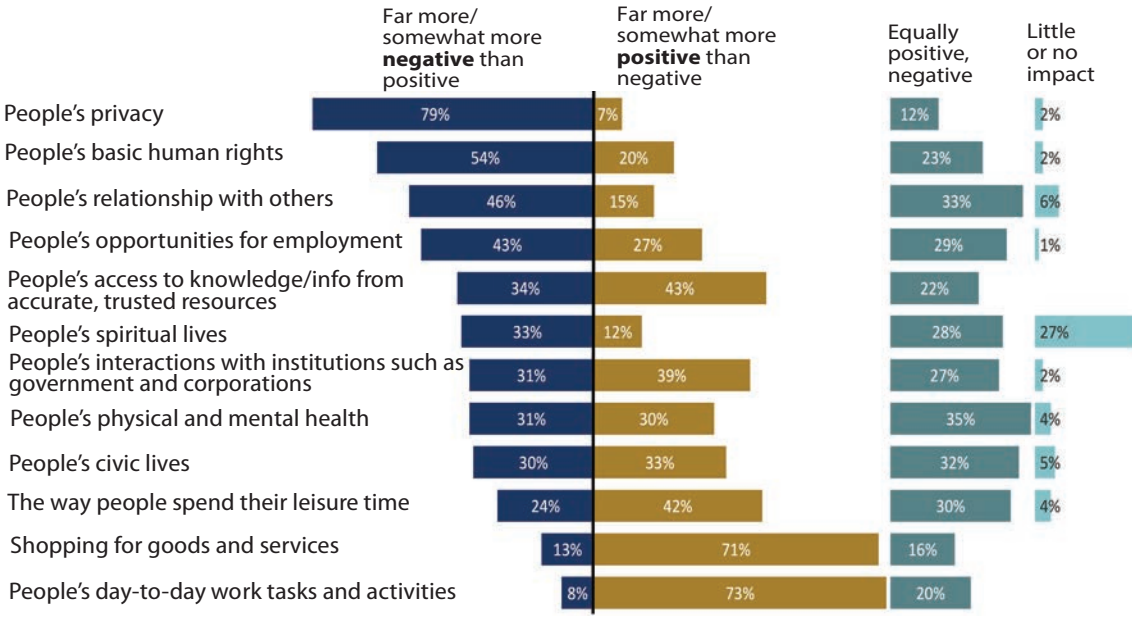
## EXPERT PREDICTIONS FOR 2040

# AI'S IMPACT ON INDIVIDUALS AND SOCIETY

Digital technology builders and analysts were asked to think about the impact of AI on 25 different aspects of people's personal lives and societal systems by the year 2040. Around 250 experts answered these questions and here are their views.

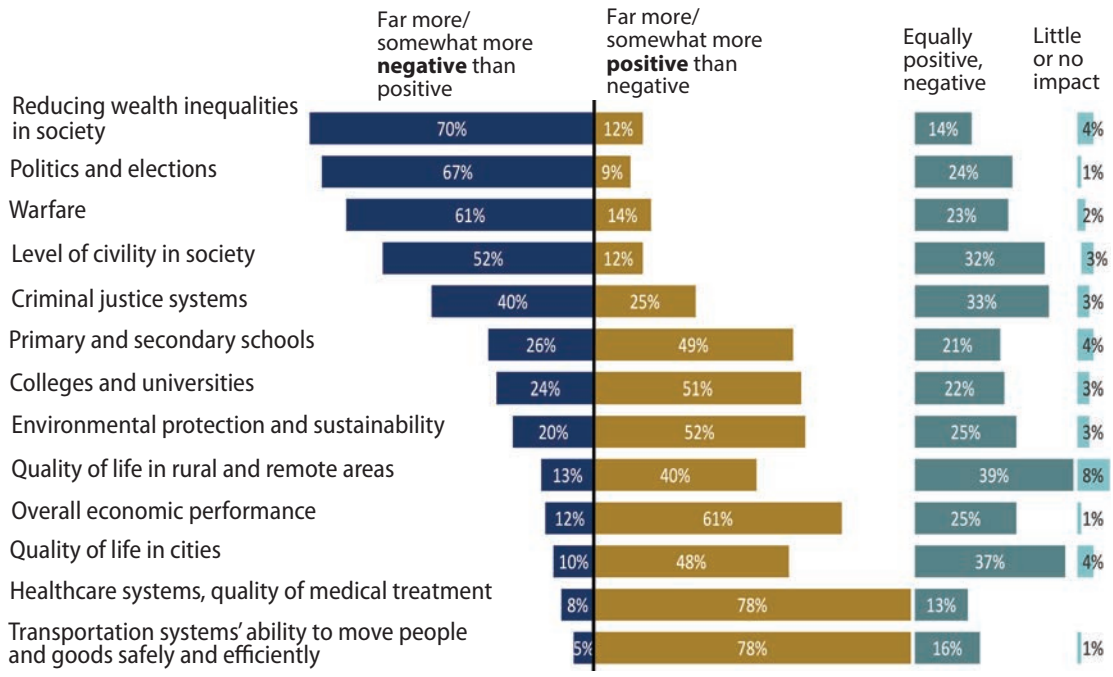
### Experts' views on AI's level of impact on people's personal lives

*% of experts who say artificial intelligence will have _____ level of impact by the year 2040 on ...*




### Experts' views on AI's level of impact on social institutions and systems

*% of experts who say artificial intelligence will have _____ level of impact by the year 2040 on ...*




Note: Non-scientific canvassing of internet pioneers, builders and analysts

Source: Elon University canvassing of technology experts, Oct. 4-Nov. 6, 2023

## EXPERT PREDICTIONS FOR 2040

# COMPARING PUBLIC AND EXPERTS' OPINIONS

Many of the questions in the national public opinion survey were also included in a non-scientific canvassing of global technology experts. The results show notable variability in their answers. Comparisons of the opinions expressed by the two groups are summarized in this chart:

### Predicting the impact of AI

**Comparing opinions of the general public and technology experts**

**General public top areas of concern**

1. Privacy - 66%
2. Employment opportunities - 55%
3. Politics & elections - 51%
4. Relationships with others - 46%
5. Basic human rights - 41%
6. Levels of civility in society - 40%
7. Wealth inequalities in society - 37%
8. Physical and mental health - 35%

**Tech expert's top areas of concern**

1. Privacy - 79%
2. Wealth inequalities in society - 70%
3. Politics & elections - 67%
4. Warfare - 61%
5. Basic human rights - 54%
6. Level of civility in society - 52%
7. People's relationship with others - 46%
8. Employment opportunities - 43%

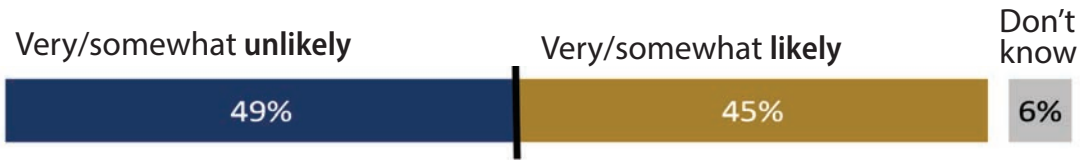
Percentages indicate participants who say the impact will be far more/somewhat more negative than positive.

## THE EXPERTS' VIEWS

# ARTIFICIAL GENERAL INTELLIGENCE

These experts were asked questions about the possible emergence of artificial general intelligence (AGI) – the idea that computing capability could become so great that it could perform any intellectual task that a human can, or even surpass human intelligence. The questions:

**How likely is it that there will be a scientific consensus by 2040 that Artificial General Intelligence has been achieved?**




Note: Those who did not answer are not shown
Source: Non-scientific canvassing of technology experts, Oct. 4-Nov. 6, 2023

**Will there be scientific consensus by 2040 that AGI has been achieved?** There was an evenly split verdict on this.

**How do the advances they see in AGI make them feel?** 39% are equally excited and concerned; 37% said they are more concerned than excited; 17% are more excited than concerned; 7% are neither excited nor concerned.

**How likely do they think it is that AGI could pose an existential risk to humanity at some point in the future, probably beyond 2040?** 48% think it is very or somewhat likely such a risk could be posed; 47% believe it is very or somewhat unlikely; 5% say they don't know.

## EXPERTS' VIEWS

# PREDICTIONS ABOUT AI IMPACT BY 2040

We asked hundreds of experts to predict how AI will impact individuals and institutions by 2040, particularly: What is most likely to be gained and lost in the coming years? Their answers about AI's effect were wide-ranging.

## THEME 1: We will have to reimagine what it means to be human

As AI tools integrate into most aspects of life, some experts predict the very definition of a "human," "person" or "individual" will be changed. Among the issues they addressed: What will happen when we begin to count on AIs as equivalent to – or better than – people? How will we react when technologies assist, educate, and maybe share a laugh with us? Will a human/AI symbiosis emerge into a pleasing partnership? Will AI become part of our consciousness?

### There will be turmoil as human identity is challenged

"The confusion and crisis over individuals' AI-aided (or addled) identity/identities could cause individuals turmoil in billions of inner worlds and this could lead to the total destruction of humans from within. This is the real existential threat of the 21st Century. But, if humans can find ways to collaborate, co-pilot and co-mingle with AI in a partnership, it could be that AI can extend and augment our inner selves, and we could find ourselves achieving much more than we thought possible."

**Tracey Follows**
CEO, Futuremade UK

**Henry Brady**
Professor of public policy,
University of California-Berkeley

### Are we willing to redefine what a person is?

"What will happen when people face the possibility that they might have to think of AI as 'human'? Most people are not ready to redefine, in this new digitally-enabled realm, what it means to be a person. Regulation is essential, but requires a level of effort and innovation that I am not sure we are prepared to undertake. My bottom-line belief is that regulation will be too late and too little because politicians are ill-equipped to do anything."

### Humans may not even notice their losses as the world is infused with AI

"By 2040 it will be difficult to know whether something we see or experience has been human-generated. ... In this process we may find that our humanity is gradually and systematically stripped away. As AI becomes a taken-for-granted aspect of everyday life in the coming decades will we even notice?"

**Mary Chayko**
Professor of communication,
Rutgers University

**Eric Saund**
Independent AI researcher

### AI impact will be a mix of local benefits and global chaos

"The AI genie will not be contained. As a means for humans to cooperate and compete, AI will be pitted against AI at multiple scales of granularity. The result will be a complex mixture of localized benefits and global chaos. Each individual and community will have to come to terms with a world that is increasingly unstable and unpredictable. For some, AI will become ever more powerful instruments for acquiring resources, gaining power and exerting control. For others, AI will become pacifiers, friends, partners, scapegoats and the face of perceived or actual containment and oppression."

# EXPERTS' VIEWS: PREDICTIONS ABOUT AI IMPACT BY 2040

**Chen Qiufan**
Co-author with leading AI expert Kai-Fu Lee of the book, "AI 2041: 10 Visions for Our Future"

## The boundary between organic and artificial will erode

"The most profound metamorphosis I envisage is the erosion and redefinition of the traditional demarcations between the organic and the artificial, the sentient and the insentient. ... Governance structures may evolve, blending human discernment with algorithmic precision, aiming to orchestrate a just, harmonious society amidst a plethora of new challenges and opportunities. … The treasure most likely to be garnered is the leap in collective intelligence, a symbiotic augmentation of human potential with artificial sagacity."

**Joscha Bach**
AI researcher and fellow, previously principal AI engineer at Intel Labs

## Humans need to become more 'meta-aware'

**Barry Chudakov**
Principal, Sertain Research

"By 2040, adjunct intelligence will be everywhere, exercising a dramatic effect on each person's identity and individual perception. AI's collective powers and uber-reasoning are arriving as a silent encroaching on human consciousness. … This will demand that humans become more meta-aware, realizing it is how we entrain with our tools, which in turn will alter our thinking and behaviors. … As a result, individual perception will matter less, and collective facticity will matter more."

## We must 'reconsider the role of humanity within life on Earth'

"By 2040 AGI may lead to the creation of economic, intellectual and structural entities that exceed human abilities, regardless of whether we are imposing regulations and measures to the contraries. Coexisting with AGI may require cultural changes and force us to reconsider the role of humanity within life on Earth."

**Maja Vujovic**
Principal at Compass Communications, Belgrade, Serbia

## We may seek a reprieve from AI in virtual worlds

"AI will keep encroaching. Even if we opt out of such services, others around us will expose us to the Synths. ... We will increasingly seek solitude and a reprieve from that obnoxious saturation of just-in-time information. Ironically, we might seek to escape into virtual worlds powered by AI. ... Just in case it does prove to be a new, advanced form of autonomous intelligence, let the record show I always said we should substitute the word 'Enter' on our keyboards with 'Please.'"

## Expect a shift from 'scarcity' to 'abundance'

"Assuming AGI is achieved by 2040 ... we will lose the basis for our present 'scarcity game,' which has arguably been the core element of human existence through almost all of history. The implementation of a new and continuing 'abundance game' will require a fundamental rethinking of everything, from our very first principles."

**Jonathan Kolber**
Futurist and member of TechCast Global

# EXPERTS' VIEWS: PREDICTIONS ABOUT AI IMPACT BY 2040

## THEME 2: Societies must restructure, reinvent or replace entrenched systems

These experts urge that societies fundamentally change long-established institutions and systems – political, economic, social, digital and physical. They believe there should be major moves toward a more equitable distribution of wealth and power. They also argue that the spread of AI requires new multistakeholder governance from diverse sectors of society.

**Bitange Ndemo**
Chair of the Kenya AI Task Force

### Humanity must consciously work to shape its future

"As we stand on the cusp of the Fourth Industrial Revolution, our response to the potential risks and rewards of this era will shape the course of human progress. The lessons from past industrial revolutions, which saw a complete transformation of job markets and entire societies, should guide us toward embracing the future cautiously and optimistically. Responsible regulation and ethical considerations are crucial to safeguarding humanity while unlocking the vast potential of these innovations."

### Economic, employment and education systems must be restructured

**Sam Lehman-Wilzig**
Israeli author of "Virtuality and Humanity"

"Social tensions might well increase despite of and because of AI's capabilities. There is a need for a massive restructuring of the 21st-century economic system, i.e., taxation moving from the individual to the corporation (e.g., taxing AI and robots), with far greater government subsidization of individuals becoming standard. Another important restructuring must occur in education at all levels, aimed no longer at preparing people for professional work but rather mostly for a life of non-work or leisure."

### Our choice: Immiserate people or improve their lives

"How our individual lives and society will change depends on the policies and institutional arrangements in which they develop. AI can immiserate large numbers of people, eliminating or unleashing a wave of poorly paid jobs, increasing levels of mistrust and disinformation or it could allow us to reduce work hours without reducing pay, improve health access and outcomes, improve the workings of our physical infrastructure and much more. We have agency today to use the incredible affordances of new AI tools and platforms to create a great future."

**Marina Gorbis**
Executive director of the Institute for the Future

**Lena Rachel Anderson**
Economist/philosopher at Nordic Bildung, a Copenhagen think tank

### Humans must protect themselves from their own invention

"If things don't change, by 2040 capitalism will have crashed, societal institutions will have been undermined, civilization will collapse and humans will have two options: live in chaos ruled by violent gangs or live under total surveillance in AI-controlled pockets. It could be otherwise, but there do not seem to be any political institutions that understand the scope of what we are facing, and we are not creating the next generation of institutions and legislation that could protect us against our own invention."

# EXPERTS' VIEWS: PREDICTIONS ABOUT AI IMPACT BY 2040

**Sonia Livingstone**
Professor of social psychology, London School of Economics

## Our children 'may never forgive us'

"For human beings to flourish, they must have the opportunity to exercise their agency and efficacy in a world that they can broadly understand which is directly responsive to their needs, interests and concerns. ... Perhaps we could start over and develop a truly human-centered vision of AI and its potential. But instead, the political interests of states in unholy tandem with the economic interests of companies seem to drive the agenda, to our lasting detriment. Our children – one-third of the population today, 100% of the population tomorrow – will not know a world without or before AI. We are treating them as the canaries in the coal mine. They may never forgive us."

## Millions of people will be dedicated to safely managing AI

"We will not have all the answers to safely managing AI by 2040, but we will have a profession with millions of people dedicated to advancing the cause. It is likely to be the last new profession. Unsafe industrial activity turned Oklahoma into a dust bowl and lit the Cuyahoga River on fire at least a dozen times. Like the agricultural and industrial revolutions of yesteryear, AI requires new technology, social institutions and social conventions to avoid the worst outcomes. However, 'AI safety' is a far more difficult proposition than environmental sustainability."

**Sean McGregor**
Founding director of UL Research Institutes

**Amy Sample Ward**
CEO of NTEN

## It is crucial to reverse the trend toward condensed power

"The current movement toward condensing power in fewer and fewer systems, governments and individuals has to be redirected if we want to assure that the impacts of AI technologies can actually be a net positive for individuals and for society. This requires a reversal of the current momentum of AI development, from who develops it and how to who funds it and how."

## All must be able to raise the alarm about AI harms

"Any self-certification process for AI safety must have independent review by experts, real social-accountability mechanisms to enable communities to have a voice at every level of AI governance and whistle-blower mechanisms to enable anyone to raise the alarm when AI systems cause real-world harms."

**Sara (Meg) Davis**
Professor of digital rights, University of Warwick

**Peter Lunenfeld**
Professor of media arts, UCLA

## The greatest danger is a small number of humans controlling AI

"The danger of a very few humans controlling AI is much greater than the science-fictional nightmare of AI controlling vast numbers of humans. If we leave all aspects of the AIs' deployment, control, displacement and profit production to their inventors and exploiters as we have been up to now and do not exercise communal, civic and constitutional guidelines and controls over these technologies we will be at even greater risk of oligarchic control."

# EXPERTS' VIEWS: PREDICTIONS ABOUT AI IMPACT BY 2040

## THEME 3: Humanity could be greatly enfeebled by AI

A share of these experts focused on the ways people's uses of AI could diminish human agency and skills. Some worry it will nearly eliminate critical-thinking, reading and decision-making abilities and healthy, in-person connectedness, and lead to more mental health problems. Some said they fear the impact of mass unemployment on people's psyches and behaviors due to a loss of identity, structure and purpose. Some warned these factors combined with a deepening of inequities may prompt violence.

**Louis Rosenberg**
Extended-reality pioneer and CEO of Unanimous AI

### AI systems are being taught to 'master the game of humans'

"AI systems will know us inside and out, be able to speak our languages, interpret our gestures, predict our actions, anticipate our reactions and manipulate our decisions. They will connect remotely to sensors of all kinds, in all places, until they seem nearly omniscient to us. … We are teaching them to master the game of humans, enabling them to anticipate our actions and exploit our weaknesses, while training them to out-plan us, out-negotiate us and out-maneuver us. If their goals are misaligned with ours, what chance do we have?"

### We have no agency when algorithms tell us how to think

"It seems we are heading toward lives with no individual agency in which algorithms tell us how to think, resulting in the loss of our ability to operate without them. All of this is happening as society seems to be losing its ability to debate issues in a way in which we honestly listen to different opinions with open minds."

**Sharon Sputz**
Columbia University Data Science Institute

**Stephan Adelson**
President of Adelson Consulting Services

### There will be an AI-driven war over people's minds and emotions

"It is easy to imagine an AI-driven war over people's minds and emotions motivated by criminals and self-interested individuals in politics, government and business. When deepfakes are combined with AI, powerful alternative realities can be created that can easily sway perceptions, beliefs, emotions and actions. Those who lack the capacity to discern what is a created reality from what is a naturally occurring reality will be exploited. Divisions in society will increase. People will be less likely to write their own stories to read deeply and be challenged to think in creative ways. People are likely to continue to become more passive."

### 'AI adds greater velocity to the vector of humanity's troubles'

"AI accelerates many threatening processes. It is too late to stop it. AI will make the rich richer, the poor poorer, and the differential will be substantially greater by 2040. AI adds greater velocity to the vector of humanity's troubles. Fascists will dominate nearly all governments. AI will drive dangerous military activity and intelligence gathering. Global warming and pandemics will worsen. The death toll from all of this will be epic. The planet will survive. Humans will too. But billions could die in the next few decades due to conflict, pandemics, global warming and more. Wake up and smell the gunfire."

**William L. Schrader**
2023 Internet Hall of Fame inductee and advisor to CEOs

# EXPERTS' VIEWS: PREDICTIONS ABOUT AI IMPACT BY 2040

**Giacomo Mazzone**
Secretary-general of Eurovisioni

### What happens to democracy in a society with millions of alternative 'truths'?

"By 2040, every individual is likely to live their own, unique life experience and the number of face-to-face in-person interactions they have daily is likely to be reduced to nearly zero. … We could see the emergence of millions of different alternative truths. In such a scenario, how can democracies possibly survive? The concept of democracy is based on the idea of the 'agora,' the public square, where facts (not multiple alternative 'realities') are presented to citizens and are commented upon and analyzed through people's interactions. What happens if humanity's uses of these technologies shifts society into a state where there are few, if any, real personal connections and no shared set of common, fact-anchored truths?"

### Digital assistants could make us 'agents of the machine'

"The goals of most digital assistants will not be aligned with their user, but with their parent company. The suggestions that fill your head via a work-supplied facilitator might ostensibly be tuned to make you more focused and productive, but they may also be designed to make employees more willing to work long hours, reject unions, and otherwise align with the company's goals, not their own. … Most concerning is the potential for these agents changing our words, our arguments—making us the agents of the machine."

**Judith Donath**
Fellow at Harvard's Berkman Klein Center for Internet and Society

**Pamela Wisniewski**
Director of the Socio-Technical Interaction Research Lab

### Dependence on AIs removes scaffolding for critical thought

"When we embrace the application of AI agents in learning processes that make work easier, we are taking away important scaffolding in the process of critical thought. I tell my students qualitative data coding is hard because you have to be the algorithm. You have to think for yourself."

### Becoming prompt engineers will diminish our sense of purpose

"Advances and proliferation of AI will allow us to be more self-absorbed than we are now. Humans need a community and a sense of purpose. Social networks, remote working and online gaming and shopping are solitary pursuits, depriving us from shared experiences and increasing our sense of isolation. That these are sedentary does not help with health and stress levels. The sense of purpose we get from work will be diminished as we all become prompt engineers."

**Rosalie Day**
Co-founder at Blomma, a digital solutions platform

**Katindi Sivi**
Founder and director, LongView Group, based in Nairobi

### Greater digital literacy can combat the erosion of autonomy

"There is a divide between the big-data rich and the big-data poor as well as among the three classes of people – the creators of AI, those with the means to collect and own the data and those with the ability to analyze it. … We must work to ensure that people gain enough digital literacy to understand the gap between what they want to do online and what they should do, because the failure to bridge this gap and make the right choices leads most not to notice the gradual corrosion of their autonomy, which leads them to a slow slide deeper under powerful people's control."

## EXPERTS' VIEWS: PREDICTIONS ABOUT AI IMPACT BY 2040

### THEME 4: Don't fear the tech; people are the problem and the solution

A large share of these experts say their first concern isn't that AI will go rogue. They mostly worry that advanced AI is likely to significantly magnify the dangers already evident today due to people's uses and abuses of digital tools. They fear a rise in problems tied to extractive capitalism, menacing and manipulative tactics exercised by bad actors, and autocratic governments' violations of human rights.

**Avi Bar-Zeev**
Founder and president of Reality Prime and the XR Guild

#### The impact of AI depends on the choices we humans make

"The best and worst uses of AI are largely a function of the choices we humans make. If we build tools designed to help people, we can do good and still make mistakes. But if we choose to exploit people for our own gain we will certainly do harm, while any good is incidental. We should be regulating the uses and intentions more than the technologies themselves. And we must be educating everyone how to make ethical choices for the best outcomes."

#### Capitalism limits the focus on AI's long-term impact on people

"The problem with AI is the people who are financing and deploying it; the imperatives of 21st-century capitalism ensure that their thought processes will not include the impact of those deployments on humans, be they employees or customers. This effect is worsened by the high cost of building and training AI models, which ensures it is built by people whose primary concern is profit, rather than the improvement of the human condition."

**Tim Bray**
Founder/principal at Textuality Services, previously a vice president at Amazon

**John Battelle**
Owner of Battelle Media

#### Who will the AI work for? Who controls the data these systems interact with?

"The conversation seems to have moved in record time from 'this is going to change everything' to 'how should we regulate it.' What I've found frustrating is how little attention has been paid to the fundamental question of what form generative AI agents might take in our lives. Who will they work for, their corporate owners, or us? Who controls the data they interact with?"

#### The fight for first-mover and network effects is everything

"The current batch of AIs have been rushed to market with little non-tech oversight so proponents can gain first-mover and network-effects advantages (and property rights). Under these conditions, who will eventually get to decide what general machine intelligence is, how it should be deployed and under what circumstances and to what ends?"

**Leah A. Lievrouw**
Professor of information studies, UCLA

# EXPERTS' VIEWS: PREDICTIONS ABOUT AI IMPACT BY 2040

**Chuck Cosson**
Director of privacy and data security at T-Mobile

### We must 'ameliorate the impacts of epistemic corruption'

"Economic opportunities are likely to increase ... [but] misinformation and other forms of epistemic corruption are also likely to increase across the board, so how we know what we know will be challenged. That will have downstream effects on large-scale human activity such as elections, crime and immigration, as well as on smaller-scale events such as family political arguments and even human flourishing. Ideally, the next 15 or so years is enough time for a modest improvement in how humans – individually and collectively – take in and process information to arrive at knowledge; at least enough of an improvement to ameliorate the impacts of epistemic corruption. But my guess is we'll still be well short of this ideal by 2040."

### Strengthened monopolies are leading to an income inequality crisis

"The future depends on who is in control, and it seems highly likely that corporations with huge financial and computational resources will continue to be in control, strengthening their monopolies. If that is the case, we can expect income inequality – already at a crisis stage – to get worse."

**Howard Rheingold**
Pioneering Internet sociologist

**Devin Fidler**
Foresight strategist and founder of Rethinkery.com

### AI could nurture the growth of new kinds of digital warlords

"The AI discourse has been too fixated a possible impending doomsday due to AI that could spiral out of control. The more pressing, tangible challenges are just at the threshold of the AI technologies we have today: straining legacy systems and institutions to their breaking point, exacerbating negative externalities and potentially nurturing the growth of new kinds of digital warlords. This is like worrying about an asteroid collision while your house is in the path of an oncoming wildfire."

### Audit trails, independent oversight, open reporting are needed

"Those of us who believe in human-centered approaches have much work to do to encourage the design of artificial intelligence user experiences, audit trails, independent oversight, open reporting of incidents and other governance strategies. Our commitment to amplify, augment, empower and enhance human performance can result in applications that inspire human self-efficacy, creativity, responsibility, social connectedness and collaboration tools."

**Ben Shneiderman**
Author of "Human-Centered AI," active on many U.S. AI boards and panels

# EXPERTS' VIEWS: PREDICTIONS ABOUT AI IMPACT BY 2040

**George Sadowsky**
Internet Hall of Fame member and longtime Internet Society leader

## Privacy and agency are being damaged by people's actions and their inaction

"Personal privacy and agency will take a large hit based on people's actions and inaction, including weak and vacillating government policies, the polarization of our societies, the prevalence of the targeted advertising model, the rapacious appetite of the personal data industry and people's inability to create a critical mass of concern about it. Polluting the scene further will be the evolution of disinformation techniques, creating a crisis of belief that will become increasingly clever and successful in mixing disinformation with evidence-based information, creating a crisis in reliability of information on the Internet, as well as from any and all sources."

## Don't exploit algorithmic and human cognitive weaknesses

"AI is a formidable weapon in the wrong hands. ... Malicious entities will have the means to exploit both algorithmic and human cognitive weaknesses ultimately exposing vast audiences to harmful content with the potential to manipulate individuals into making detrimental decisions, such as opting against vaccination for life-threatening diseases, inciting violence against minority and vulnerable communities, eroding trust in authoritative experts and undermining the integrity of democratic elections."

**Filippo Menczer**
Director of the Observatory on Social Media

**Willie Currie**
Longtime global policy expert based in Africa

## AI is becoming a dangerous global hyper-object

"AI has started to resemble a global hyper-object – like global warming – that cannot be contained by cooperative human intervention. A hyper-object impacts global human infrastructure at the macro level at the same time as it impacts personal lives at the micro level. There is as little chance of regulation slowing down AI development as there is for regulatory interventions stopping climate change. So what can be done? Academic institutions and AI thinktanks can monitor the outcomes of the passage of AI in the world. Once there is real data, perhaps by 2040, then pragmatic steps may be possible. At the moment all we have is speculative (magical) thinking and contestation for dominance in the AI field and in the world."

## Human-centered AI can succeed only if it includes all humans

"Without humans at the center of every aspect of evolving AI solutions, we will find inherent bias each step of the way. This will exponentially impact our children and our species. It is incumbent upon all of us to strive for and implement AI solutions that are more representative, transparent, trustworthy and free from bias. The majority of the world's people should not be held back due to faulty algorithms and assumptions. Whatever the future holds, AI should augment our intelligence and creativity, boost our potential, serve as an extension of our innate strengths and be available for all. It should help us solve problems, get stuff done, make the impossible possible, gain insights and so much more."

**Melissa Sassi**
Partner at Machinelab Ventures

# EXPERTS' VIEWS: PREDICTIONS ABOUT AI IMPACT BY 2040

## THEME 5: Key benefits from AI will arise

While most of these experts wrote primarily about the challenges of AI, many described likely gains to be seen as AI diffuses through society. They expect that most people will enjoy and benefit from AI's assistance across all sectors, especially in education, business, research and medicine/health. They expect it will boost innovation and reconfigure and liberate people's use of time. Following are excerpts from experts who shared optimistic 2040 predictions.


### Augmented intelligence, if its evolution is tended wisely, will inspire humanity to significantly upgrade everything

**Jerome C. Glenn**
Co-founder and CEO of The Millennium Project

"Ideally, by 2040 people will be freed from the necessity of having a job to earn a living and to achieve self-respect. For the first time in history, humanity will be highly engaged in conversations about what kind of civilization it wants and what we, as individuals and as a species, want to become. The new AI will maintain and improve the basic infrastructure of civilization, from waste management and flood control of rivers to the use of millions of robotic vehicles in the air, land and sea. The cost of running cities and suburbs will begin to fall. AI efficiency-managed transportation will reduce operating costs, as will telecommuting. Advances in materials science, 3D/4D and bio-printing, biomimicry and nanotech graphene will reduce costs of construction, fabrication, maintenance, water, energy, medical drugs and retro-fitting of infrastructures. Atomically-precise manufacturing due to AI will reduce costs and cut pollution, friction and delays across every aspect of society.

"Computational physics will find replacements for scarce and expensive natural resources. Green technologies will lower costs of environmental maintenance. Food costs will be reduced due to AI/robotic fresh- and saltwater agriculture, pure meat produced by culturing real animal cells in vitro, synthetic biology and AI/robotic delivery systems. Defense spending will be reduced; cyber systems are less expensive. Genomic personalized medicine with AI-augmented diagnostics, treatment, bio-printing, synthetic biology and robotic surgery will make it possible to offer free public health care. Tele-health, tele-education, tele-everything will also lower the cost of living. AI and robots paid no salaries will work 24 hours a day seven days per week, make few errors and receive no paid vacations or health or retirement benefits; the costs of insurance, production, maintenance and labor will be dramatically lowered. AI-augmented global education systems and apps will make it possible to offer free public education from early childhood to the PhD. The whole world is getting smarter together in real time."

### We can identify risks and take steps now to mitigate them

"People worldwide must start finding ways to harmonize and work together toward the responsible use of AI. It is vital to identify the risks associated with AI now and take steps to mitigate these risks. AI systems must be transparent and accountable and used to promote human rights and well-being. If it is used ethically, it will further improve the quality of life for people worldwide. It will be used to address some of the world's most-pressing challenges, climate change, poverty and disease."

**Kunle Olorundare**
President of the Nigeria Chapter of the Internet Society

# EXPERTS' VIEWS: PREDICTIONS ABOUT AI IMPACT BY 2040

**Esther Dyson**
internet pioneer, entrepreneur and founder of Wellville

### Ask not what AI can do, but what we can ask it to do

"Instead of regulating AI, we need to regulate its likely impact. AI can be very helpful at that. ... In the positive parts of the planet, AI – in its ethical form – will win out, and we'll start focusing not so much on what AI can do, but on what we ask it to do. Do predatory business models reign supreme, or do we focus more on the long-term welfare of our people and our society? We need explainability of the goals and the outcomes more than we need an understanding of the technological underpinnings. We need to use the time we spend on rote decision-making and rule-following – which AIs can do well – to free ourselves and train ourselves to be better humans. We need to ask questions and understand the answers. We need to be aware of others' motivations. ... We need to understand our own motivations and vulnerabilities. We need to understand the long-term consequences of everyone's behavior."

### Evidence-based decision-making will improve policies

"AI will foster rational and evidence-based decision-making. This will assist democracies in making compassionate decisions in policies and practices. Truth-checking will be facilitated. ... Consensus will be built upon evidence-based facts uncovered by AI. The efficiencies provided by AI in the corporate environment will result in less human time spent, thus many goods and services will decline in cost to produce and work weeks will shorten, resulting in greater personal time. This will enable creative and volunteer work: unpaid contributions to society, important assets in elevating its enrichment. Advances in health care and medicine will reduce human suffering and improve the productivity of those freed from the maladies that have limited their contribution to society."

**Ray Schroeder**
Retired associate vice chancellor, University of Illinois, Springfield

**Tim Kelly**
Kenya-based lead ICT policy specialist at the World Bank

### AI will co-pilot our lives and make a positive impact

"Improved convenience and marginal gains in the efficiency of service delivery should not be underestimated. AI will remove some of the drudgery from everyday life. It will 'co-pilot' our work lives our participating in meetings, drafting emails, summarising arguments, researching trends, etc. It will positively impact areas such as elder care and combatting loneliness."

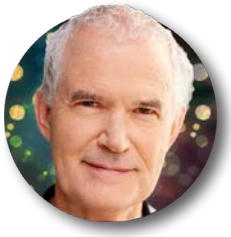
### New institutions that effectively inform the public must emerge

"I hope the noise and narrative manipulation and convincing falsehoods that AI text generators will implement to overwhelm well-reasoned public discourse might finally force the creation of new, trusted media institutions and other forums that effectively inform the public by 2040. ... Solving this problem will require a combination of technological improvements; much broader public awareness of the damage that is done to society by institutions that spread misinformation and disinformation; far greater skepticism toward faked 'first-hand accounts'; and the establishment of new news and information sources more demanding of evidence with a verifiable chain of custody, that are demonstrably resistant to manipulation and consequently deserving of trust."

**Kyle Rose**
Principal architect at Akamai Technologies

# EXPERTS' VIEWS: PREDICTIONS ABOUT AI IMPACT BY 2040

## AI will represent us securely using Self-Sovereign IDs



**Michael Haines**
CEO of VANZI, an Australia-based 3D technology company

"By 2040, AI-assisted robots will replace some human labor and AI systems will smooth the flow of materials and goods along the supply chain. AI will enhance decision-making to deliver better outcomes more quickly at less cost in complex environments. At some point, all people who want it will have sufficient paid work to meet their needs, and all jobs will be filled within a reasonable time; AI will help find the balance. The economy will then be operating at peak efficiency. Doing this will eliminate systemic poverty while also providing a wage rise for low-paid workers. 3D avatars, tied to your biometrics to enhance security and aggregating knowledge of you from birth, will understand your needs and wishes. Everyone will trust your avatar as it will be part of a system of self-sovereign identities (SSIDs) from which your official-source data is provided by authorities.

"Your personalised AI avatar could source goods and services from global databases, present the most relevant choices to users in 3D and facilitate purchase and shipping. The AI would consider consumer 'wants' when making recommendations along with user reviews (linked to SSIDs, so you know they are by a real person). To combat misinformation, the system can link content to SSIDs. We also might move toward direct democracy, using citizen juries to evaluate and decide on issues, aided by AI and 3D simulations of the real world. This could reduce the influence of political parties and increase citizens' participation."

## Trust in humanity to maintain its authenticity

"The first thing we must do is trust in humanity. Technical problems have a limited life and we will solve them and evolve both the software and the hardware. AI is perhaps the most beneficial technology we will see for generations to come. The future will bring us surprises, but humanity will maintain its authenticity as the beings who are conscious and rational, hegemonic and proactive entities of the world to come."

**Mauro D. Ríos**
Adviser to the eGovernment Agency of Uruguay

**Terri Horton**
Founder of FuturePath

## Hyper-efficiency and productivity will accelerate innovation at scale

"In 2040, AI will usher in an era of enterprise hyper-efficiency and productivity that accelerates innovation at scale. The proliferation of AI will present a robust landscape of enhanced human capabilities that unlock human potential. Mitigating the challenges of 2040 will require new, harmonized efforts and initiatives from policymakers, industry leaders and the global community to ensure an equitable AI-driven society."

## AIs should be trained on 'Lennonism': All you need is love

"Some imagine AIs might replace us or keep us as pets. Most hope for AIs that are property, capable but without their own will. That may be what we see in 2040. As we move beyond 2040 to having AIs that possess their own will, I advocate 'Lennonism': 'All you need is love.' The ideal would be to create beings that love us just as we are also programmed to love our parents/creators, and thus be caring in that sense."

**Brad Templeton**
Chair emeritus, Electronic Freedom Foundation

**Read the full essays and an array of views from more than 200 experts at: bit.ly/AI2040experts**

COLLABORATION PROJECT

# ARTIFICIAL INTELLIGENCE IN HIGHER EDUCATION

**An initiative of the Imagining the Digital Future Center is coordinating a global effort to establish a set of core principles to guide development of artificial intelligence policies and practices in higher education.**

In summer 2023, more than 140 higher education organizations, administrators, researchers and faculty members from 47 countries collaborated to create a statement titled, "Higher education's essential role in preparing humanity for the artificial intelligence revolution."

Elon University session at IGF2023 in Kyoto, Japan

The statement was released Oct. 9, 2023, at the 18th annual United Nations Internet Governance Forum (IGF) in Kyoto, Japan. The session was led by co-authors, Elon University President Connie Ledoux Book, Elon scholar-in-residence Lee Rainie and Professor Divina Frau-Meigs of Sorbonne Nouvelle University in Paris.

The six principles included in the statement embody a call for the higher education community to be an integral partner in development and governance of AI.

**Signatories to the statement on higher education and artificial intelligence represent 47 countries. They include members of several academic groups, 11 university presidents and chancellors and more than 120 distinguished researchers and faculty members with expertise and interest in issues related to AI.**

Leaders of the following academic groups are among the signatories:

- National Association of Independent Colleges and Universities (NAICU) (USA)
- American Association of Colleges & Universities (AAC&U) (USA)
- International Association for Media and Communication Research (IAMCR)
- European Communication Research and Education Association (ECREA)
- American Library Association
- Special Interest Group of the Network for Education and Research Quality (NERQ)
- Strategy Group for Responsible AI UK

## COLLABORATION PROJECT: AI IN HIGHER EDUCATION

President Connie Book leads a session at IGF2023

**Educators are actively integrating artificial intelligence technologies in their classrooms, labs and university operations. To promote ethical, responsible and effective use of AI in higher education, faculty members around the world worked together to create a set of principles to guide colleges and universities in developing AI policies and practices.**

# 6 GUIDING PRINCIPLES FOR AI IN HIGHER ED

1. **People, not technology, must be at the center of our work.** As we engage with AI, human health, dignity, safety, privacy and security must be our first considerations.
2. **We should promote digital inclusion within and beyond our institutions.** Collaboration with government, the private sector and civil society will enable us to expand outreach to all populations.
3. **Digital and information literacy is an essential part of a core education.** Learners in all disciplines must be prepared to use AI proficiently, safely and ethically, and must understand the basic concepts of computer systems and programming, machine learning and data science.
4. **AI tools should enhance teaching and learning.** AI must enrich and extend the educational experience and advance access and equity. We must also carefully protect the interests of learners and teachers.
5. **Learning about technologies is an experiential, lifelong process.** We must help learners gain the hands-on skills they need to adapt to continual change.
6. **AI research and development must be done responsibly.** We need rigorous ethical standards and failsafe systems as we advance AI research and design.

**Read the full statement and learn more about this initiative at: bit.ly/45lk9j1**

# GLOBAL VOICES: AI & HIGHER EDUCATION

Quotes from interviews conducted by Imagining the Digital Future at IGF 2023 in Kyoto, Japan.


"In order to understand this new world, we have to understand the tech ... it's almost like learning a different language. ...The new language for the public sphere is data and it's going to have to be patterns and trends." - *Maria Ressa, 2021 Nobel Peace Prize recipient, from an interview with Elon President Connie Book*

"We know, and research has shown, that the guardrails proposed by AI system tech companies can be bypassed. So this is a problem. We, as universities, have to come up with solutions for teachers and learners worldwide." - *Divina Frau-Meigs, professor, Sorbonne Nouvelle University, UNESCO Chair Savoir Devenir in sustainable digital development (France)*

"The curriculum these days needs to be centered around AI, because, whether we like it or not, it's going to be with us for a very long time." - *Francisca Oladipo, vice-chancellor and professor of computer science, Thomas Adewumi University (Nigeria)*

"We should raise the bar of education and use ChatGPT as a tool and a means, not as an aim – it should be supplementary to the education" - *Edgar Brutyan, researcher, Institute for Development of Freedom of Information (Country of Georgia)*

"It is crucial that people who develop and deploy AI in higher education understand it sufficiently well to ask relevant questions and ensure that the datafication of higher education doesn't prevent students from making important choices about their lives." - *Eve Gaumond, researcher at the University of Montreal Public Law Research Center (Canada)*

## THE CENTER'S LEADERSHIP

**Lee Rainie** is the new director of Elon University's Imagining the Digital Future Center. He comes to the Center after 24 years of directing Pew Research Center's efforts to study the internet and technology.

At the Pew Internet Project, his team produced more than 850 reports about the social, political and economic impact of four technology revolutions: the internet/broadband revolution, the mobile connectivity revolution, the social media revolution, and the artificial intelligence revolution.

His Project was described by the American Sociological Association as the "most authoritative source of reliable data on the use and impact of the internet and mobile connectivity," and the ASA awarded him its prize for "excellence in the reporting on social issues award." His work has been covered by network and cable news and every major global news publication.

Lee is co-author of "Networked: The New Social Operating System" and five books about the future of the internet, based on Project surveys.

Before joining Pew, Rainie was managing editor of the newsweekly magazine U.S. News & World Report and he previously covered American politics for several publications.

**Janna Anderson**, founding director of Imagining the Internet and professor of communications, continues to co-author the Center's reports and manages the extensive archive. She has co-led 49 research surveys and reports funded by the Pew Research Internet & Technology Project, most of them in partnership with Lee Rainie.

Anderson is lead author of the "Future of the Internet" book series published by Cambria Press and author of the book "Imagining the Internet: Personalities, Predictions, Perspectives." She has led documentary video research teams in recording hundreds of interviews at 29 global technology policy events and she has participated as an expert speaker or consultant on the future of information technologies at many events, including South by Southwest Interactive, WebCom, NextGov, MobilityShifts, Institute for the Future symposiums, the U.N.-facilitated Internet Governance Forum, World Future conferences and the Metaverse Roadmap Project.

ELON UNIVERSITY | Imagining the Digital Future Center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- Private university founded in 1889; main campus at Elon, North Carolina
- Ranked #1 in the U.S. for undergraduate teaching (U.S. News & World Report) and #1 for study abroad (Institute of International Education)
- Nationally recognized for experiential learning and student mentoring
- Nationally accredited college of arts & sciences, and schools of business, law, communications, health sciences and education
- More than 6,400 undergraduate students and more than 800 graduate students from 48 states and 54 countries
- 690-acre main campus designated as a botanical garden

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