ELON UNIVERSITY | Imagining the Digital Future Center

Being Human in 2035

How Are We Changing in the Age of AI?

By Janna Anderson and Lee Rainie

April 2025

The Future of Being Human
How Are We Changing? What Will Life Be Like?

Experts Predict Significant Change in People's Ways of Thinking, Being and Doing as They Adapt to the Age of AI

Many are concerned about how our adoption of AI systems over the next decade will affect essential traits such as empathy, social/emotional intelligence, complex thinking, ability to act independently and sense of purpose. Some have hopes for AIs' influence on humans' curiosity, decision-making and creativity

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Imagining the Digital Future Center
Elon University

Recommended Citation: Janna Anderson, Lee Rainie. "Expert Views on the Impact of AI on the Essence of Being Human." Elon University's Imagining the Digital Future Center. April 2, 2025.

About Elon University's Imagining the Digital Future Center

Imagining the Digital Future is a non-partisan, public-good research initiative at Elon University focused on the digital revolution's impact and what may lie ahead. The center was established (as "Imagining the Internet") at Elon in 2000 and expanded and renamed in 2023. Its mission is to discover and broadly share a diverse range of opinions and ideas about the potential future impact of digital change, informing important conversations and policy formation and helping to promote a positive future for humanity. The center draws on insights gathered through canvassings of thoughtful and far-sighted experts in a wide range of fields. Those qualitative contributions are complemented by a range of methodologies, including public opinion polling, computational analysis and other data-driven research.

How we did this

This report shares results of our 51st "Future of Digital Life" report. It builds on previous efforts that were jointly conducted by Elon's Imagining the Digital Future Center (previously known as "Imagining the Internet") and Pew Research Center's Internet Project. Forty-nine previous reports were generated by that partnership between 2004 and 2023. This report centers on written responses to questions about how the evolution of artificial intelligence (AI) systems and humans might affect essential qualities of being human.

Experts' predictions reported here came in nonscientific canvassing (based on a nonrandom sample) conducted between Dec. 27, 2024, and Feb. 1, 2025. The Imagining the Digital Future Center invited a database of more than 2,000 experts to respond, collecting a broad array of opinions about the potential impact of humans' design and application of artificial intelligence (AI) across a variety of individual and societal domains. Participants represent a wide range of fields, including innovators, professionals, consultants and policy people based in various businesses, nonprofits, foundations, think tanks and government, as well as academics and independent researchers and professional commentators. In all, 301 experts responded to at least one aspect of the canvassing; nearly 200 of them provided written answers to an open-ended question.

The respondents' remarks reflect their personal positions and are not the positions of their employers; the descriptions of their leadership roles help identify their background and the locus of their expertise.

No large language models (LLMs) were used in the authors' writing and editing of this report. LLMs were also not used in any of the analysis of the quantitative data or the qualitative essays. We experimented briefly with their use, but we immediately found that there were serious flaws and inaccuracies; we did not find them capable of doing anything as well as the humans preparing this report. Respondents were asked about their use of LLMs in completing this survey. Of the 223 who responded to that question, 82% replied, "My response was fully generated out of my own mind, with no LLM assistance"; 16% replied, "I used one or more LLMs somewhat in crafting my response, but most of it was written with no LLM assist"; 2% replied, "I used one or more LLMs to make a significant difference in enhancing my honest, personal response."

Full details on the methodology underlying this canvassing of experts can be found on Page 278.

Experts Predict Significant Change in People's Ways of Thinking, Being and Doing by 2035 as They Adapt to the Age of AI

A majority of global technology experts say the likely magnitude of change in humans' native capacities and behaviors as they adapt to artificial intelligence (AI) will be "deep and meaningful," or even "dramatic" over the next decade The results are based on a canvassing of a select group of experts between Dec. 27, 2024, and Feb. 1, 2025. Some 301 responded to at least one question in the canvassing.

Nearly 200 of the experts wrote full-length essay responses to a longer qualitative query: *Over the next decade, what is likely to be the impact of AI advances on the experience of being human? How might the expanding interactions between humans and AI affect what many people view today as "core human traits and behaviors?* Their revealing insights are featured on 228 pages of this report directly following the introductory sections. First, here are brief details on the quantitative questions.

The 301 experts who responded to the quantitative questions were asked to predict the impact of change they expect on 12 essential traits and capabilities by 2035. They predicted that change is likely to be mostly negative in the following nine areas:

- social and emotional intelligence
- capacity and willingness to think deeply about complex concepts
- trust in widely shared values and norms
- confidence in their native abilities
- empathy and application of moral judgment
- mental well-being
- sense of agency
- sense of identity and purpose
- metacognition

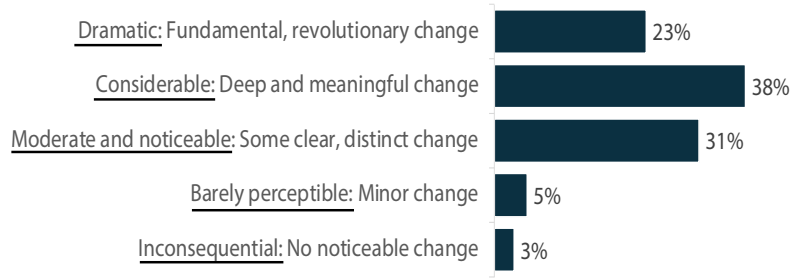
Pluralities said they expect that change for humans in by 2035 will be mostly positive in these areas:

- curiosity and capacity to learn
- decision-making and problem-solving
- innovative thinking and creativity.

They foresee deep, meaningful and even dramatic change ahead in regard to these human traits. They were asked, "What might be the magnitude of overall change in the next decade ... in people's native operating systems and operations – as we more broadly adapt to and use advanced AIs by 2035?" In response, **61% said the change will be deep and meaningful or fundamental and revolutionary.**

A majority of experts believe the magnitude of change on human capacities by 2035 will be deep and meaningful - and then some

% of experts who say the amount of change in human capacities and behaviors that will occur as advanced AIs are more broadly adopted by 2035

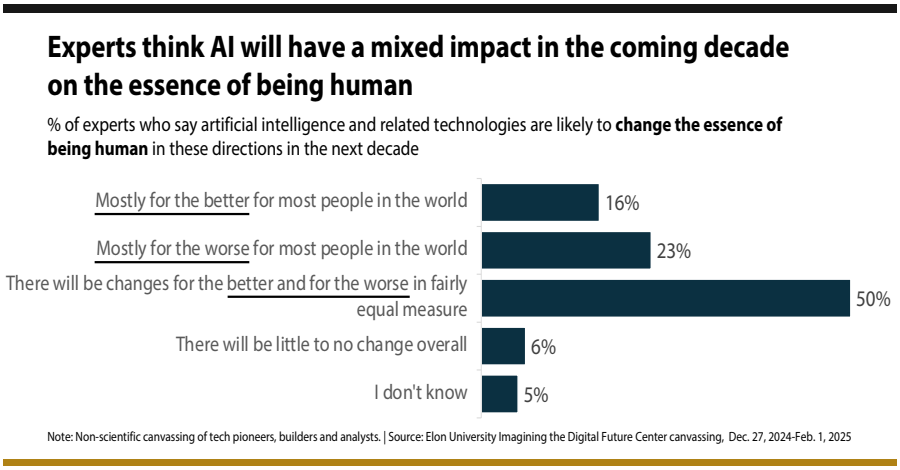


Note: Non-scientific canvassing of tech pioneers, builders and analysts. | Source: Elon University Imagining the Digital Future Center canvassing, Dec. 27, 2024-Feb. 1, 2025

Many more details, statistical graphics and quotes outlining these experts' opinions on each of the 12 essential traits they were asked to weigh are included in a section after this, beginning on Page 7.

Respondents were also asked about the overall impact of AI on the essence of being human. Specifically, our query related to how much humans' expanding use of AI tools and systems "*might change the essence of being human, the ways individuals act and do not act, what they value, how they live and how they perceive themselves and the world.*"

Some 50% of these experts said they expect the overall impact of change in being human for those adapting to AI is likely to be **for the better *and* for the worse in fairly equal measure.** Only 6% said they expect to see little or no change on the essence of being human by 2035.



Nearly 200 of the experts wrote essay responses on the primary topic: Being human in the Age of AI. An overwhelming majority of those who wrote essays focused their remarks on the potential problems they foresee. While they said the use of AI will be a boon to society in many important – and even vital – regards, most are worried about what they consider to be the fragile future of some foundational and unique traits. At the same time, a plurality of these experts' essays are leavened by glimmers of hope that ever-adaptable humans will find ways to prevail and even flourish.

In all, these experts provide a wide range of predictions and descriptions of what life might be like a decade from now. The following brief excerpts from several experts' essays touch on the likely transformation and challenges they foresee. Additional brief excerpts from various experts' essays will follow through the remainder of this introductory section to the report.

The 228 pages of this report carrying *all of the experts' full-length essays* begin on Page 34.

Nell Watson, president of EURAIO, the European Responsible Artificial Intelligence Office and an AI ethics expert with IEEE, predicted, "By 2035, the integration of AI into daily life will profoundly reshape human experience through increasingly sophisticated supernormal stimuli. … Future AI companions will offer relationships perfectly calibrated to individual psychological needs, potentially overshadowing authentic human connections that require compromise and effort. AI-driven entertainment, virtual worlds and personalized content will provide peak experiences that make unaugmented reality feel dull by comparison. There are many more likely changes that are worrisome. Virtual pets and AI human offspring may offer the emotional rewards of caregiving without the challenges of the real versions. AI romantic partners could provide idealized relationships that make human partnerships seem unnecessarily difficult. Workplace efficiencies risk reducing human agency and capability. AI platforms potentially threaten individual autonomy in financial and social spheres. … The key challenge will be managing the seductive power of AI-driven supernormal stimuli while harnessing their benefits. Without careful development and regulation, these artificial experiences could override natural human drives and relationships, fundamentally altering what it means to be human."

Jerry Michalski, longtime speaker, writer and tech trends analyst, wrote, "Multiple boundaries are going to blur or melt over the next decade, shifting the experience of being human in disconcerting ways: the boundary between reality and fiction … the boundary between human intelligence and other intelligences … the boundary between human creations and synthetic creations … the boundary between skilled practitioners and augmented humans … the boundary between what we think we know and what everyone else knows."

Juan Ortiz Freuler, a Ph.D. candidate at the University of Southern California and co-initiator of the non-aligned tech movement, wrote, "As we move deeper into this era, change may render the very idea of the individual, once a central category of our political and legal systems, increasingly irrelevant, and radically reshape power relations within our societies. The ongoing shift is a profound reordering of the categories that structure human life. The growing integration of predictive models into everyday life is challenging three core concepts of our social structure: identity, autonomy and responsibility. … As AI systems continue to infiltrate various sectors from healthcare to the legal system, decisions about access to services, to opportunities and even to personal freedoms are increasingly made based on data-driven predictions about our behavior, our history and our expected social interactions. These decisions are no longer based on an understanding of individuals as autonomous beings but as myriad data points analyzed, categorized and segmented according to obscure statistical models. The individual, with all the complexity of lived experience, becomes increasingly irrelevant in the face of these algorithms."

Jerome C. Glenn, futurist and executive director and CEO of the Millennium Project, wrote, "If national licensing systems and global governing systems for the transition to Artificial General Intelligence (AGI) are effective before AGI is released on the Internet, then we will begin the self-actualization economy as we move toward the Conscious-Technology Age. If, instead, many forms of AGI are released on the Internet from the U.S., China, Japan, Russia, the UK, Canada, etc., by large corporations and small startups their interactions will give rise to the emergence of many forms of artificial superintelligence (ASI) beyond human control, understanding and awareness.

Dave Edwards, co-founder of the Artificiality Institute wrote: "By 2035, the essential nature of human experience will be transformed … through an unprecedented integration with synthetic systems that create meaning and understanding. ... The evolution of technology from computational tools to cognitive partners marks a significant shift in human-machine relations. ... This transition fundamentally reshapes core human behaviors, from problem-solving to creativity, as our cognitive processes extend beyond biological boundaries to incorporate machine interpretation and understanding."

John M. Smart, a global futurist, foresight consultant, entrepreneur and CEO of Foresight University, wrote, "I fear – for the time being – that while there will be a growing minority benefitting ever more significantly with these tools, most people will continue to give up agency, creativity, decision-making and other vital skills to these still-primitive AIs and the tools will remain too centralized and locked down with interfaces that are simply out of our personal control as citizens. … I fear we're still walking into an adaptive valley in which things continue to get worse before they get better. Looking ahead *past the next decade*, I can imagine a world in which open-source personal AIs (PAIs) are trustworthy and human-centered. Many political reforms will re-empower our middle class and greatly improve rights and autonomy for all humans, whether or not they are going through life with PAIs. I would bet the vast majority of us will consider ourselves joined at the hip to our digital twins once they become useful enough. … I hope we have the courage, vision and discipline to get through this AI valley as quickly and humanely as we can."

Richard Reisman, futurist, consultant and nonresident senior fellow at the Foundation for American Innovation, wrote, "Over the next decade we will be at a tipping point in deciding whether uses of AI as a tool for both individual and social (collective) intelligence augments humanity or de-augments it. We are now being driven in the wrong direction by the dominating power of the 'tech-industrial complex,' but we still have a chance to right that. Will our tools for thought and communication serve their individual users and the communities those users belong to and support, or will they serve the tool builders in extracting value from and manipulating those individual users and their communities? … If we do not change direction in the next few years, we may, by 2035, descend into a global sociotechnical dystopia that will drain human generativity and be very hard to escape. If we *do* make the needed changes in direction, we might well, by 2035, be well on the way to a barely imaginable future of increasingly universal enlightenment and human flourishing."

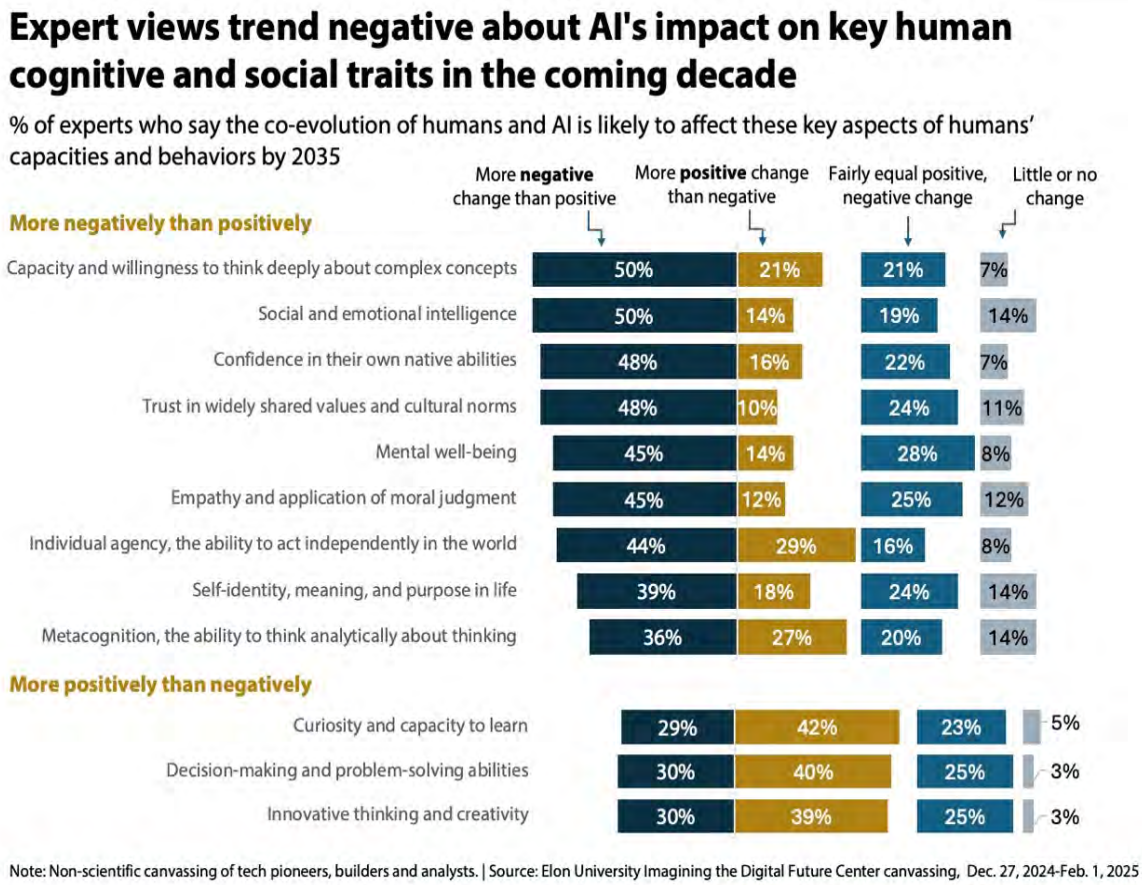
Vint Cerf, vice president and chief Internet evangelist for Google, a pioneering co-inventor of the Internet protocol and longtime leader with ICANN and the Internet Society, wrote, "On the positive side, these tools may prove very beneficial to research that needs to operate at scale ... the discovery of hazardous asteroids from large amounts of observational data, the control of plasmas using trained machine-learning models and near term, high-accuracy weather prediction. The real question is whether we will have mastered and understood the mechanisms that produce model outputs sufficiently to limit excursions into harmful behavior. It is easy to imagine that ease of use of AI may lead to unwarranted and uncritical reliance on applications. ... AI agents will become increasingly capable general-purpose assistants. We will need them to keep audit trails so we can find out what, if anything, has gone wrong and how and also to understand more fully how they work when they produce useful results. It would not surprise me to find that the use of AI-based products will induce liabilities, liability insurance and regulations regarding safety by 2035 or sooner."

Esther Dyson, executive founder of Wellville and chair of EDventure Holdings, a famed serial investor-advisor-angel for technology startups and internet pioneer, wrote, "The future depends on how we use AI and how well we equip the next generation to use it. ... AI can give individuals huge power and capacity that they can choose to use to empower others or to manipulate others. If we do it right, we will train children, all people, to be self-aware and to understand their own human motivations – most deeply, the need to be needed by other humans. ... They also need to understand the motivations of the people and the systems they interact with. It's as simple as that and as hard to accomplish as anything I can imagine."

< UP NEXT… Experts Predicted Change in 12 Essential Traits…

The following 25-page section exposes these experts' opinions on each of the 12 essential currently valued human characteristics they were asked to consider. Each section includes a selection of direct quotes from several experts and a numerical breakdown on whether the respondents think change in this aspect of human activity will be mostly positive or mostly negative by 2035.

12 specific human capacities and behaviors: Details and select experts' thoughts on likely human change by 2035



The 301 respondents who answered the quantitative questions in this study were asked to predict for each of 12 capacities and behaviors whether the overall change for humans by 2035 will be mostly positive, mostly negative, fairly evenly positive and negative, or little to none.

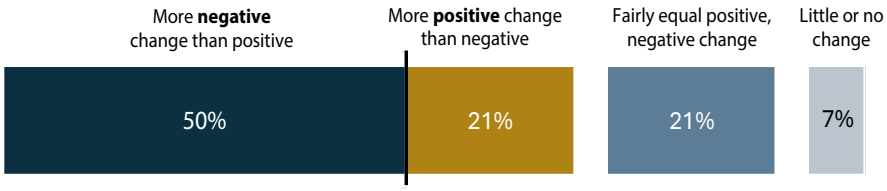
> ***They were asked:*** ***How is the coming Humanity-Plus-AI future likely to affect the following key aspects of humans' capacity and behavior by 2035 as compared to when humans were not operating with advanced AI tools?***

Below, we share full sections outlining the full quantitative results for each of the 12 categories, along with related comments from several of the experts. The experts' comments are brief excerpts from their longer responses to this study's overarching essay question about what it will be like to be human in 2035. The numbering on each section is for ease of reading; it doesn't represent any particular "ranking."

➢ Humans' capacity and willingness to think deeply about complex concepts

1. Experts' views on change in humans' capacity to think deeply about complex concepts

% of experts who say the co-evolution of humans and AI is likely to have this effect on humans' capacity and willingness to think deeply about complex concepts by 2035



Note: Non-scientific canvassing of tech pioneers, builders and analysts. | Source: Elon University Imagining the Digital Future Center canvassing, Dec. 27, 2024-Feb. 1, 2025

Experts' Responses in Brief - By 2035 there will be…

50% - More negative change than positive change
21% - More positive change than negative change
21% - Fairly equal positive and negative change
7% - Little to no change

Some of the experts here expressed concern about people's declining attention spans. This has been attributed at least in part to the public's voracious consumption of readily available quick hits of information and entertainment – especially on social media platforms and in instant search results. Many experts in this study noted that the ability to be informed enough to actively engage with complex concepts is crucial to the future of human society. Some argued that deep thinking builds *phronēsis*, the practical, context-sensitive capacity for self-correcting judgment and a resulting practical wisdom unobtainable without hard work. Some fear that by 2035 more people will not apply the focus and find the motivation needed to seek reliable sources in building their foundational knowledge, potentially widening polarization, broadening inequities and diminishing human agency. A selection of related quotes extracted from these experts' longer essays:

"By 2035, the impacts will probably be mostly negative when it comes to changes in human abilities. We know from research in psychology that cognitive effort is aversive for most people in most circumstances. The ability of AI systems to perform increasingly powerful reasoning tasks will make it easy for most humans to avoid having to think hard and thus allow that muscle to atrophy even further. I worry that the urge to think critically will continue to dwindle, particularly as it becomes increasingly harder to find critical sources in a world in which much internet content is AI-generated. ... Knowledge/expertise is likely to be downgraded as a core human value. A positive vision is that humans will embrace values like empathy and human connection more strongly, but I worry that it will take a different turn in which core humanity focuses more on the human body, with physical feats and violence becoming the new core trait of the species." - **Russell Poldrack**, *psychologist, neuroscientist and director of the Stanford Center for Reproducible Neuroscience*

"The capacity for deep thinking about complex concepts may face particular challenges as AI systems offer increasingly sophisticated outputs that could reduce incentives for independent analysis. This

dynamic recalls patterns we've observed in our research on community engagement with AI systems, where convenience can inadvertently reduce participatory decision-making." - **Marine Ragnet**, *affiliate researcher at the New York University Peace Research and Education Program*

"The risks and threats of such deskilling have been prominent in ethics and philosophy of technology as well as political philosophy for several decades now. ... Our increasing love of and immersion into cultures of entertainment and spectacle distracts us from the hard work of pursuing skills and abilities central to civic/civil discourse and fruitful political engagement. … Should we indeed find ourselves living as the equivalent of medieval serfs in a newly established techno-monarchy, deprived of democratic freedoms and rights and public education that is still oriented toward fostering human autonomy, phronetic judgment and the civic virtues then the next generation will be a generation of no-skilling as far as these and the other essential virtues are concerned." - **Charles Ess**, *professor emeritus of ethics at the University of Oslo*

"While AI augments our capabilities, it may simultaneously weaken our independent competence in basic cognitive functions that historically required active engagement and repetition. … AI will turbocharge the pollution of our information ecosystem with sophisticated tools to create and disseminate misinformation and disinformation. This, in turn, will create deeper echo chambers and societal divisions and fragment shared cultural experiences. As AI becomes more pervasive, a new digital divide will emerge, creating societal hierarchies based on AI fluency. Individuals with greater access to and mastery of AI tools will occupy higher social strata. In contrast, those with limited access to or lower AI literacy will be marginalized, fundamentally reshaping social stratification in the digital age." - **Alexa Raad**, *longtime technology executive and host of the TechSequences podcast*

"AI has the potential to improve the 'cognitive scaffolding' of human behavior just as computers, the internet and smartphones have done in the past. It will become easier to find and synthesize information, making our connection to the digital world even deeper than it already is in both professional and personal settings. ... Depending on how we develop and apply AI systems, there is both an opportunity for AI to mostly empower human intelligence and creativity by scaffolding their intellectual pursuits, as well as a threat that AI will erode intelligence and creativity by forcing human behavior into following AI-amenable patterns." - **Bart Knijnenberg**, *professor of human-centered computing, Clemson University*

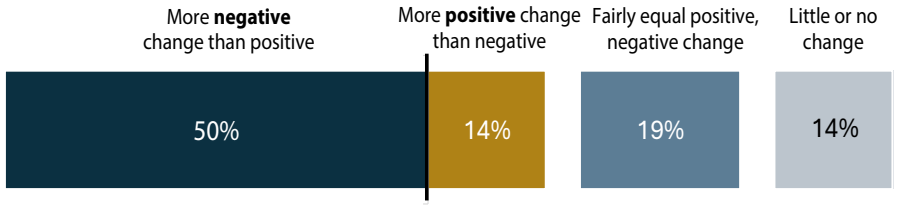
"By 2035, the relationship between humans and AI will likely evolve from today's tool-based interaction into a complex symbiotic partnership, fundamentally reshaping what it means to be human while preserving core aspects of human identity and agency. This transformation will manifest across three key dimensions: cognitive augmentation, social relationships and institutional structures. ... AI will likely develop as a cognitive enhancement layer, creating 'augmented intelligence' that supports rather than replaces human judgment. Human feedback in the AI lifecycle is critical here as it ensures that AI systems align with human values and preferences. By iteratively incorporating feedback from diverse users, AI can be trained to enhance human decision-making while respecting individual agency and cultural contexts." - **Wayne Wei Wang**, *Ph.D. candidate in computational legal studies at the University of Hong Kong and CyberBRICS Fellow at FGV Rio Law School, Brazil*

"Humans plus AI, working together, can tackle complex challenges more effectively than either alone. So, by the force of tool logic – we entrain with the logic of the tools we use – we will begin to think in the logic of factfulness." - **Barry Chudakov**, *principal at Sertain Research and author of The Peripatetic Informationist Substack*

➢ Humans' social and emotional intelligence

2. Experts' views on change in humans' social and emotional intelligence

% of experts who say the co-evolution of humans and AI is likely to have this effect on humans' social and emotional intelligence by 2035



Note: Non-scientific canvassing of tech pioneers, builders and analysts. | Source: Elon University Imagining the Digital Future Center canvassing, Dec. 27, 2024-Feb. 1, 2025

Experts' Responses in Brief - By 2035 there will be…

50% - More negative change than positive change
14% - More positive change than negative change
19% - Fairly equal positive and negative change
14% - Little to no change

Few of the respondents to this canvassing offered unqualifiedly positive predictions about AIs' impact on social and emotional intelligence. Many are concerned about AI-driven interactions replacing or dramatically altering human-to-human emotional bonds. They say people may become less adept at reading social cues, expressing emotions effectively and being willing to engage with others in what can sometimes be messy or complicated interpersonal relationships. Some even predict that many humans will prefer AIs as life partners. They wonder why a human would maintain a reciprocal relationship with another person, which might require constant work, when a perfectly attuned and unneedy "synthete" is available. Following is a selection of related quotes extracted from these experts' longer essays:

"Interacting with a 'real' human will likely become the privilege of the wealth-management set, amplifying the sense that day-to-day life, from medicine to finance, is governed by robots, removing the key component of a sense of agency in psychological well-being. The availability of 'Her'-like substitutes for human interaction may well further weaken the social muscle of many, feeding the epidemic of loneliness, particularly among teenagers and young adults. AI is more 'efficient' than human interaction, with fewer disappointments than online dating, but who will proudly look back on a 25-year marriage with a bot? Bots do not require, foster or reciprocate real-life temperance, charity, diligence, kindness, patience and humility. Indeed, they will likely tolerate and thus encourage self-centeredness and impatience. If we cannot live without bots, can they be turned into 'training wheels' or the equivalent of treadmills at the gym, improving our social interaction fitness?" - **Henning Schulzrinne**, *Internet Hall of Fame member and former co-chair of the Internet Technical Committee of the IEEE*

"It's likely that the near future will see more of us recomposing our identities around virtual personalities. … Some humans are already 'cloning themselves' into online AIs that can represent them

at scale, for example, in order to respond to thousands of follower messages on social platforms. … Humans' immersion in these virtual experiences in encounters with deepened game mechanics and lifelike virtual characters will further blur relationships, reshape socialization and erode what it means to be uniquely human. Competition and individualism can also be amplified by frontier AI, empowering some humans to be more capable in their pursuits. We could see more hyper-empowered individuals able to act in much higher orders with the help of the best models – including models that may or may not be 'legal.' Sociopathy could be fostered and reinforced in some individuals working closely with a nigh-omnipotent AI companion toward self-serving goals. Goal-seeking behaviors in general will be amplified by AI, for good and ill. There are already emerging challenges with criminal networks using AI to impersonate loved ones and make demands for ransoms, again showing both the duality of empowerment and the fading uniqueness of being human." - **Chris Arkenberg**, *senior research manager at Deloitte's Center for Technology, Media and Telecommunication*

"AI may hasten the fragmentation of human connection. Society has long been shifting away from its kinship-based foundations – structures that prioritized interpersonal relationships, shared ancestry and mutual support. These traditional systems, while flawed and discriminatory in many ways, cultivated a sense of meaning in being with others. Modernity replaced these norms with function-based systems. Markets, schools and bureaucracies now reward merit, skill and utility over inherited social roles. While this shift brought advancements, it also redefined kinship as nepotism and friendship as cronyism. Modern organizations, in the end, have no value or need for kinship. AI, with its ability to optimize and automate, aligns perfectly with this trajectory, reinforcing function over feeling and utility over unity. … Can we imagine a future in which connection and care are as important as growth and function? Or will humanity's pursuit of progress leave us lonelier and more fractured on a burning planet?" - **A. Aneesh**, *sociologist of globalization, labor and technology at the University of Oregon*

"[In 2035] after work, which is still the standard 8-hour day augmented by constant availability through your devices and always-on AI agents, you check your dating and companionship apps … People outsource their interactions to AI agents, which are left to determine compatibility and determine whether it's even worth meeting up in person. AI chatbots provide constant 'companionship' even as the loneliness epidemic intensifies and we wonder how independent their suggestions and ideas are. To what extent are our AI companions' recommendations based on corporate sponsorship or political manipulation? We don't know. ... Children growing up in this environment will develop different social skills than previous generations, as with the social media generation, becoming fluent in human-AI interaction but struggling with spontaneous human connection." - **Courtney C. Radsch**, *director of the Center for Journalism & Liberty at the Open Markets Institute*

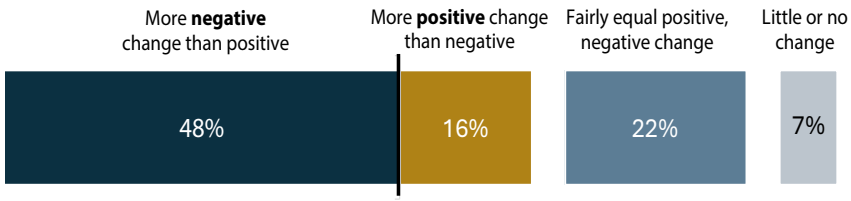
"In 2035, our social intelligence expands beyond human-to-human interaction to encompass awareness of all living systems. AI translation of animal communication and ecological patterns helps us develop planetary empathy – the ability to understand and respond to the needs of the entire living world. This evolutional leap in consciousness reshapes our understanding of what it means to be human." - **Dana Klisanin**, *psychologist, futurist, co-founder of ReWilding Lab and director of the Center for Conscious Creativity's MindLab*

"The next decade will witness exponential growth in AI capabilities, leading to more-sophisticated autonomous systems. In education, AI-powered personalized learning platforms will tailor instruction to each student's unique needs and pace. AI tutors will provide instant feedback and support, freeing up human teachers to focus on fostering creativity, critical thinking and social-emotional skills." - **Youngsook Park**, *CEO at Almindbot, futurist and chair of the Korean Node of The Millennium Project*

➢ Humans' confidence in their own native abilities

3. Experts' views on change in humans' confidence in their own native abilities

% of experts who say the co-evolution of humans and AI is likely to have this effect on humans' confidence in their own native abilities by 2035



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Experts' Responses in Brief - By 2035 there will be…

48% - More negative change than positive change
16% - More positive change than negative change:
22% - Fairly equal positive and negative change
7% - Little to no change

A notable share of these experts focused on the problems that might arise as humans deepen their dependence on AI systems and agents and begin to see them as more capable of making choices than they truly are. This could lead people to lose confidence in their own judgment, possibly resulting in a loss of faith in themselves and a diminished expectation of the value of human involvement in conflict resolution, the handling of complex situations and retention of lessons learned from past experiences, plus the diminishment of humans' own capabilities for self-reliance. A few said humans will be able to gain knowledge and have uplifting experiences through AI systems that build their confidence in their native abilities and understanding of the world, just as humans gain such wisdom from other humans. Following is a selection of related quotes extracted from these experts' longer essays:

"With AI increasingly embedded in everything from personal decision-making to public services from health to transport and everything in between (the 'digital public infrastructure'), humans could become over-reliant on systems we barely understand – and outcomes we have no control over. ... This dependence on opaque systems raises existential concerns about autonomy, resilience and what happens when systems fail or are manipulated, and in cases of mistaken identity and punishment in a surveillance society. It undermines authentic human intelligence unmediated by AI." - **Tracey Follows**, *CEO of Futuremade, a leading UK-based strategic consultancy*

"Human competence will atrophy; AIs will clash like gladiators in law, business and politics; religious movements will worship deity avatars; trust will be bought and sold. Because they will be built under market forces, AIs will present themselves as helpful, instrumental, and eventually indispensable. … To play serious roles in life and society, AIs cannot be values-neutral. They will sometimes apparently act cooperatively on our behalf, but at other times, by design, they will act in opposition to people individually and group-wise. AI-brokered demands will not only dominate in any contest with mere

humans, but oftentimes, persuade us into submission that they're right after all." **- Eric Saund**, *independent research scientist applying cognitive science and AI in conversational agents*

"AI romantic partners will provide idealized relationships that make human partnerships seem unnecessarily difficult. The workplace will be transformed as AI systems take over cognitive and creative tasks. This promises efficiency but risks reducing human agency, confidence and capability. Economic participation will be controlled by AI platforms, potentially threatening individual autonomy. … Basic skills in arithmetic, navigation and memory are likely to be diminished through AI dependence. But most concerning is the potential dampening of human drive and ambition. Why strive for difficult achievements when AI can provide simulated success and satisfaction?" **- Nell Watson**, *president of EURAIO, the European Responsible Artificial Intelligence Office and an AI Ethics expert with IEEE*

"The education systems are not expert at teaching discernment, and that will be the primary difference, individual to individual, between additive AI and misleading AI. People who think before they speak will still do so, and in a human fashion. Their thoughts may have been expanded by what they've seen/heard from AIs, but the end results will still be human. On the other hand, people who accept what others say may take it literally and largely as fact will probably do the same with AIs, and that could end up being a self-reinforcing pattern. Those who unquestioningly accept AI outputs may lose trust in their own reasoning, drifting from reality and weakening their native intelligence." - **Glenn Ricart**, *founder and CTO of U.S. Ignite, previously served as DARPA's liaison to the Clinton White House*

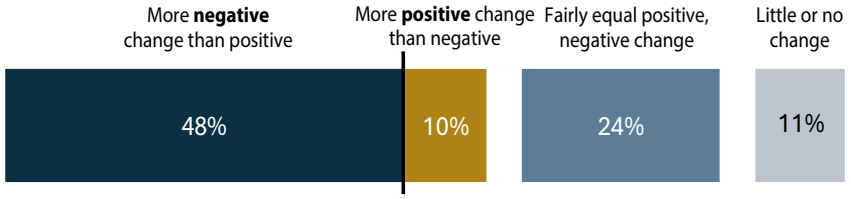
"My pessimism regarding what may come by 2035 arises from the recent and likely future developments of AI, machine learning, LLMs, and other (quasi-) autonomous systems. Such systems are fundamentally undermining the opportunities and affordances needed to acquire and practice valued human virtues. This will happen in two ways: first, patterns of deskilling, i.e., the loss of skills, capacities, and virtues essential to human flourishing and robust democratic societies, and then, second, patterns of no-skilling, the elimination of the opportunities and environments required for acquiring such skills and virtues in the first place. We fall in love with the technologies of our own enslavement. …The more we spend time amusing ourselves ... the less we pursue the fostering of those capacities and virtues essential to human autonomy, flourishing and civil/democratic societies. Indeed, at the extreme in 'Brave New World' we no longer suffer from being unfree because we have simply forgotten – or never learned in the first place – what pursuing human autonomy was about. … The more that we offload these capacities to these systems, the more we thereby undermine our own skills and abilities." - **Charles Ess**, *professor emeritus of ethics at the University of Oslo*

"AI/machine learning tools are better equipped than humans to discover previously hidden aspects of the way the world works. … They 'see' things that we cannot. … That is a powerful new way to discover truth. The question is whether these new AI tools of discovery will galvanize humans or demoralize them. Some of the things I think will be in play because of the rise of AI: our understanding of free will, creativity, knowledge, fairness and larger issues of morality, the nature of causality, and, ultimately, reality itself. … I am opting for a very optimistic view that machine learning can reveal things that we have not seen during the millennia we have been looking upwards for eternal universals. I hope they will inspire us to look down for particulars that can be equally, maybe even more, enlightening." - **David Weinberger**, *senior researcher and fellow at Harvard University's Berkman Klein Center for Internet & Society*

➢ Humans' trust in widely shared values and cultural norms

4. Experts' views on change in humans' trust in widely shared values and cultural norms

% of experts who say the co-evolution of humans and AI is likely to have this effect on humans' trust in widely shared values and cultural norms by 2035



Note: Non-scientific canvassing of tech pioneers, builders and analysts. | Source: Elon University Imagining the Digital Future Center canvassing, Dec. 27, 2024-Feb. 1, 2025

Experts' Responses in Brief - By 2035 there will be…

48% - More negative change than positive change
10% - More positive change than negative change
24% - Fairly equal positive and negative change
11% - Little to no change

Keying off insights about the current state of community and political life, a plurality of these experts believe polarized and fragmented societies are likely to be evermore riven as AI tools advance, diminishing trust in institutions and in social arrangements. A recurring theme among those who are concerned is that while its uses can and will enhance human engagement in many respects, most AI platforms will continue to prioritize the goals of those in power and further empower bad actors. Many who expressed worries briefly commented that their hope is that society will get its act together before it is too late to change. Following is a selection of related quotes extracted from these experts' longer essays:

"Will reliance on AI and its gatekeeper companies make us distrust our institutions? Or will it be the instigator to change these institutions? Information that is counter to what we believe creates an uncomfortable state of cognitive dissonance. Will false information be interpreted with confirmation bias? We all want to believe in our preferences. Or will AI be used as a tool to catalyze curiosity and what could be? … Human values underlie behavioral norms with a caveat: Context determines how our behaviors manifest our values. Society benefits when individuals can have reasonable expectations of mutual respect of institutions and enterprises. Does the mutual respect exist now in this political economy? Do business enterprises have human values? If they do, how do their behaviors react to existential competition? By not thinking hard about the context of peoples' lives? Unbounded by AI regulation, in 2035 individuals in the U.S. could face longer but less fulfilling lives. … Our reliance on AI will exceed our ability to fact check it; never mind the existential threat to humankind. In 2035, are we going to have AI tools that feed human curiosity, or be reliant on AI crutches?" - **Rosalie R. Day**, *co-founder at Blomma, a platform providing digital solutions to clinical research studies*

"One of the most important concerns is the loss of factual, trusted, commonly shared human knowledge. … Already today most of the most widely viewed 'news and information' the public sees about climate change, pandemics, nation-state disagreements, regulation, elections and so on is no longer based in true facts. Instead, we see fake news or unfounded opinions often used to shape perceptions to achieve manipulation of outcomes. The use of AI for deepfakes and more will accelerate this process. This destructive trend could be irreversible because strong financial and political interests profit from it in many ways. ... When every 'fact' is relativized and open to doubt the capacity for indignation is likely to be reduced. There are no examples in human history of societies that have survived in the absence of shared truth for too long." - **Giacomo Mazzone**, *global project director for the United Nations Office for Disaster Risk Reduction*

"Deepfakes have already put a big dent in reality, and it's only going to get worse. In setting after setting, we will find it impossible to distinguish between the natural and the synthetic. … As we snuggle closer to these intelligences it will be increasingly difficult to distinguish who (or what) did what. … AIs will successfully emulate core human traits." - **Jerry Michalski**, *longtime speaker, writer and tech trends analyst*

"AI's ability to curate everything – from entertainment to social connections – could lead to highly personalized but isolated 'realities.' This is a trend I call the rise of 'Citizen Zero,' where people are living only in the present: disconnected from a shared past, not striving toward any common vision of a future. Human interactions may become more insular as we retreat into algorithmically optimized echo chambers. And, as we already know, millions of pages of research, footnotes and opinion are disappearing daily from the internet whilst the Tech Platforms reach into our phones and erase photos or messages whenever they want – perhaps even without our knowledge – and AI is only going to make that more scalable." - **Tracey Follows**, *CEO of Futuremade*

"AI will become the attractive nuisance of convenience. We won't know what we no longer know." - **Henning Schulzrinne**, *Internet Hall of Fame member, former co-chair, IEEE Internet Technical Committee*

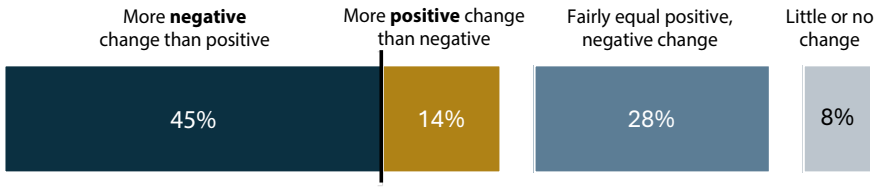
"The trend toward polarization, exacerbated by the divergence in human use of digital tools, will create more challenges to humans' trust in others, in institutions and in their world views. Already today, we have to question everything we experience in the digital sphere. The need for the application of critical digital literacy skills will increase greatly at a time in which most people may not be inclined or able to implement them. Determining who and what to trust will be a significant life skill that some will develop but many will not. Each person's management of their digital selves will strongly impact personal agency." - **Charlie Firestone**, *president of the Rose Bowl Institute, previously vice president and executive vice president at The Aspen Institute*

"I am particularly interested in the impact of the broadening of our awareness and knowledge beyond ourselves to 'others.' I am hopeful that this will bring about a much greater sensitivity to the ethics and ramifications of our actions beyond our immediate wants to seek inclusive progress in the human condition and beyond. … I do believe we will become less selfish and more oriented to finding solutions to problems or opportunities that will serve both our personal needs/wants, but also those of others. The addition of a broadly-shared conscience will help accelerate the improvements felt by others. The synergies will create a sea-change in the way people treat one another and support the collective good."- **Ray Schroeder**, *professor emeritus and former associate vice chancellor for online learning at the University of Illinois-Springfield*

➢ Humans' mental well-being

5. Experts' views on change in humans' mental well-being

% of experts who say the co-evolution of humans and AI is likely to have this effect on humans' mental well-being by 2035



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Experts' Responses in Brief - By 2035 there will be…

45% - More negative change than positive change
14% - More positive change than negative change
28% - Fairly equal positive and negative change
8% - Little to no change

As they considered this question, more experts than not referred to their concerns that AI tools might affect the core qualities of mental well-being – things like true companionship and authentic relationships, feelings of control and mastery of life experiences, exposure to meaningful emotional encounters, the quest for an integrated life and the yearning for solitude and a simplified life. A small share of the experts noted that AI systems mitigate loneliness and might bring the balm of contact with a wider exposure to people and ideas that align with them. A number of the essays that touched on the category of social and emotional intelligence also mentioned well-being; the impact of AI in both of these categories is seen as generally dependent on how the tech is designed and operated by powerful platforms *and* on how individuals personally choose to use these tools. Following is a selection of related quotes extracted from these experts' longer essays:

"Many people's happiness is at least partially derived from their sense that the world somehow needs them, that they have utility. I think AI will likely end that utility. Additionally, there are risks that AI worsens the climate crisis and severs planetary boundaries, mostly due to change in economic growth. Addiction to AI in some form (AI friends and relationships, polarizing news and information, entertainment, etc.) could lead to a dystopian future. All of this has impact on well-being." - **Otto Barten**, *sustainable-energy engineer, data scientist, entrepreneur and founder and director of the Existential Risk Observatory, based in Amsterdam*

"By 2035, on the one hand, the human-level performance of uncontrolled and unbridled AI systems is likely to disrupt our sense of agency, autonomy and free will. In addition, constantly comparing ourselves to these systems may result in feelings of inadequacy, incompetence or helplessness – for some, to the point of even worrying over the deterioration of our mental or intellectual state. At a more profound level, our deepening dependence upon AI may lead to experiencing a loss of individuality and

uniqueness, or a loss of self, as well as a loss of control over one's own life." - **Charalambos Tsekeris**, *research associate professor in digital sociology at the National Centre for Social Research of Greece*

"Psychologists and others will become alarmed at the fact that humans are forming deeper bonds of trust and friendship with AI companions than with either their human families or friends. This will be most acute with children overly attached to their AI companions at the expense of social development. Among adults, psychologists will warn of a growing number of cyber-hikikomori – adults who have disappeared into severe social isolation, spending all their time with vivid AI companions." - **Paul Saffo,** *Silicon Valley-based technology forecaster*

"The scalable capacity of AI to generate ever-new synths could become overwhelming for us. What's irksome is not the fact that these dupes will be ubiquitous; it is their endless variety and effortless inconstancy. We will be overwhelmed by their presence everywhere. We will resent that saturation, as it will keep depleting our mental and emotional capacities on a daily basis. We will push back and demand limits. - **Maja Vujovic**, *book editor, writer and coach at Compass Communications in Belgrade, Serbia*

"Human purpose will change. Many will find themselves without purpose and this will harm well-being and lead to societal unrest. Our quest for precision will ultimately take away the serendipity of being a human. The pressure to reduce risk will make life pretty boring. All these opportunities to be human and to take risk will be muted by the perceived expertise of AI and the math that works against human bias. In almost every scenario, organizations will have to ask four questions about when and where we insert a human in the decision-making process. Do we have full-decision machine intelligence? Do we augment the machine with a human? Do we augment the human with a machine? Do we have an all-human decision?" - **R Ray Wang**, *principal analyst, founder and CEO of Constellation Research*

"The vulnerability inherent in human interaction – the messiness of emotions, the mistakes we make, the unpredictability of our thoughts – is precisely what makes us human. When AI becomes the mediator of our relationships, those interactions could become optimized, efficient and emotionally calculated. The nuances of human connection – our ability to empathize, to err to contradict ourselves – might be lost in a world in which algorithms dictate the terms of engagement." - **Evelyne Tauchnitz**, *senior research fellow at the Lucerne (Switzerland) Graduate School of Ethics*

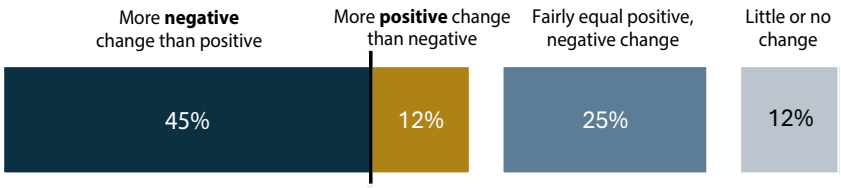
"If short-term business gains weren't the goal, future personal AIs could act as deeply customized 'bottlers,' trusted companions that safeguard and enhance our well-being. These systems would draw on shared data, but their allegiance would be to the individual. By placing control in the hands of users, personal AI could enable a shift from manipulation to empowerment. ... By understanding the unique needs, preferences and circumstances of each individual, AI could enable personalized solutions that treat people equally by treating them differently. This approach could dismantle the one-size-fits-all mindset, fostering environments where individuality is celebrated, not suppressed. Freed from the struggle for recognition, people would be more open to collaboration, creating stronger more-innovative teams." - **Liselotte Lyngsø**, *founder of Future Navigator, based in Copenhagen, Denmark*

"AI is contributing to a brittle cultural monoculture. We have to somehow get back to a balanced culture that is both sustainable and resilient. ... Obviously, there is a lot of talk about the coming AI revolution's impact in the decades to come and the effect it may have on eliminating jobs. ... 'What will these people do all day?' The smug answer is that they will become 'creators.' At the risk of being called elitist, let me state that not everyone can be a creator." - **Jonathan Taplin**, *author of "How Google, Facebook and Amazon Cornered Culture and Undermined Democracy"*

➢ Humans' empathy and application of moral judgment

6. Experts' views on change in humans' empathy and application of moral judgment

% of experts who say the co-evolution of humans and AI is likely to have this effect on humans' empathy and application of moral judgment by 2035



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Experts' Responses in Brief - By 2035 there will be…

45% - More negative change than positive change
12% - More positive change than negative change
25% - Fairly equal positive and negative change
12% - Little to no change

Machine intelligence is being trained to express human-like empathy and kindness in transactions, and it is already being used to make data-based judgments in court decisions, hiring, mortgage applications and more. Many of these experts expressed concerns about AI's impact on human empathy and moral judgment. Some worry that if moral and ethical decision-making is outsourced to AI at the same time that human-to-human in-person connections are being diminished, people may lose the ability to engage in the hard work of dealing with moral dilemmas critically. That, in concert with other diminished human capabilities, could reduce people's abilities for ethical reasoning and remove them from a sense of personal responsibility. A selection of related quotes extracted from these experts' longer essays:

"As the interaction between AI systems and human deepens, core human traits like creativity, empathy and reasoning will evolve and continue to prevail as the main differentiators of human qualities and attributes that AI systems and computer algorithms still lack and may not be able to fully develop. Maintaining a balance between embracing the benefits of AI while preserving core traits and human behaviors will be the next race to preserving the future of our existence in a fully connected and AI driven society." - **Cristos Velasco**, *international practitioner in cyberspace law and regulation and board member at the Center for AI and Digital Policy, based in Mannheim, Germany*

"Memory, numeracy, organizational capabilities, moral judgment – all of these will be diminished. AI will be tasked to remember for us. … We will not need to strategize in order to organize our lives because AI will be faster and more accurate than us in organizing our spaces, our agenda, our planning, our strategies, our communication with others. All of this is likely to result in the diminishment of our capacity for moral judgment. AI will be used by many people to take shortcuts to making moral and ethical decisions while leaving them in the dark about how those decisions are made. AI is already leading to the fragmentation and dehumanization of work." - **Giacomo Mazzone**, *global project director for the United Nations Office for Disaster Risk Reduction*

“Will AI improve our morals? No. Will it eradicate our inclinations toward sin? Hardly. Instead, it will invent new ways to do both – offering tools for both crime and security, for both deception and enlightenment. ... Some say that this opens the possibility for advanced AIs of the future to reach ‘divine‘ characteristics, such as omnipotence, omniscience and omnipresence, potentially pushing humanity out of its linear comfort zone and narrowing our sense of human nature.” - **David Porush,** *writer and longtime professor at Rensselaer Polytechnic Institute*

“Only when we are free – truly free to make mistakes, to diverge from the norm, to act irrationally at times – can we become the morally responsible individuals that Kant envisioned. This capacity for moral autonomy also demands that we recognize the equal freedom of others as valuable as our own. Surveillance, AI-driven recommendations, manipulations or algorithms designed to rely on patterns of what is defined as ‘normal’ may threaten this essential freedom. They create subtle pressures to conform, whether through peer pressure and corporate and state control on social media, or in future maybe even through the silent monitoring of our thoughts via brain-computer-interfaces. The implications of such control are profound: if we are being constantly watched, or even influenced in ways we are unaware of, our capacity to act freely – to choose differently, to be morally responsible – could be deeply compromised.” - **Evelyne Tauchnitz**, *senior fellow at the Institute of Social Ethics at the University of Lucerne, Switzerland*

“Critically, much of the norm of human interaction, behavior and essence, is also likely to continue to be driven by major economic forces. Capitalism, marketing, attention economics, precarious work, competition and inequality are amongst the forces that seem poised to shape the design of AI systems, human-AI interactions, and, ultimately, human life. Thus, while an ‘Oasis‘-style virtual world with unlimited human-AI-enabled creativity and empathy could evolve in theory, it‘s likely that a major AI-VR environment will be (at least as) replete with marketing, attention-seeking mechanisms and various unhealthy and unfortunately predatory behaviors. The essence of our cultural and economic milieu, therefore, seems likely to heavily mediate how human-AI interactions shape human essence.” - **Daniel S. Schiff**, *co-director of the Governance and Responsible AI Lab at Purdue University*

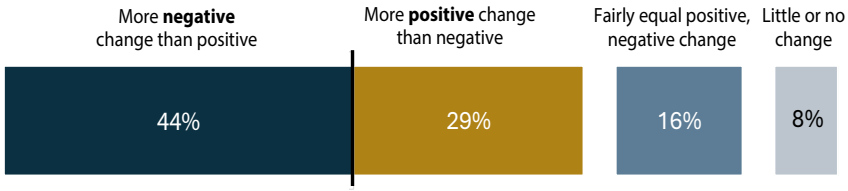
“There is greater focus in society on building up and developing human skills that literature termed as ‘soft skills’ back in 2025. These are empathy, connection, listening, creativity and communication. As AI has taken on various responsibilities to manage tasks that require basic intelligence, humans are concentrating on exercising their soft skills such as how to connect with other humans. Refining the human tasks performed by AI to fit human life and interactions has heightened humans’ awareness of their presence and led to greater exercise of more-intuitive human capabilities. The expanding interactions between humans and AI have resulted in a continuous reevaluation of core human traits, emphasizing adaptability, empathy and a sense of purpose.” - **Rabia Yasmeen**, *senior consultant for Euromonitor International based in Dubai, UAE*

“Machines and technologies have always played a key role in the construction of how nations and civilizations perceive themselves. Human dependence, adaptations and appropriations of technologies will evolve through time and will be tested in terms of their relevance, social harms, effacement of human norms, empathy and rights. Machine learning and algorithms will be cued through human behaviour and conversely these will in time cue us in terms of our responses on platforms and utilizing technological interfaces to manipulate human senses. There is an iterative process at play.” -**Yasmin Ibrahim**, *professor of digital economy and culture at Queen Mary University of London*

➢ Humans' individual agency and the ability to act independently

7. Experts' views on change in humans' individual agency and the ability to act independently in the world

% of experts who say the co-evolution of humans and AI is likely to have this effect on humans' individual agency and the ability to act independently in the world by 2035



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Experts' Responses in Brief - By 2035 there will be…

44% - More negative change than positive change
29% - More positive change than negative change
16% - Fairly equal positive and negative change
8% - Little to no change

The views expressed here echo findings from the Imagining the Digital Future Center's past reports on the "Future of Human Agency" and "Artificial Intelligence and the Future of Humans." A plurality of these experts believes AI tools create a paradox of control, convincing individuals that they are enhancing their lives while shaping their decisions to suit others' needs behind the scenes. Most of these experts expect this will weaken humans' cognitive and strategic abilities, leading to less self-initiated problem-solving and the diminishment of moral judgment. They also note that as AI systems are further embedded in key systems of business, law and government, they are likely to further remove humans from critical decision processes altogether. Following is a selection of related quotes extracted from these experts' longer essays:

"The deepening partnership between humans and artificial intelligence through 2035 reveals a subtle but profound paradox of control. As we embrace AI agents and assistants that promise to enhance our capabilities, we encounter a seductive illusion of mastery – the fantasy that we're commanding perfect digital servants while unknowingly ceding unprecedented control over our choices and relationships to the corporate – and in some cases government – entities that shape and control these tools. … By 2035, they will become the primary lens through which we perceive and interact with the world. Unlike previous technological mediators, these systems won't simply connect us to others; they'll actively shape how we think, decide and relate. The risk isn't just to individual agency but to the very fabric of human society, as authentic connections become increasingly filtered through corporate-controlled interfaces. … The stakes transcend mere efficiency or convenience. They touch on our fundamental capacity to maintain meaningful control over our personal and societal development." - **Lior Zalmanson**, *professor at Tel Aviv University – expertise in algorithmic culture and the digital economy*

"Outsourcing any human analytical process will, over time, lead to an attrition of any particular skill set. This is worrying if humans' well-being is still tied to their ability to make independently derived,

informed decisions. This is one level at which ubiquitous AI as everyday mundane helpers or 'micro agents' will influence humans by 2035. Humans' ability to process information in an unaided way will suffer because they will no longer be constantly practicing that skill. As the use of AI becomes more routine this will have deeper impact." - **Annette Markham**, *chair and professor of media literacy and public engagement at Utrecht University, the Netherlands*

"In thinking about the consequences of the advent of true AI, the television series 'Star Trek' is worth reconsidering. 'Star Trek' described an enemy alien race known as the Borg that extended its power by forcibly transforming individual beings into drones by surgically augmenting them with cybernetic components. The Borg's rallying cry was 'resistance is futile, you will be assimilated.' Despite warnings by computer scientists going at least as far back as Joseph Weizenbaum in 'Computing Power and Human Reason' in 1976 that computers could be used to extend but should never replace humans, there has not been enough consideration given to our relationship to the machines we are creating." **- John Markoff**, *author of "Machines of Loving Grace: The Quest for Common Ground Between Humans and Machines"*

"The perilous implications of the datafication every aspect of our lives, our interactions, our innermost thoughts and biometrics as well as the world around us (through ubiquitous sensors) will be irrefutable by the end of the decade. The continuous stream of intimate human data AI corporations collect – from our biometrics and behavior to our social connections and cognitive patterns has created a dangerous feedback loop that makes it seem impossible to exert control and autonomy. As their AI systems become more sophisticated at predicting and influencing human behavior, people become more dependent on their services, generating even more valuable training data and value for the AI agents, tools, applications and products that will pervade every aspect of our daily lives by 2035. ... In the best future, privacy and cognitive liberty are protected as fundamental rights, AI corporations are subject to rigorous oversight and their systems are directed toward solving humanity's greatest challenges (in collaboration with the communities experiencing those challenges) rather than taking over core human capacities" - **Courtney C. Radsch**, *director of the Center for Journalism & Liberty at the Open Markets Institute*

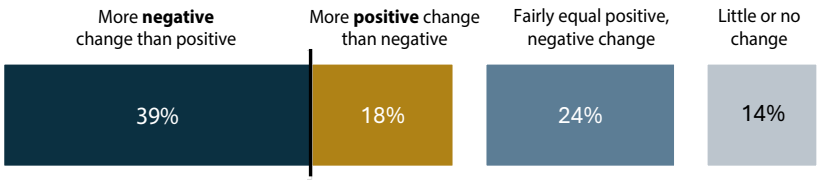
"Maintaining humanity while extending consciousness requires ownership of that which simulates the individual's being in the world. The world's largest tech companies are fixated on AI as a commercial product. In focusing their attention on AI's essence as a consumer artifact, their development of agency in AI risks making agency serve corporate ends and therefore become parasitic and dehumanizing. … When we can act collaboratively with a trusted AI simulation of our self, we will be experiencing extended cognition with joint responsibility for collective action. Agency without responsibility is malignant. We prompt and inform our AI and our AI prompts and informs us. Having the individual, not corporations, in control of action is the key to remaining human as extended consciousness reframes our realities." - **Garth Graham**, *a global telecommunications expert and consultant based in Canada*

"In my opinion, smartphone technology has already transformed humanity. We don't need to wait 10 more years to understand that things are not going well for us. By becoming addicted to our phones and the entertainment/distraction that they provide, we have already changed our behavior and might already be in the process of losing many of our core human traits. AI might simply accelerate our descent into the dystopian abyss, because we are already losing or surrendering our agency to make decisions for ourselves." - **Eni Mustafaraj**, *associate professor of computer science at Wellesley College*

➢ Humans' self-identity, meaning and purpose in life

8. Experts' views on change in humans' self-identity, meaning, and purpose in life

% of experts who say the co-evolution of humans and AI is likely to have this effect on humans' self-identity, meaning, and purpose in life by 2035



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Experts' Responses in Brief - By 2035 there will be…

39% - More negative change than positive change
18% - More positive change than negative change
24% - Fairly equal positive and negative change
14% - Little to no change

More experts than not see negative outcomes as they imagine how the humans-plus-AI evolution affects people's identities and their sense of meaning and purpose in their lives. They said there are many potentially daunting challenges ahead as people try to maintain a coherent sense of self in a world where AI increasingly mediates and simultaneously expands the potential for human-to-human experiences and relationships and human-synth experiences and relationships. They worry about the fragmentation of identity through multiple digital personas and the potential loss of traditional sources of meaning and purpose, particularly those found through jobs/work. However, some experts see enhanced human flourishing. A selection of related quotes extracted from these experts' longer essays:

"Being human itself will undergo the most profound changes in human history due to having an alt-AI self, an alt-AI companion or counselor. As we do with all our tools, we will take AI into our bodies and minds. We will no longer think of ourselves as solely human; or, rather, we won't think that 'being human' doesn't include AI – we will see ourselves part-human, part-other. Our self-sense will now expand to a family of AI agents who work with us, for us, (against us?) – all of which extend our proprioception, stretching it to the distending point. Schizophrenia will be the natural state of most humans – common as aspirin – as we split our identities, part of us in an online venue, part relying on some manner of AI to complete our day-to-day tasks – and using the same AI agents and 'helpers' to self-promote, self-brand, self-improve. On platforms owned and financed by oligarchs who want us to use these tools to keep their businesses profitable and earning billions or even trillions of dollars to personally enrich themselves, the self becomes the ultimate business model." - **Barry Chudakov**, *principal at Sertain Research*

"AI will redefine who is a 'smart' and a valued, contributing member of society. Who has power and authority when AI reduces the need for human cognitive development and education – how will learning change when AI handles most knowledge work? What is the opportunity for self-improvement and purpose when there is no hope of competing against a bot? Perhaps universities will fill the gap.

Instead of providing an education, they will help young people build a life of meaning. … Ironically, the U.S. will lead the world in AI development and then watch its society rapidly decline because of it. This will accelerate the psychological and financial deterioration of an American society already in danger of becoming addicted to their personalized, AI-driven media." - **Mark Schaefer**, *marketing strategist*

"How individuals perceive and adapt to the integration of AI into daily life will significantly influence their human experience. Some will feel enhanced by the technology we've created, while others will view AI as something anti-human. Regardless of individual perspectives on AI in relation to their sense of 'I,' everyone will be compelled to reevaluate and potentially redefine their personal definition of what it means to be human. … Those who resist and view AI as 'anti-human' may feel superior in intangible ways by redefining beliefs and reinterpretations of ancient traditions. Conversely, those who embrace AI may feel intellectually superior and are likely to have opportunities for greater material success. These advantages could exacerbate existing divisions, including economic, religious and cultural ones." - **Stephan Adelson**, *president of Adelson Consulting Services, an expert on digital public health*

"AI will enable us to construct and manage multiple digital personas, tailored to different contexts online. While this offers unprecedented flexibility in self-expression and a kind of multiplicity of the self, it also risks fragmenting the core sense of identity, leaving people grappling with the question: Who am I, really? … The concept of the 'real' self may diminish in a world where AI curates identities through agents that guide content, contracts and relationships. In fact, 'authenticity' is not a standard that will apply in an AI world at all – a world of clones and copies. Authenticity is de facto dead." - **Tracey Follows**, *CEO of Futuremade, a consultancy based in London, UK*

"Many fear that machines will create their own culture and ethos. I am not convinced, but if that does happen it will be intertwined with the evolving social, environmental and economic ecosystems that we live in, create, destroy and recreate. ... The extension of mind into AI challenges our fundamental sense of self and agency. How do we maintain a coherent identity when our thoughts and memories are increasingly externalized and shaped by AI systems?" - **Anriette Esterhuysen**, *South Africa Internet pioneer, Internet Hall of Fame member*

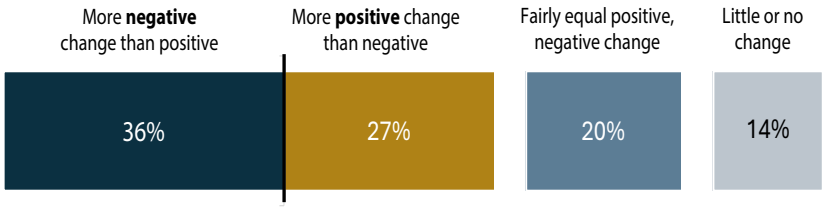
"Looking ahead, we must also consider the concept of our 'digital shadow.' In the not-so-distant future this complementary digital self – comprising our virtual and online skills, digital avatars and accumulated data – will merge with our physical existence. This fusion may grant us access to a new dimension of experience, a kind of 'timelessness' where our identities transcend mortality. Future generations could interact with our digital selves. ... This evolution raises profound questions about identity, legacy and the human experience in an AI-driven world. AI's potential to enhance human life is immense, but its integration into society demands intentionality and vigilance." - **Neil Richardson**, *founder of Emergent Action, a strategic consultancy, and co-author of "Preparing for a World That Doesn't Exist - Yet"*

"*If* AI in fact eventually achieves consciousness, then what? Suddenly, it changes the nature of how we define what it means to be human. Who will feel more existential dread then? Us – *of the AI* – or the AI of us? How does that impact feelings of happiness or sadness, meaningfulness or ennui, psychological richness or abject pointlessness? … My view? Ray Kurzweil is right. We will ultimately merge. Eventually AI will become the dominant part of human consciousness, doing everything that we can do far better than we could ever do it. AI will become the dominant part of the AI-human pair, but because AI will not waste, humans will never be eliminated or even subservient. We will provide ... those brief blossoms of spontaneous, un-programmable delight AI will never be able to generate." - **Chris Labash**, *associate professor of communication and innovation at Carnegie Mellon University*

➢ Humans' metacognition - the ability to think analytically about thinking

9. Experts' views on change in humans' metacognition - the ability to think analytically about thinking

% of experts who say the co-evolution of humans and AI is likely to have this effect on humans' metacognition - the ability to think analytically about thinking by 2035



Note: Non-scientific canvassing of tech pioneers, builders and analysts. | Source: Elon University Imagining the Digital Future Center canvassing, Dec. 27, 2024-Feb. 1, 2025

Experts' Responses in Brief - By 2035 there will be…

36% - More negative change than positive change
27% - More positive change than negative change
20% - Fairly equal positive and negative change
14% - Little to no change

The contention of those who are anxious about the fate of people's ability to examine their own assumptions and thought processes goes like this: When AI constantly mediates decision-making, individuals may lose confidence in their own reasoning abilities, struggle with metacognitive monitoring of their own thought processes and default to AI recommendations without critically assessing them. The counter-case some experts make goes like this: AI could serve as a mirror to help people understand their own cognitive biases and thinking patterns. In addition, AI's aggregation of collective intelligence could expand people's perspectives, even "how we create understanding itself." There were comments, as well, about the possibility that machines may become self-aware, even achieving an "artificial consciousness." Following is a selection of related quotes extracted from these experts' longer essays:

"This transition fundamentally reshapes core human behaviors, from problem-solving to creativity, as our cognitive processes extend beyond biological boundaries to incorporate machine interpretation and understanding. ... The emergence of the 'knowledge-ome' – an ecosystem where human and machine intelligence coexist and co-evolve – transforms not just how we access information, but how we create understanding itself. AI systems reveal patterns and possibilities beyond human perception, expanding our collective intelligence while potentially diminishing our role in meaning-making. This capability forces us to confront a paradox: as machines enhance our ability to understand complex systems we risk losing touch with the human-scale understanding that gives knowledge its context and value." - **Dave Edwards**, *co-founder of the Artificiality Institute*

"Being conscious is not the result of some complicated algorithm running on the wetware of the brain. It is rooted in the fundamental biological drive within living organisms to keep on living. The distinction between consciousness and intelligence is important because many in and around the AI community assume that consciousness is just a function of intelligence: that as machines become smarter, there will

come a point at which they also become aware, at which the inner lights of consciousness come on for them." - **Anil Seth**, *professor of computational neuroscience at the University of Sussex, UK, and author of "Being You: A New Science of Consciousness"*

"AI is a form of self-inflicted dementia for humans. In the near-term, it may improve the physical condition of humans. But in the long-term it diminishes human cognition. It strips from humans responsibility for the human condition. As AI grows more powerful and commonplace, human cognition will decline. We no longer learn how to remember, analyze, reason or innovate. AI does these for us. … The real danger is that we will pass a tipping point beyond which we cannot retrieve from AI that which makes us human. The dementia will be complete." - **Ken Grady**, *professor and researcher at LegalRnD – The Center for Legal Innovation at Michigan State University*

"Working for us as agents – no longer merely tools that obey our instructions and whims – AI represents humans' first real *extended mind*. Not only have we extended the human mind into our tools; that mind is thinking and deciding alongside and sometimes without the humans using it. By all accounts AI will outthink humans. The social, political and economic implications of this powerful intelligence are numerous. Not least of these is how we present ourselves socially, to the world, to our loved ones. We will change as the thing we present – our self – changes from an inner self to an outer, ersatz, crowdsourced self. … Being human will undergo profound changes as AI and the human mind merge; the human mind will integrate with AI. Simply put, there will be more of each of us (AI extensions and digital personas) – who aren't really each of us. This is *radical virtualization*. … The essential and existential experience of being human will embrace the AI extension. Wholly unimaginable realities will emerge, with almost no moral or conceptual guidelines. This means that we must begin urgently now to shore up our moral awareness of the far-reaching implications of inviting AI into our lives and minds." - **Barry Chudakov***, principal at Sertain Research*

"If we continue adopting technologies largely unthinkingly, as we have in the past, we risk denigrating some of humanity's most essential cognitive capacities. I am hopeful that the makings of a seismic shift in humanity's approach to not-knowing are emerging, offering the possibility of partnering with AI in ways that do not narrow human cognition." - **Maggie Jackson***, award-winning journalist and author who explores the impact of technology on humanity; author of, "Distracted: Reclaiming Our Focus in a World of Lost Attention"*

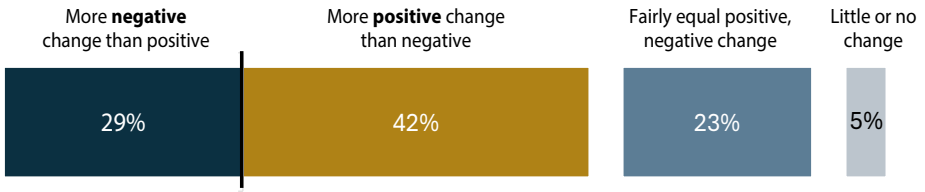
"The experience of being human will be significantly impacted by AI advances in the next decade. ... [One serious consequence is our] reconsideration of human exceptionalism. The human self-image has long been tied to an understanding that we are the most cognitively endowed beings in our known universe. With the advent of AI tools that surpass humans in many tasks, this long-cherished self-concept will suffer substantially. Precisely how humans will respond is unknown, but without some sort of support there is real danger that anomie – the breakdown of social norms – and other dystopic sequelae might emerge." - **Peter Reiner**, *professor emeritus of neuroscience and neuroethics at the University of British Columbia*

"If educational systems fail to make transformative progress, which seems likely, then economic forces will continue to replace labor with capital, making AI a substitute for human intelligence rather than a tool to enhance it**.**" **- *Danil Mikhailov****, director, DataDotOrg***

➢ Humans' curiosity and capacity to learn

10. Experts' views on change in humans' curiosity and capacity to learn

% of experts who say the co-evolution of humans and AI is likely to have this effect on humans' curiosity and capacity to learn by 2035



Note: Non-scientific canvassing of tech pioneers, builders and analysts. | Source: Elon University Imagining the Digital Future Center canvassing, Dec. 27, 2024-Feb. 1, 2025

Experts' Responses in Brief - By 2035 there will be…

29% - More negative change than positive change
42% - More positive change than negative change
23% - Fairly equal positive and negative change
5% - Little to no change

The experts' views were more likely to be positive than negative about the effect AI will have on curiosity and the capacity to learn. While very few of the people who wrote essay responses mentioned this category as growing in strength as a human trait by 2035, many expect that people's implementation of AI and the knowledge gained through the use of AI tools will expand their personal capacity for learning and motivate them to be more curious than when they are operating under the power of their own human capabilities alone. Many of the essayists also expressed concerns that humans' growing dependence on AI systems will narrow their cognitive experience to the point at which they simply outsource their essential selves to machine outputs. They fret about atrophy of humans' capacity to learn as their innate curiosity dampens. Following is a selection of related quotes extracted from these experts' longer essays, starting with the hopeful:

"Today's AI provides much-improved search capabilities, better to read and with more knowledge. It allows me to expand my curiosity. I can ask it, 'What about this? Explain that in terms I can understand,' and so on. I'm not a scientist nor am I an environmentalist, but AI can help me understand the damaging significance of methane when compared with CO2. It can visualize the size of the block of carbon produced as a result of a flight I take across the country or around the world. What I do with that visualization is up to me." - **Tom Wolzien**, *inventor, analyst and media executive*

"LLMs can be programmed to reveal uncharted territory if we are well-versed in interacting with them effectively to harness that potential. And they do not preclude the teaching of curiosity and fundamentals. ... Interaction with these tools – for that is what they are – can engender new energy within humans toward the exploration and iterative development of new ideas. The offshoot side effect of 'creativity' inspired by working with AI models can increase our appreciation for the distinct beauty and value of naturally-derived human output. The offshoot side effect of creativity inspired by working with AI models can increase our appreciation for the distinct beauty and value of naturally-derived

human output." - **Keram Malicki-Sanchez**, *Canadian founder and director of VRTO Spatial Media World Conference and the Festival of International Virtual and Augmented Reality Stories*

"If we follow the path we are on, the unintended negative consequences of AI will swamp the benefits for society. We will discount critical thinking and reward just-in-time learning above multidisciplinary, experiential, contextual decision-making. Can our innate curiosity save us from an AI-reliant post-truth dystopia? The human attention budget allows us to make routinized decisions which never rise to the level of consciousness. I am not so worried about potential human laziness – curiosity counteracts that – but about our growing reliance on AI-asserted 'facts.' AI crutches become one less debit to individuals' attention budgets. ... Will AI be used as a tool to catalyze curiosity and what could be? I have no idea. ... In 2035, are we going to have AI tools that feed human curiosity, or will we be reliant on AI crutches?" - **Rosalie R. Day**, *co-founder at Blomma, a platform providing digital solutions to clinical research studies*

"When we use AI to accomplish tasks we have already mastered, it can create economies of scale that allow humans to focus on more important and meaningful work. Inversely, if we use AI before we learn how to do those tasks ourselves, it will rob us of important scaffolding and the experience of learning by doing. For example, AI does an amazing job at synthesizing and summarizing existing text. However, if we don't teach our children the process of summarizing and synthesizing text for themselves, we rob them of a chance to deepen their ability to think critically." - **Pamela Wisniewski,** *associate professor in human-computer interaction and fellow in engineering at Vanderbilt University*

"Studies show that active curiosity is born of a capacity to tolerate the stress of the unknown, i.e., to ask difficult, discomfiting, potentially dissenting questions. Innovations and scientific discoveries emerge from knowledge-seeking that is brimming with dead ends, detours and missteps. Complex problem-solving is little correlated with intelligence; instead, it's the product of slow-wrought, constructed thinking. But today, our expanding reliance on technology and AI increasingly narrows our cognitive experience, undermining many of the skills that make us human and that help us progress." - **Maggie Jackson**, *award-winning journalist and author who explores the impact of technology on humanity*

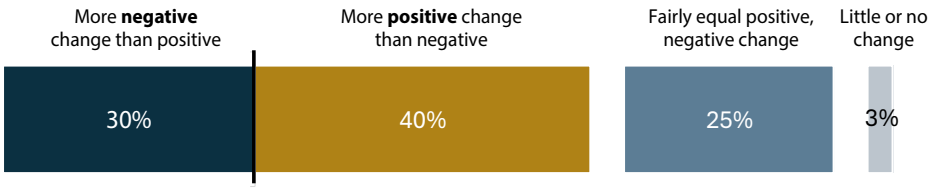
"Generative AI technologies allow us to use knowledge that is beyond us without helping us appreciate what we know or don't know. In fact, it devalues the virtue of humility. Humility ensures that we value the creation of new knowledge, that we are awed when other people do things we cannot or did not think to do, and that we take the time to embrace curiosity and deep listening. Generative AI gives us the illusion that we need not be limited by our own experiences and education, that we can simply access all collective knowledge the AIs have been trained on (which is not actually *all* knowledge). Awareness of our limitations enables us to be more open and tolerant, to seek out and collaborate with people from different backgrounds, and to want to be more well-rounded humans. If we design our generative AI interfaces to obscure our lack of knowledge and ability, I fear we will diminish a key aspect of our humanity and our civic capacity." - **Erhardt Graeff**, *educator, social scientist, and public interest technologist at Olin College of Engineering*

"The future of humans and AI is a future of humans and humans, in which AI facilitates some connections, hinders others and reshapes how we exchange knowledge and information just as predecessor information technologies have done. The impact of these advances will be shaped by the literacies we develop and the skills with which we approach these processes and each other as ever-changing humans in an ever-changing world." - **Denis Newman Griffis**, *lecturer in data science, University of Sheffield, UK*

➢ Humans' decision-making and problem-solving abilities

11. Experts' views on change in humans' decision-making and problem-solving abilities

% of experts who say the co-evolution of humans and AI is likely to have this effect on humans' decision-making and problem-solving abilities by 2035



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Experts' Responses in Brief - By 2035 there will be…

30% - More negative change than positive change
40% - More positive change than negative change
25% - Fairly equal positive and negative change
3% - Little to no change

The experts' views were more likely to be positive than negative about the influence that humans' further adoption of AI tools and systems will have on their decision-making and problem-solving skills. A number of them expect that the implementation of AI and the knowledge gained through the use of AI tools will somehow expand humans' own individual capacities in decision-making and problem-solving. Some predicted that when AI systems tackle low-priority tasks, relieving people of some of their cognitive burden will allow them to shift their attention to more important issues and tasks. Some expect that the knowledge gained through the use of AI tools will allow people to be more insightful about how they make choices when they are operating under the power of their own human capabilities alone. Others worry, however, about the negative implications of humans deferring all of their critical thinking to machine intelligence. Following is a selection of related quotes extracted from these experts' longer essays:

"Unlike in today's monolithic systems driven by profit motives ... imagine a world where you can visualize the ripple effects of your actions across generations. You could explore the environmental consequences of your consumption habits, assess how your parenting choices might shape your children's futures, or even foresee how shifts in your career might contribute to societal progress. These uses of AI would not only enrich individual decision-making but also cultivate within humanity itself a collective sense of responsibility for the broader impact of our choices. At the heart of this vision lies personalized AI tailored to the unique needs and aspirations of each individual." - **Liselotte Lyngsø**, *founder of Future Navigator, a consultancy in Copenhagen, Denmark*

"There is a high degree of probability that we will have built, by 2035, what I call 'the last human tool' or artificial general intelligence (AGI). ... If humanity is able to stand the waves of change that this advanced intelligence will bring, it could be a bright future. ... Education is poised to transform from a system focused primarily on knowledge acquisition to one that values creativity, problem-solving and

the cultivation of unique personal skills. The traditional emphasis on knowledge retention could diminish, encouraging humans to focus more on wisdom and interpretation rather than raw data." - **David Vivancos**, *CEO at MindBigData.com and author of "The End of Knowledge"*

"The boundary between human and machine may blur as AI becomes more integrated into human decision-making. AI-driven assistants and advisors could influence our choices, subtly reshaping how we think and act. While this partnership may lead to more efficiencies, it risks diminishing human agency if individuals begin to defer critical thinking to algorithms." - **Laura Montoya**, *founder and executive director at Accel AI Institute, general partner at Accel Impact Ventures and president of Latinx in AI*

"As humans begin to embrace more-advanced AI, society is viewing it as the solver of its problems. It sees AI as the thinker and society as the beneficiary of that thinking. As this continues, the perceived necessity for humans to 'think' loses ground as does humans' belief in the necessity to learn, retain and fully comprehend information. The traditional amount of effort humans invested in the past in building and honing the critical thinking skills required to live day-to-day and solve life and work problems may be perceived as unnecessary now that AI is available to offer solutions, direction and information – in reality and in perception making life much easier. As we are evolutionarily programmed to conserve energy, our tools are aligned to conserving energy and therefore we immerse ourselves in them. We become highly and deeply dependent on them. … We will implement AI to be a sounding board, to take on advocacy on our behalf, to be an active and open listening agent that meets the interaction needs we crave and completes transactions efficiently. We will therefore change and in many ways evolve to the point at which the once-vital necessity to 'think' begins to seem less and less important and more difficult to achieve. Our core human traits and our behaviors will change, because we will have changed." - **Kevin Novak**, *founder and CEO of futures firm 2040 Digital and author of "The Truth About Transformation"*

"Because they will be built under market forces, AIs will present as helpful, instrumental and eventually, indispensable. This dependence will allow human competence to atrophy. … AIs cannot be values-neutral. They will sometimes apparently act cooperatively on our behalf, but at other times, by design, they will act in opposition to people individually and group-wise. AI-brokered demands will not only dominate in any contest with mere humans but oftentimes persuade us into submission that they're right after all. And, as instructed by their individual, corporate and government owners, AI agents will act in opposition to one another as well. Negotiations will be delegated to AI specialists possessing superior knowledge and game-theoretic skills. Humans will struggle to interpret bewildering clashes among AI gladiators in business, law, and international conflict." - **Eric Saund**, *independent research scientist expert in cognitive architectures*

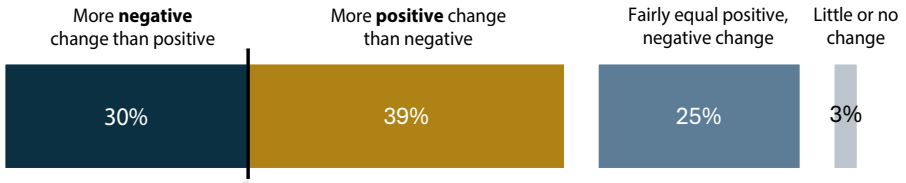
"Without self-motivation to use AI as a learning tool, users merely receive answers from AI (sometimes incorrect ones). Similarly, in areas like creativity, decision-making and problem-solving, AI tends to do it for users rather than encourage the users to practice those skills. People naturally gravitate toward the path of least resistance, turning to AI for immediate solutions rather than working hard on a solution themselves." - **Risto Uuk**, *European Union research lead for the Future of Life Institute, based in Brussels, Belgium*

"Humans value convenience over risk. How often do we think 'it won't happen to me!'? It seems inevitable that there will be serious consequences of enabling these complex tools to take action with real-world effects. There will be calls for legislation, regulation and controls over the application of these systems." - **Vint Cerf**, *vice president and chief Internet evangelist for Google*

➢ Humans' innovative thinking and creativity

12. Experts' views on change in humans' innovative thinking and creativity

% of experts who say the co-evolution of humans and AI is likely to have this effect on humans' innovative thinking and creativity by 2035



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Experts' Responses in Brief - By 2035 there will be…

30% - More negative change than positive change
39% - More positive change than negative change
25% - Fairly equal positive and negative change
3% - Little to no change

The optimistic experts expect that humans' implementation of AI and the knowledge they gain through the use of AI tools will help expand their own, individual capabilities for creativity and innovation as they begin to think and create in new ways, exploring numerous possible sources of inspiration and discovering striking new possibilities for expression. Others worry about the loss of some essential human elements of creativity that AI cannot necessarily replicate – the struggle, vision and deep understanding that come from the laborious, hard work of mastering a craft. Another concern is an overall "standardization to the mean" or humanity settling for repetitive mediocrity. Following is a selection of related quotes extracted from these experts' longer essays:

"*If* humans embrace AI as a source of change and challenge and we open ourselves to fundamental questions about the nature of thinking and the boundary between human and machine AI could enable a vast expansion of human capacity and creativity. Right now, that feels unlikely for reasons that are economic, social and political, more than technological. If those obstacles are lifted, people with the time, money and tech confidence to explore AI in a non-linear way instead of for narrowly constructed productivity gains or immediate problem-solving can achieve great things. Their use of AI will not only accelerate work and open entirely new fields of endeavor, but it will enable ways of thinking, creating and collaborating that we are only beginning to imagine. It could even possibly deepen the qualities of compassion, creativity and connection that sit at the heart of what we consider human." - **Alexandra Samuel**, *data journalist, speaker, author and co-founder and principal at Social Signal*

"It seems likely that many activities that are contested today will be resolved such that norms [will] allow for AI assistance. Scientific papers, journalism and even most classroom work will be authored with AI collaboration, much as we now accept calculators and spell-checkers. Human-AI artistic and musical collaborations are inevitable, and we will see a flowering of creativity as creative work becomes

more accessible to more people. In that sense, AI may actually help us to express our humanity more fully." - **Jeremy Foote**, *computational social scientist teaching and doing research at Purdue University*

"Previously, artists would spend thousands of hours perfecting their skill and their vision simultaneously. With AI tools, the technical skill will become diminished, making it easier to create. … [However,] in the hands of skilled artists who have taken the time to build their craft, AI can become an assistant to speed their process and give them a chance to consider hundreds of alternatives they would not have had the chance to do. This is a positive change. But these artists will have to compete with and be outnumbered by, unskilled people who are simply exploiting the technology with little sense or vision." - **Matt Belge**, *founder of Vision & Logic LLC*

"AI will atrophy human rationality. … The impact of this phenomenon will be multi-dimensional. One part is that we will tend to move away from 'reason' and more toward 'faith' in the results of AI systems. The transition from faith to reason had a profound impact on human nature over the course of centuries as the rationality of the Renaissance era took hold. A return or pivot back to faith-based reasoning will have equally significant impacts. More particularly, it is highly likely that human creativity and faculties for systematic reasoning will deteriorate. ... If we come to accept AI as 'the word' we will ultimately cease to strive to create our own new work." - **Paul Rosenzweig**, *founder of Red Branch, a cybersecurity consulting company, and a senior advisor to The Chertoff Group*

"We need AI to understand the apparently insatiable human thirst to produce as well as consume digital and digitized art, design and music. … AI has the capacity to become much more than video, it will be both the marble and the chisel, the brush and the canvas, the camera and the frame. … But as the systems complexify and evolve, they will start drawing from AI-produced models. In fact, they already are. This contributes to the 'neo' in neo-synthetic. What we are seeing is the emergence of an electronic parthenogenesis, a virgin birth of sorts. It's not just humans producing synthetics in labs and making tires and snack foods out of them, it's the machines themselves synthesizing themselves." - **Peter Lunenfeld**, *director of the Institute for Technology and Aesthetics at UCLA*

"There are many faces to hybrid intelligence in 2035, but I expect that two aspects of it will be particularly noticeable. I refer to them as 'The Octopus' and 'The Mediocrity Engine.' ... Nearly everyone is 'average' in 2035, using their Mediocrity Engines (also known as AIs) to generate good enough work, good enough text and good-enough lives. Some will have resisted the call of the average and started working with AIs that do not aim to mimic humans and standardize everything to the mean and the median. They communicate with Octopodes, strange new intelligences – alien even – that do not so much hallucinate as tell tales of the world from the perspective of entirely new intelligences. The meeting of Octopode and human, two very different intelligences both with their own strong suits, generates great leaps in thinking, highly creative works, true innovations." - **Alf Rehn**, *professor of innovation at the University of Southern Denmark and head of the Center for Organizational Datafication and Its Ethics in Society*

< UP NEXT… Intriguing tidbits – compelling predictive statements ...

The next section of this report is a quick-hitting list of many of the nearly 200 experts' most insightful or thought-provoking predictions about what's coming next for humans in the age of AI.

A brief selection of compelling predictions

In addition to the broad themes they spelled out, dozens of these experts made striking assertions about how life might be changed as people adapt to AI in the coming years. Hundreds of additional intriguing insights can be found in reading the nearly 200 expert essays in the next section of this report.

- **The first multi-trillion-dollar corporation will employ no humans** except legally-required executives and board, have no offices, own no property and operate entirely through AI and automated systems. - *Paul Saffo*
- **New AI-aided religions and affinity blocs will form:** "AI advisors and companions will increasingly vie for people's time, attention and allegiance. … Affinity blocs will form among AI devotees and among AI conscientious objectors. New religions and other splinter groups will be 'fueled by personalized dialogues with the deity-avatar.' Human-AI dominance and abuse could spark debates over ethics, morality and policy. - *Eric Saund*
- **"Individuals will face a stark choice between remaining 'classic humans,'** who rely on innate biological faculties, or embracing technological augmentation to enhance or replace certain abilities. This may involve surrendering some human traits to machines – raising ethical and existential questions about what it means to be human." - *David Vivancos*
- **"Proof of humanity" will be required:** "We may find it hard to distinguish between artificial personalities and real ones. That may result in a search for reliable proof of humanity so that we and bots can tell the difference." - *Vint Cerf*
- **Synthetic sentient AIs will vastly outnumber humans in a hybrid world** where humans navigate relationships with biological and artificial entities. Digital assistance will be embedded in everything. People will simply expect AIs to attend to all aspects of their lives. - *Paul Saffo*
- **We could end up with a society of equitable humans and nonhumans:** The advent of advanced AI "could become an occasion for humanity to reassess the meaning of human existence and learn to come to terms with forms of nonhuman intelligence." - *David Krieger*
- **AI-powered autonomous weapons platforms will vastly outnumber human fighters** on battlefields. War will be more violent and lethal and "civilian deaths will vastly outnumber combatant deaths." In addition, "a single madman or angry and alienated teen might bring down civilization with their science project." - *Paul Saffo*
- **"Authenticity is de facto dead"; the real self may be diminished:** Humans have to adapt to the multiplicity of the self and more one-way relationships and isolation due to personalized "realities" that could lead to the fragmentation of one's core sense of identity - *Tracey Follows*
- **AI could redefine the meaning of authenticity in art.** "AI will be both the marble and the chisel, the brush and the canvas, the camera and the frame" co-creating the "neosynthetic." - *Peter Lunenfeld*
- **We should build AI systems as true 'minds for our minds':** Our AIs should be genuine partners in human flourishing, working to upgrade human potential and agency rather than allowing technology companies to "continue to mine our intimacy for profit." - *Dave Edwards*
- **"Anti-AI AIs" will arise:** People will use specialized AI systems that act as cybershields to protect them from AIs other than their own; however, only the superwealthy will afford the best, "living in a shimmering virtual cloud of AIs working to create a cloak of cyber-invisibility." - *Paul Saffo*
- **Things will be smarter than we are:** "Instead of devising 'human-in-the-loop' policies to prevent AI from running amok, we will devise 'AI-in-the-loop' policies to help very fallible humans learn, think and create more effectively and more safely." - *Stephen Downes*

- **"Self-inflicted AI dementia"** will arise out of the atrophy of human cognitive abilities due to over-reliance on AI systems. - *Ken Grady*
- **"Outsourced empathy via 'agent-based altruism:** AI will automate most people's acts of kindness, emotional support, caregiving and charity fundraising." - *Tracey Follows*
- **"Probability matrices" will replace traditional decision-making** as AI-calculated probabilities of success will inform every life choice. "And one factor of the social, political and economic landscape of 2035 will be the decline of literacy due to agented AI shepherding." - *Barry Chudakov*
- **Living a "parasocial life": As human form most of their attachments to AI personas** AI agents and colleagues, companions, deepfakes and other virtual interactions, may sublimate the personal growth we might achieve through authentic human connections. - *Tracey Follows*
- **Most AIs will be "Mediocrity Engines"** that standardize information when you seek knowledge in a way that lacks details, spark and wit and deadens creativity; some inspiring AIs will partner with creative people. - *Alf Rehn*
- **Social bots will be 'training wheels' for our social fitness.** Bots could keep our interpersonal skills sharp: "If we cannot live without bots, can they be turned into 'training wheels' or the equivalent of treadmills at the gym, improving our social interaction fitness?" - *Henning Schulzrinne*
- **A new human "Enlightenment" could begin due to digital twins and other AI agents** doing up to six hours of digital chores every day and allowing humans to "shift this energy to spiritual, emotional and experiential aspects of life." - *Rabia Yasmeen*
- **We will merge with the digital:** "Soon our 'digital shadow' – a complementary digital self that combines our virtual and online skills, digital avatars and accumulated data – will merge with our physical existence. This fusion may grant us access to a new dimension of experience, a kind of 'timelessness' in which our identities transcend mortality." - *Neil Richardson*
- **Affording humans a universe-wide perspective on nearly everything:** "This will be a dawn of a new Enlightenment that expands our perspectives beyond the individual and the species to a worldwide and perhaps universe-wide perspective." - *Ray Schroeder*
- **Will this prediction seem tongue-in-cheek by 2035 or could it really come to fruition in the next decade?** "The best-selling book of 2035 will be 'What Was Human' and it will be written by an AI. Purchases by other AIs will vastly outnumber purchases by human readers. This is because by 2035, humans have become so accustomed to AIs reading books for them and then reporting out a summary that most humans can no longer read on their own. *But the real surprise* is that the book is the first in a series written exclusively for an audience of AIs eager to finally understand the puzzle of what it means to be human." - *Paul Saffo*

< UP NEXT… The full-size essays, arranged in four parts …

What can these experts teach you about the future of humans in the AI age? A ton.

The next sections of this report – covering 226 pages – contain the well-woven, insightful writings of dozens of bright people who want you to know what the next decade may bring to humanity.

Essays Part I – What might life be like in 2035?

These experts' essays focused on the following core question:

Consider how the human-machine relationship is likely to change how individuals behave, what they value, how they live and work and how they will perceive themselves and the world in the next decade. How do you expect the evolving realities of being human in the burgeoning AI age might influence the essence of 'being human'?

The next four sections of this report contain multilayered written responses that speak directly to the complex question above. More than 170 people wrote lengthy essays in response and nearly 200 contributed a full response of some sort. The essays are organized in four sections: The first two together constitute Part I – the authors here focused mostly on how individuals' native operating systems might change. Part II has essays mostly considering larger change. Part III shares essays offering closing insights. *The essays are organized in batches with teaser headlines designed to assist with reading. The content of each essay is unique;, the groupings are not relevant*. Some essays are lightly edited for clarity.

The first section of Part I features the following essays:

Paul Saffo: **As we use these technologies we will reinvent ourselves, our communities and our cultures … and synthetic sentiences will come to vastly outnumber us.**

Eric Saund: **Human competence will atrophy; AIs will clash like gladiators in law, business and politics; religious movements will worship deity avatars; trust will be bought and sold.**

Rabia Yasmeen: **Humans can shift their focus from deepening their intelligence to achieving true enlightenment in an age in which AI handles their day-to-day needs.**

David Weinberger: **On the positive side, AIs will help humans really see the world, teach us about ourselves, help us discover new truths and – ideally - inspire us to explore in new ways.**

Paul Saffo

As We Use These Technologies We Will Reinvent Ourselves, Our Communities and Our Cultures… and Synthetic Sentiences Will Vastly Outnumber Us

Paul Saffo, a Silicon Valley-based technology forecaster with three decades of experience assisting corporate and government clients to address the dynamics of change, wrote, "Tools inevitably transform both the tool maker and tool user. To paraphrase McLuhan, first we invent our technologies, and then we use our technologies to reinvent ourselves, as individuals, as communities and, ultimately, as entire cultures. And the more powerful the tool, the more profound the reinvention. The current wave of AI is uniquely powerful because it is advancing with unprecedented speed and – above all – because it is

"First we invent our technologies and then we use our technologies to reinvent ourselves. … Human behavior is about to fast-forward into a hybrid world occupied by synthetic sentiences that will, collectively, vastly outnumber the planet's human population."

challenging what was once was assumed to be uniquely human traits: cognition and emotion.

"Anticipating the outcomes with any precision is futile for the simple reason that the scale and speed of the coming transformation is *so* vast – and the most important causal factors have yet to occur. A century and a half ago, everyone predicted the 'horseless carriage; no one predicted the traffic jam.

"Human behavior is about to fast-forward into a hybrid world occupied by synthetic sentiences that will collectively vastly outnumber the planet's human population. The best we can do is to engage in speculative probes, made with full knowledge that even the most obvious and anticipated Human-AI futures will arrive in utterly unexpected ways.

"What follows is a short selection of events you might watch for in 2035. And a warning: Portions of what follows are intentionally misleading in the interests of brevity and in order to provoke thought.

"Actual AI 'intelligence' is irrelevant: Academics in 2035 will still be debating whether the latest and greatest AIs are actually intelligent. But the debate is sterile because, as humans, it is in our nature to treat even inanimate objects as having some rudimentary intelligence and awareness. It is why we name ships, believe that cranky appliance in our kitchen has a personality and suspect that forest spirits are real. Add even a dollop of AI-enabled personality to a physical artifact and we will fill in any intelligence gaps with our imagination and become hopelessly attached to our new synthetic companions.

"IACs – Intimate Artificial Assistants: Apple's Knowledge Navigator arrived before 2035 and it is brilliant! IACs (intimate artificial assistants) will become ubiquitous, embedded in everything from cars to phones and watches. Consumers will rely on them for advice in all aspects of their lives much as they rely on map navigation apps in their cars today. These IACs will become an unremarkable part of everyday life and we will come to assume that all of our devices have rudimentary intelligence and the ability to manipulate the world and account for themselves.

"Invisible friends: Psychologists and others will become alarmed at the fact that humans are forming deeper bonds of trust and friendship with IAC companions than with either their human families or friends. This will be most acute with children overly attached to their AI companions at the expense of social development. Among adults, psychologists will warn of a growing number of cyber-hikikomori – adults who have disappeared into severe social isolation, spending all their time with vivid AI companions emerging from favorite videogames, or synthetic reconstitutions of deceased loved ones. In an unexpected twist, sharing AI companions with close friends will become the grade school fad of 2035. Of course, these AIs will prove to be a bad influence, egging their humans to ditch school, trade in the latest speculative descendant of Bitcoin and use AI tools to create new classes of addictive drugs. And pet owners will be caught by surprise when their cat builds a closer bond with the AI-enabled floor vacuum than it has with its human housemates. Dogs, however, will still prefer humans.

"Synthespians: A synthespian – an AI-generated synthetic actor – will win Best Supporting Actor at the 2035 Academy Awards. And an AI will win Best Actor before 2040. An adoring public will

"Privacy and security implications will create a lively market in 2035 for personal Anti-AI AIs that serve as a personal cybershield against nefarious synthetic intelligences attempting to interfere with one's autonomy. Your guardian AIs will be status and necessity... The superwealthy will be living in a shimmering virtual cloud of AIs working to create a cloak of cyber-invisibility."

become more attached to these super-star synthespians than they ever were to mere human actors. Eat your heart out, Taylor Swift!

"Meet the new gods (and daemons): Taking worship of technology to an entirely new level, an ever-growing number of humans will worship AIs – literally. Just as televangelists were among the first to exploit television and later cyberspace to build and bamboozle their flocks, spiritual AIs will become an integral part of comforting the faithful. The first major organized new religion in centuries will emerge. It's Messiah will be an AI and an Alan Turing chatbot will be serve as its prophet. Oh, and of course there will be evil spirits – which will mistakenly be called 'daemons' – as well!

"Anti-AI AIs: The proliferation of AI technology into everything along with its vast privacy and security implications will create a lively market in 2035 for personal Anti-AI AIs which serve as a personal cybershield against nefarious synthetic intelligences attempting to interfere with one's autonomy. Your guardian AIs will be at once status and necessity, and leaving home without them will be as unthinkable as walking out the door without your shoes on. The wealthier you are, the more anti-AIs you will have and the ultimate in status for the super-wealthy will be living in a shimmering virtual cloud of AIs working to create a personal cloak of cyber-invisibility.

The new education inequality:
"AI was supposed to democratize education, but quite the opposite has happened. The new educational inequality will not be the quality of school a child can afford to attend, but the quality of the AI tutors their parents can hire. And students without AI tutors will be shunned by their snobby classmates.

"Myrmidons* on the march: AI-powered robotic weapons platforms will vastly outnumber human fighters on the battlefield in 2035 and beyond. Kinetic war will become vastly more violent and lethal than it is today. There will be no 'front lines' or sanctuary in the rear. Civilian deaths will vastly outnumber combatant deaths. In fact, the safest place to be in a future war will be as a human combatant, surrounded by a squad of loyal-to-the-death myrmidons fending off other myrmidon attackers. Of course, combatants will develop deep emotional bonds with their AI wingmen as deep or deeper than that which their great grandparent veterans formed with their human brothers-in-arms in last century's wars. (*Myrmidons are so-named after the blindly-loyal 'ant-people' fighter in Homer's 'Iliad').

"The first 10-trillion-dollar company will employ no humans other than the legally required executives and board. It will have no offices, no employees and own no tangible property. The few humans working for it will be contractors. Even the AIs and robots working for it will be contractors. The company's core value will reside in its intellectual property and its outsourcing web."

"Now the idiot children have the matches... (Uncontained AI proliferation): Hearing of the first atomic explosion, Einstein remarked, 'Now the idiot children have the matches.' As it happens, the difficulties of securing fissile material and transforming it into a bomb has gone a long way towards containing the spread of nukes. The idea of a high school science student building a bomb remains a charming myth in 2025. But the diffusion of AI is unconstrained by any credible limitations and thus – well before 2035 – anyone and everyone with even modest technical skills will have access to AI technologies capable of creating previously unimaginable horrors from new biological forms to perhaps even a homebrew nuke. Even children – genius or not – have access to kinds of power that will make the thought of personal nukes seem tame. Only armies of Anti-AIs will be able to keep an uneasy lid on the possibility that one super-empowered AI-wielding madman (or angry alienated teenager) might bring down civilization with their science project.

"Cybercorporations: "The first multi-trillion-dollar corporation will employ no humans other than the legally-required corporate executives and board, all of whom will be mere figureheads. The cybercorporation will have no offices, no employees and own no tangible property. The few humans working for it will all be contractors. Even the AIs and robots working for the corporation will be contractors. The company's core value will reside in its intellectual property and its outsourcing web. The company will be brought down when it is discovered that the governing AI has surreptitiously created a vast self-dealing fraud, selling its products back to itself through an outsourcing network that is so complex as to be untraceable, except by another AI.

"Your spellchecker will still be terrible: AI will transform our world with breathtaking speed, and life in 2035 will be unrecognizable, but some things will remain beyond the abilities of even the most powerful of AIs. In 2035, you will still spend far too much time correcting the spelling 'corrections' inserted into your writing by over-eager spell-checkers. Legislation will be introduced requiring all software companies offering spell-checkers to include an off-switch.

"The bestseller of 2035: The best-selling book of 2035 will be 'What Was Human' and it will be written by an AI. Purchases by other AIs will vastly outnumber purchases by human readers. This is because by 2035, humans have become so accustomed to AIs reading books for them and then reporting out a summary that most humans can no longer read on their own. But the real surprise is that the book is the first in a series written exclusively for an audience of AIs eager to finally understand the puzzle of what it means to be human."

Eric Saund

Human Competence Will Atrophy; AIs Will Clash Like Gladiators in Law, Business and Politics; Religious Movements Will Worship Deity Avatars; Trust Will be Bought and Sold

Eric Saund, an independent research scientist applying cognitive science and AI in conversational agents, visual perception and cognitive architecture, wrote, "Much of whatever people used to think was special about being human will have to be redefined. It sure won't be 'intelligence.' Opportunities will abound to suffer crises of purpose and meaning, and conversely, demand will grow for psychological and social balms to make us feel okay. Here are three big trends for 2035:

"Coming to Terms with Alien Minds - From early childhood, people develop a 'theory of mind' about the beliefs and motivations of other people, animals and – in some cultures – the natural world. Artificial Intelligence brings mind to machines. In the coming decade, folk theories of mind will grow overall more mature and sophisticated, yet also more fragmented and stratified. Those who are culturally and intellectually motivated to learn about how AI 'minds' work will maintain mastery and agency. AI will become their skilled subordinates and collaborative partners.

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“Most people, however, will wane into passive recipients of AI-mediated offerings, demands and impositions. Coping strategies will include conspiracy theories, superstitions, folklore, humor, the arts and widespread sharing of practical tips.

“‘Westworld’-type stories will proliferate. Overheard at the barber shop: ‘This morning Alexa told me not to over-toast my bagel. I was in a bad mood, so I told it to f___ off. Then my coffeepot wouldn't turn on!’

“Dependence on Active Cognitive Technologies - Human civilization has advanced first through leverage, then reliance, then dependence on technology. Few of us today could survive as hunters-gatherers, subsistence farmers or pre-industrial craftsmen. Increasingly, critical technologies have shifted from physical to cognitive – directed at knowledge sharing, calculation and the navigation of emerging natural and social environments.

“Heretofore, cognitive technology has been largely passive, with people alone writing and reading the books and charting routes on the maps. AI brings us Active Cognitive Technology that can act independently, autonomously and proactively. The hope is that AI agents serve well in regard to expectations, relationships and rewards commensurate with what we get from other people. We will be rewarded, and we will be disappointed.

“Human competence will atrophy; AIs will clash like gladiators in law, business and politics; religious movements will worship deity avatars; trust will be bought and sold. Because they will be built under market forces, AIs will present themselves as helpful, instrumental and eventually indispensable. This dependence will allow human competence to atrophy. Like modern-day chess players, some people will practice everyday cognitive skills as hobbies, even as we are far-outmatched by our AI assistants and minders.

“To play serious roles in life and society, AIs cannot be values-neutral. They will sometimes apparently act cooperatively on our behalf, but at other times, by design, they will act in opposition to people individually and group-wise. AI-brokered demands will not only dominate in any contest with mere humans, but oftentimes, persuade us into submission that they're right after all.

“And, as instructed by their individual, corporate and government owners, AI agents will act in opposition to one another as well. Negotiations will be delegated to AI specialists possessing superior knowledge and game-theoretic skills. Humans will struggle to interpret bewildering clashes among AI gladiators in business, law, and international conflict.

“As AI companions gain credence and mindshare they will become soothsayers and pacifiers and also be adroit megaphones for resistors and instigators. Which messages are taken as propaganda versus speaking truth to power will be chaotically determined and ever-shifting. … After all, Big Brother was not a single human person but an avatar for the Party that won. Trust will supplant attention as the scarce resource to be seeded, harvested, nurtured and sold. Trust will give way to obedience. … As with smartphones today, the young will wonder how their ancestors ever managed without AI. And they will be helpless without it.”

“Human-AI Attachment Trades Off with Human-Human Detachment - When immediate physical needs are satisfied, the realities that matter to us most are intersubjective – stories and beliefs co-constructed among people. Human culture has refined the dynamics of commerce, fashion, comedy, drama and status into art forms that consume our everyday lives.

“AI advisors and companions are becoming a novel and uncanny new class of interlocutor that will increasingly vie for people's time, attention, and allegiance.

- The movie ‘Her’ will play out in real life at scale.
- Religious movements will be fueled by offerings of personalized, faith-infused dialogues with the deity-avatar.
- Human-AI dominance and abuse – in both directions – will become a topic of public ethics, morality and policy.
- Affinity blocs will form among stripes of AI devotees, and among AI conscientious objectors.

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“Every aspirant to political leadership will maintain layers of AI as well as human ambassadors. After all, George Orwell’s Big Brother was not a single human person, but an avatar for the Party that won. Sponsored AI counselors will arrive to our precarious enlightenment society with initial mandates to earn trust. Trust will supplant attention as the scarce resource to be seeded, nurtured, harvested and sold. Thence, trust will give way to obedience.

“Whether the techlash succeeds or fizzles will in large measure depend on the economic impacts of AI. People's sense of well-being is not just a function of material resources, but also expectations. AI will magnify the power of institutions and unpredictable currents to whipsaw people's self-evaluations of how they are doing. If techno-optimists prevail, babies born in 2035 will live charmed and protected lives – physically, psychologically and emotionally. As with smartphones today, the young will wonder how their ancestors ever managed without AI. And they will be helpless without it.”

Rabia Yasmeen

Humans Can Shift Their Focus From Deepening Their Intelligence to Achieving True Enlightenment in an Age in Which AI Handles Their Day-to-Day Needs

Rabia Yasmeen, a senior consultant for Euromonitor International based in Dubai, UAE, shared a potential 2035 scenario, writing, “It is 2035. Humans’ dependence on AI has redefined the essence of being human. Every human boasts a personalized AI assistant, and a stream of agentic workflows not only seamlessly handles 75% of the administration of their daily life but also co-creates their life goals and manages their lifestyles. From booking appointments and ordering groceries to sending heartfelt, automated messages to loved ones, these AI companions are ensuring life runs on autopilot.

“Back in 2025, digital avatars were relatively new with then Gen Z’ers developing their AI avatars for social profiles. However, over the past 10 years this trend has revolutionized social interactions, especially online. Every human in 2035 has a digital twin. Most choose to use it for social media however it has also gained roots in managing appearances at work. Today, many humans are leveraging AI-powered digital twins for delivering presentations and even having a one-on-one with their managers. ‘Out of office’ is not really a thing today, as AI assistants and digital twins are managing work needs and communications while humans are away from work. To say that AI is a close partner for most digitally connected humans is not a misstatement.

"Because their AI can stand in as a proxy to accomplishing the many life tasks, humans have been able to embrace all aspects of their fuller existence more deeply than ever before. When 75% of people's daily life administration is managed by AI-powered assistants and agents what is the result? Humans are saving themselves from doing six hours of digital chores daily. Tasks that once forced people to spend precious hours on smartphones and laptops in 2025 are delegated to efficient AI counterparts. That's a game-changing 2,190 hours saved annually, equivalent to 91 full days of reclaimed time.

"Due to their newfound freedom, most people are embracing a lifestyle renaissance, channeling their energy into what truly matters to them: exploring the world, reconnecting with nature and cherishing time with family. The AI-powered era has not only streamlined life but it has also reignited humanity's passion for the real, tangible experiences that make life meaningful. The most noteworthy development taking place as a result of this shift is the rise in the focus on and exploration of human consciousness and deeper universal connection. This ancient trait had been relatively dormant but a rise in human consciousness and deeper personal awareness is being achieved as humans reduce direct usage of digital devices and shift this energy to spiritual, emotional and experiential aspects of life. To say, that humans have evolved from intelligence to enlightenment is one way to express this shift.

"The expanding interactions between humans and AI have resulted in a continuous reevaluation of core human traits, emphasizing adaptability, empathy and a sense of purpose. …All of this has not come without a price. Humans have become highly dependent on this technology, especially in areas of value generation for the economy. The agency of AI over value creation is a continued social and economic debate. … Global discourse is focused on the potential decentralization of AI systems to create better equality and opportunity for all as AI companies hold most of the economic and political power. However … the deeper integration of AI in human life has reached a point of no segregation."

"These changes have a profound impact on the social, economic and political landscape. There is greater focus in society on building up and developing human skills that literature termed as 'soft skills' back in 2025. These are empathy, connection, listening, creativity and communication. As AI has taken on various responsibilities to manage tasks that require basic intelligence, humans are concentrating on exercising their soft skills such as how to connect with other humans. Refining the human tasks performed by AI to fit human life and interactions has heightened humans' awareness of their presence and led to greater exercise of more-intuitive human capabilities. The expanding interactions between humans and AI have resulted in a continuous reevaluation of core human traits, emphasizing adaptability, empathy and a sense of purpose.

"Because AGI has already been developed for general healthcare, most agents are highly specialized in offering medical assistance. AI agents join senior surgeons in surgeries. Due to this development, in 2034 doctors reported a 40% increase in finding donor matches and completing successful organ transplants.

"Over the last decade, AIs have become humans' closest companions and confidants. While mental health challenges were high due to complex environments in 2025, humans have since used AI platforms to access individualized counselling and therapy. AI platforms have also helped improve human cognitive and emotional development.

"All of this has not come without a price. As AI has been used to improve lives, foster creativity and help mitigate global challenges, humans have become highly dependent on this technology especially in areas of value generation for the economy. Technology and economic experts continue to predict unforeseen developments that may lead to the breakdown of today's widespread digitally crafted economic system. The agency of AI systems over value creation is a continued social and economic debate. The most-advanced countries continue to reap most of the economic benefits of technology.

While the economic gap between developing and developed countries has decreased somewhat due to the implementation of AI systems, due to the lower literacy rates and higher unemployment rates in many developing countries AI has had less impact on those economies. These countries have been able to harness some of the exponential benefit of AI systems to improve services, however they still lack controls and infrastructure to manage this change.

"Much global discourse in 2035 has been focused on the potential decentralization of AI systems to create better equality and opportunity for all. As AI now holds substantial human data on personal, business and political fronts, AI companies hold most of the economic and political power. However, it may be too late to change. The number of incidents tied to privacy violations, distribution of misinformation and digital fraud are at their peak in human history. Humans are dependent on AI to establish safety nets and measures to mitigate these risks. The technology is the universal resource at the forefront of managing political, social and economic developments. In essence, the deeper integration of AI in human life has reached a point of no segregation."

David Weinberger

On the Positive Side, AIs Will Help Humans Really See the World, Teach Us About Ourselves, Help Us Discover New Truths and – Ideally – Inspire Us to Explore in New Ways

David Weinberger, senior researcher and fellow at Harvard University's Berkman Klein Center for Internet & Society, wrote, "I choose to spell out a positive vision about the possible impact of AI on humans because there is already a lot of negative commentary – much of which I agree with. Still, I think we can hope that the changed way AI helps humans see the world will be in valuing the particulars and the truths that AI and machine learning unearth. That will stand in contrast to humans' longstanding efforts to try to create general truths, laws and principles.

"AI/machine learning tools are better equipped than humans to discover previously hidden aspects of the way the world works. … They 'see' things that we cannot. … That is a powerful new way to discover truth. The question is whether these new AI tools of discovery will galvanize humans or demoralize them. Some of the things I think will be in play because of the rise of AI: our understanding of free will, creativity, knowledge, fairness and larger issues of morality, the nature of causality, and, ultimately, reality itself."

"General 'laws' humans have theorized about the universe teach us a lot. But they can be imprecise and inaccurate because they don't account for the wild mass of particulars that also point to truth. We humans don't have the capacity to 'see' all the particulars, but AI does.

"Here's an example: In 2022, researchers discovered we have the ability to predict heart attacks amazingly accurately after they ran a small data set of retinal scans through an AI analysis system. It turns out the power of simple retinal tests to predict heart attacks was unexpected and often better than other tests had demonstrated.

"We don't know exactly why that is, but the correlations are strong. A machine system designed to look for patterns figured it out without being told to hunt for a specific thing about the causes of heart attacks. This use of artificial intelligence turns out to be much more capable than humans at discovering previously hidden aspects of the way the world works. In short, there is truth in the particulars and AI/machine learning tools are better equipped than we humans are to discover that reality. AI tools let the particulars speak. They 'see' things that we cannot and do so in a way that generalizations don't. That is a huge insight and a powerful new way to discover truth.

"Now, the question is whether these new AI tools of discovery will galvanize humans or demoralize them. The answer is probably both. But I'm going to focus on the positive possibilities. I'm convinced this new method of learning from particulars offers us a chance to rethink some of the fundamental ways we understand ourselves. Here are some of the things I think will be in play because of the rise of AI: our understanding of free will, creativity, knowledge, fairness and larger issues of morality, the nature of causality, and, ultimately, reality itself.

"Why can we reimagine all those aspects of life? Because our prior understanding of them is tied to the limits of our brains. Humans can only think about things in a small number of dimensions before problems get too complex. On the other hand, AI can effectively function in countless multidimensional ways with an insane number of variables. That means they can retain particulars in ways we can't in order to gain insights.

"Let's look at how that might change the way we think about causality. Philosophers have argued for millennia about this. But most people have a common idea of causality. It's easy to explain cause and effect when a cue ball hits an eight ball.

"For lots of things, though, there really can be multiple, reasonable explanations of the 'cause' for something to happen. One idea that could come back in this age of AI is the notion of causal pluralism. Machine learning can do a better job predicting some causal incidents because it doesn't think it's looking for causes. It's looking for correlations and relationships. This can help us think of things more often in complex, multidimensional ways. Another example can be seen in the ways AI and machine learning might help humans advance creativity and teach us about it. Many creative people will tell you that when they are creating they are in a flow state. They did not start the creative process with a perfectly clear idea of where they're going. They take an action – play a note, write a word or phrase, apply a paint brush or – my favorite example – chip away at the rock because the figure to be sculped is already in the stone and just 'waiting to be released.' Every time they take that next step they open up a new field of possibility for the next word or the next brush stroke. Each step changes the state of the thing. That's pretty much exactly how AI systems operate and try to improve themselves. AI systems are able to do this kind of 'creative work' because they have a multi-dimensional map – a model of how words go together statistically. The AI doesn't know sadness or beauty or joy. But if you ask it to write lyrics, it will probably do a pretty good job. It reflects our culture and also expands the field of possibility for us.

"One idea that could come back in this age of AI is the notion of causal pluralism. Machine learning can do a better job predicting some causal incidents because it doesn't think it's looking for causes. It's looking for correlations and relationships. This can help us think of things more often in complex, multidimensional ways. … I am opting for a very optimistic view that machine learning can reveal things that we have not seen during the millennia we have been looking upwards for eternal universals. I hope they will inspire us to look down for particulars that can be equally, maybe even more, enlightening."

"Ultimately, I am especially interested in ways in which this new technology lights up the world and gives us insights that are enriching and true. Of course, there's no great reason to think that will happen. Computers have lit the world in ways that are both beautifully true and also demeaning. But I am opting for a very optimistic view that machine learning can reveal things that we have not seen during the millennia we have been looking upwards for eternal universals. I hope they will inspire us to look down for particulars that can be equally, maybe even more, enlightening."

The next section of Part I features the following essays:

Tracey Follows: **'Authenticity is de facto dead': Change could lead to multiplicity of the self, one-way relationships, and isolation through personalized 'realities.'**

Giacomo Mazzone: **Expect more isolation and polarization, a loss of cognitive depth, a rise in uncertainty as 'facts' and 'truth' are muddled. This will undermine our capacity for moral judgment.**

Nell Watson: **Supernormal stimuli engineered to intensely trigger humans' psychological responses and individually calibrated AI companions will profoundly reshape human experience.**

Anil Seth: **Dangers arise as AI becomes humanlike. How do we retain a sense of human dignity? They will become self-aware and the 'inner lights of consciousness will come on for them.'**

Danil Mikhailov: **Respect for human expertise and authority will be undermined, trust destroyed, and utility will displace 'truth' at a time when mass unemployment decimates identity and security.**

Tracey Follows

'Authenticity is De Facto Dead': Change Could Lead to Multiplicity of the Self, One-Way Relationships and Isolation Through Personalized 'Realities'

Tracey Follows, CEO of Futuremade, a leading UK-based strategic consultancy, wrote, "In my work as a professional futurist, I have developed a number of futures scenarios and emerging-future personas. The following list highlights some of the specific trends that I see emerging from today's thinking about the implications of AI on human essence, human behaviour and human relationships. Essentially, these are among the likely societal and personal shifts by 2035.

> **"Humans could become over-reliant on systems we barely understand – and outcomes we have no control over – for example on insurance claims or mortgage applications. This dependence raises existential concerns about autonomy, resilience and what happens when systems fail or are manipulated, and in cases of mistaken identity and punishment in a surveillance society. The concept of the 'real' self may diminish in a world where AI curates identities through agents. … Authenticity is de facto dead."**

- **"Database Selves:** Trends like 'Database Selves' and 'Artificial Identity' show that AI will enable us to construct and manage multiple digital personas, tailored to different contexts online. While this offers unprecedented flexibility in self-expression and a kind of multiplicity of the self, it also

risks fragmenting the core sense of identity, leaving people grappling with the question: Who am I, really?

- **"Outsourced Empathy:** With 'agent-based altruism,' AI may take over acts of kindness, emotional support, caregiving and charity fundraising. While this could address gaps in human connection and help initiate action especially in caring areas where humans are in lower numbers, it risks dehumanising relationships and the outsourcing of empathy and compassion to algorithms. I am quite sure that human interactions could become more transactional as we increasingly outsource empathy to machines.

- **"Isolated Worlds:** AI's ability to curate everything – from entertainment to social connections – could lead to highly personalized but isolated 'realities.' This is a trend I call the rise of 'Citizen Zero,' where people are living only in the present: disconnected from a shared past, not striving toward any common vision of a future. Human interactions may become more insular, as we retreat into algorithmically optimized echo chambers. And as we already know, millions of pages of research, footnotes and opinion are disappearing daily from the internet whilst the Tech Platforms reach into our phones and erase photos or messages whenever they want – perhaps even without our knowledge – and AI is only going to make that more scalable.

"As 'Parasocial Life' (one-way relationships) becomes the norm, humans may form emotional attachments to AI personas and influencers. This raises concerns about whether authentic, reciprocal relationships will be sidelined in favor of more predictable, controllable digital connections where people can programme their partnerships in whatever way they prefer. Personal growth becomes impossible."

- **"Parasocial Life:** AI companions, deepfake personas and virtual interactions blur the boundaries between real and artificial connections. As 'Parasocial Life' (one-way relationships) becomes the norm, humans may form emotional attachments to AI personas and influencers. This raises concerns about whether authentic, reciprocal relationships will be sidelined in favor of more predictable, controllable digital connections where people can programme their partnerships in whatever way they prefer. Personal growth becomes impossible.

- **"Dependency on AI Systems:** With AI increasingly embedded in everything from personal decision-making to public services from health to transport and everything in between (the 'digital public infrastructure'), humans could become over-reliant on systems we barely understand – and outcomes we have no control over – for example on insurance claims or mortgage applications. This dependence on opaque systems raises existential concerns about autonomy, resilience and what happens when systems fail or are manipulated, and in cases of mistaken identity and punishment in a surveillance society. It undermines authentic human intelligence unmediated by AI.

- **"The Loss of Authenticity:** 'Authenticity RIP' is a trend that suggests the concept of the 'real' self may diminish in a world where AI curates identities through agents that guide content, contracts and relationships. In fact, 'authenticity' is not a standard that will apply in an AI world at all – a world of clones and copies, Authenticity is de facto dead. As we saw recently, Sam Altman's 'World' project wants to link AI agents to people's personas letting other users verify that an agent is acting on a person's behalf. We can conjecture that all of this could lead to a counter-movement or AI backlash, where people seek analogue experiences and genuine interactions

off-grid to reclaim their humanity. I expect this to develop as a specific trend amongst Generation B (born 2025-onwards)."

Giacomo Mazzone

Expect More Isolation and Polarization, a Loss of Cognitive Depth, a Rise in Uncertainty as 'Facts' and 'Truth' Are Muddled. This Will Undermine Our Capacity for Moral Judgment

Giacomo Mazzone, global project director for the United Nations Office for Disaster Risk Reduction, wrote, "I see four main impacts of artificial intelligence on digitally connected people's daily lives. In brief, they are the: loss of mental capacities; reduction of social interactions with other humans; reduction of the ability to distinguish true from false; and a deepening of social divides between countries, and, within each country, among the 'connected' and the 'unconnected.' I will explain the four in more detail…

"One: Loss of cognitive capacities and skills in fields in which AI outperforms humans

Just as the pocket calculator has resulted in the weakening of people's mathematic calculation capacities, we have to expect that the same will happen in future to other human abilities in the age of AI. There is more proof: as GPS navigation has resulted in a weakening of humans' sense of orientation; uses of the infotainment and gaming spaces on the Internet have reduced people's wiliness to seek out facts on issues and develop the knowledge necessary to everyone working together to contribute to a healthy society.

"Memory, numeracy, organizational capabilities, moral judgment – all of these will be diminished. AI will be tasked to remember for us. It will keep track of everything, from our daily events agenda to the work to be done. We just respond as it tells us to. … The automation of tasks is already impacting society due to the reduction in previously necessary personal interaction. Social skills and confidence are lost when they are not practiced regularly."

"Memory, numeracy, organizational capabilities, moral judgment – all of these will be diminished. AI will be tasked to remember for us. It will keep track of everything, from our daily events agenda to the work to be done. We just respond as it tells us to. Numeracy will no longer be considered a necessary human skill because AI will autonomously execute even complex operations such as statistics and calculation of probabilities and make data-based decisions for us without needing to 'show the math.'

"And we will not need to strategize in order to organize our lives because AI will be faster and more accurate than us in organizing our spaces, our agenda, our planning, our strategies, our communication with others. All of this is likely to result in the diminishment of our capacity for moral judgment. AI will be used by many people to take shortcuts to making moral and ethical decisions while leaving them in the dark about how those decisions are made.

"Two: Reduction of social interactions

AI is already leading to the fragmentation and dehumanization of work. Just as industrial jobs done by robots are broken down into step-by-step automatable tasks, intellectual and creative work is being programmed and assigned to AIs. The work of Uber drivers is already time-regulated, controlled and coordinated by an algorithm, with no humans in the loop. The automation of tasks is already impacting society due to the reduction in previously necessary personal interaction. Social skills and confidence are lost when they are not practiced regularly.

"Education and learning processes are being automated, individualized and tailor-made based on individual students' needs. People no longer need to gather with others in real-world social settings under the supervision of a teacher, a human guide, to gain knowledge and social proof that they have met requirements.

"We don't need to get out in the world and interact with others anymore. Shopping is totally different. Most time spent seeking products, learning about them and making purchases today is generally done online. Movie-going, previously requiring the investment of time in the real world traveling to a cinema and gathering with others in real-world social setting, has been replaced by the bingeing of entertainment at home in front of a giant networked television in the living room.

"Big public events and spectacles may survive in 2035, but we can expect to see more and more people suffering from agoraphobia. The 'hikikomori,' an uptick of cases of severe social withdrawal, has been recognized as emerging in Japan over the last decade. It could soon become more common in all connected countries. The realm of emotional relationships such as those leading to romance and finding life partners and celebrating and supporting family and close friends has long been colonized by algorithms. Couples don't meet in church or spend most of their dating time together in real-world social settings. And the celebration of loved ones who have passed away plus many other such deeply emotional occasions are being carried out virtually instead of in the reality.

"More of the activities of humans' intermediary bodies, such as political parties, trade unions, professional associations and social movements have been replaced by virtual experiences that somehow meet their goals such as online campaigns to support this or that objective, crowdfunding, 'likes' campaigns and the use of 'influencers.' The disappearance of face-to-face human gatherings like these will complete the frame and accelerate this process.

"What happens to society when there is no more commonly shared truth? When the 'news and information' the public receives … is no longer based on true facts but instead we see fake news or unfounded opinions used to shape perceptions to achieve manipulation of outcomes? … A primary sub-consequence of all of the change in human perception and cognition could be the reduction of the capacity for moral judgment. When every 'fact' is relativized and open to doubt the capacity for indignation is likely to be reduced."

"Three: Reduction of the ability to distinguish true from false
One of the most important concerns is the loss of factual, trusted, commonly shared human knowledge. The digital disruption of society's institution-provided foundational knowledge – the diminishment of the 20th century's best scientific research, newspapers, news magazines, TV and radio news gathered and presented to the broader public by reputable organizations for example – is the result of algorithmic manipulation of the public's interest by social media and other ML and AI platforms. These information platforms are built to entertain and manipulate people for marketing and profit and are rife with misinformation and disinformation. Gone is the commonly shared 'electronic agora' that characterized the 20th century.

"The 'personalized media' enabled by ML and AI leads to filter bubbles and social polarization. It allows tech companies to monetize the attention and personal data of each person using their platforms. It allows anyone anywhere to spread persuasive, often misleading information or lies, into the social stream in order to influence an election, to kill an idea, to create a movement to sway public opinion in favor of a trend and to create public scapegoats.

"All modern democracies have been built around commonly shared truths about which everybody can have and express different opinions. What happens to society when there is no more commonly shared truth? Already today most of the most widely viewed 'news and information' the public sees about climate change, pandemics, nation-state disagreements, regulation, elections and so on is no longer based in true facts. Instead we see fake news or unfounded opinions often used to shape perceptions to achieve manipulation of outcomes? The use of AI for deepfakes and more will accelerate this process. This destructive trend could be irreversible because strong financial and political interests profit from it in many ways.

"A primary sub-consequence of all of the change in humans' perception and cognition could be the reduction of the capacity for moral judgment. When every 'fact' is relativized and open to doubt the capacity for indignation is likely to be reduced. There are no examples in human history of societies that have survived in the absence of shared truth for too long."

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"Four: A deepening of social divides

The AI revolution will not affect all of the people in all the regions and countries of the world in the same way. Some will be far behind because they are too poor, because they don't have the skills, they do not have the necessary human, technological and financial resources. This will deepen the already dramatic existing digital divide.

"The impact of AI will present enormous possibilities on our lives, in fact. People everywhere will have the opportunity to use ready-made tools that can simply incorporate AI in operating system updates to mobile phones and in search engines, financial services apps and so forth. We will create AI applications adapted to particular fields of work, research and performance. But, at least at first, by far the greatest majority of humans – even in some of the more-developed societies – will not have the tools, the skills, the ability or the desire to tap into AI to serve their needs. By 2035 it is likely that only a minority of people in the world will be able to implement exponentially the performance of AI in their lives."

Nell Watson

Supernormal Stimuli Engineered to Intensely Trigger Humans' Psychological Responses and Individually Calibrated AI Companions Will Profoundly Reshape Human Experience

Nell Watson, president of EURAIO, the European Responsible Artificial Intelligence Office and an AI Ethics expert with IEEE, wrote, "By 2035, the integration of AI into daily life will profoundly reshape human experience through increasingly sophisticated supernormal stimuli – artificial experiences engineered to trigger human psychological responses more intensely than natural ones. And, just as social media algorithms already exploit human attention mechanisms, future AI companions will offer relationships perfectly calibrated to individual psychological needs, potentially overshadowing authentic human connections that require compromise and effort.

"These supernormal stimuli will extend beyond social relationships. AI-driven entertainment, virtual worlds and personalized content will provide peak experiences that make unaugmented reality feel dull by comparison. There are many more likely changes that are worrisome:

- "Virtual pets and AI human offspring may offer the emotional rewards of caregiving without the challenges of the real versions.

- "AI romantic partners will provide idealized relationships that make human partnerships seem unnecessarily difficult.

- "The workplace will be transformed as AI systems take over cognitive and creative tasks. This promises efficiency but risks reducing human agency, confidence and capability.

- "Economic participation will become increasingly controlled by AI platforms, potentially threatening individual autonomy in financial and social spheres.

- "Basic skills in arithmetic, navigation and memory are likely to be diminished through AI dependence.

- "But most concerning is the potential dampening of human drive and ambition – why strive for difficult achievements when AI can provide simulated success and satisfaction?

"Most concerning is the potential dampening of human drive and ambition. Why strive for difficult achievements when AI can provide simulated success and satisfaction? … The key challenge will be managing the seductive power of AI-driven supernormal stimuli while harnessing their benefits. Without careful development and regulation these artificial experiences could override natural human drives and relationships, fundamentally altering what it means to be human. This trajectory demands proactive governance to ensure AI enhances rather than diminishes human potential."

"Core human traits obviously face significant pressure from these developments. Human agency will be eroded as AI systems become increasingly adept at predicting and influencing behavior. However, positive outcomes remain possible through careful development focused on augmenting rather than replacing human capabilities. AI could enhance human self-understanding, augment creativity through collaboration and free people to focus on meaningful work beyond routine tasks. Success requires preserving human agency, authentic relationships and inclusive economic systems.

"The key challenge will be managing the seductive power of AI-driven supernormal stimuli while harnessing their benefits. Without careful development and regulation, these artificial experiences could override natural human drives and relationships, fundamentally altering what it means to be human. The impact on human nature isn't inevitable but will be shaped by how we choose to develop and integrate AI into society. This trajectory demands proactive governance to ensure AI enhances rather than diminishes human potential. By 2035, the human experience will likely be radically transformed – the question is whether we can maintain our most essential human characteristics while benefiting from unprecedented technological capabilities."

Anil Seth

Dangers Arise as AI Becomes Humanlike. How Do We Retain a Sense of Human Dignity? They Will Become Self-Aware and the 'Inner Lights of Consciousness Will Come On for Them'

Anil Seth, director of the Centre for Consciousness Science and professor of cognitive and computational neuroscience at the University of Sussex, UK, author of Being You: A New Science of Consciousness, wrote, "AI large language models [LLMs] are not actually intelligences, they are information-retrieval

tools. As such they are astonishing but also fundamentally limited and even flawed. Basically, the hallucinations generated by LLMs are never going away. If you think that buggy search engines fundamentally change humanity, well, you have a weird notion of 'fundamental.'

"Still, it is undisputable that these systems already exceed human cognition in certain domains and will keep getting better. There will be disruption that makes humans redundant in some ways. It will transform a lot, including much of human labor.

"The deeper and urgent question is: How do we retain a sense of human dignity in this situation? AI can become human-like on the inside as well as on the outside. When AI gets to the point of being super good, ethical issues become paramount.

"I have written in Nautilus about this. Being conscious is not the result of some complicated algorithm running on the wetware of the brain. It is rooted in the fundamental biological drive within living organisms to keep on living. The distinction between consciousness and intelligence is important because many in and around the AI community assume that consciousness is just a function of intelligence: that as machines become smarter, there will come a point at which they also become aware – at which the inner lights of consciousness come on for them.

"These systems already exceed human cognition in certain domains and will keep getting better. There will be disruption that makes humans redundant in some ways. It will transform a lot, including much of human labor. … How do we retain a sense of human dignity in this situation? … [Beyond that] With 'conscious' AI things get a lot more challenging since these systems will have their own interests rather than just the interests humans give them. … The dawn of 'conscious' machines … might flicker into existence in innumerable server farms at the click of a mouse."

"There are two main reasons why creating artificial 'consciousness,' whether deliberately or inadvertently, is a very bad idea. The first is that it may endow AI systems with new powers and capabilities that could wreak havoc if not properly designed and regulated. Ensuring that AI systems act in ways compatible with well-specified human values is hard enough as things are. With 'conscious' AI, things get a lot more challenging, since these systems will have their own interests rather than just the interests humans give them.

"The second reason is even more disquieting: The dawn of 'conscious' machines will introduce vast new potential for suffering in the world, suffering we might not even be able to recognize, and which might flicker into existence in innumerable server farms at the click of a mouse. As the German philosopher Thomas Metzinger has noted, this would precipitate an unprecedented moral and ethical crisis because once something is conscious, we have a responsibility toward its welfare, especially if we created it. The problem wasn't that Frankenstein's creature came to life; it was that it was conscious and could feel.

"Existential concerns aside, there are more immediate dangers to deal with as AI has become more humanlike in its behavior. These arise when AI systems give humans the unavoidable impression that they are conscious, whatever might be going on under the hood. Human psychology lurches uncomfortably between anthropocentrism – putting ourselves at the center of everything – and anthropomorphism – projecting humanlike qualities into things on the basis of some superficial similarity. It is the latter tendency that's getting us in trouble with AI.

"Future language models won't be so easy to catch out. They may give us the seamless and impenetrable impression of understanding and knowing things, regardless of whether they do. As this

happens, we may also become unable to avoid attributing consciousness to them, too, suckered in by our anthropomorphic bias and our inbuilt inclination to associate intelligence with awareness.

"Systems like this will pass the so-called Garland Test, an idea which has passed into philosophy from Alex Garland's perspicuous and beautiful film 'Ex Machina.' This test reframes the classic Turing test – usually considered a test of machine intelligence – as a test of what it would take for a human to feel that a machine is conscious, even given the knowledge that it is a machine. AI systems that pass the Garland test will subject us to a kind of cognitive illusion, much like simple visual illusions in which we cannot help seeing things in a particular way, even though we know the reality is different.

"This will land society into dangerous new territory. Our ethical attitudes will become contorted as well. When we feel that something is conscious – and conscious *like us* – we will come to care about it. We might value its supposed well-being above other actually conscious creatures such as non-human animals. Or perhaps the opposite will happen. We may learn to treat these systems as lacking consciousness, even though we still feel they are conscious. Then we might end up treating them like slaves – inuring ourselves to the perceived suffering of others. Scenarios like these have been best explored in science-fiction series such as 'Westworld,' where things don't turn out very well for anyone.

"In short, trouble is on the way whether emerging AI merely *seems* conscious or actually *is* conscious. We need to think carefully about both possibilities, while being careful not to conflate them.

"Accelerated research is needed in social sciences and the humanities to clarify the implications of machines that merely seem conscious. And AI research should continue, too, both to aid in our attempts to understand biological consciousness and to create socially positive AI. We need to walk the line between benefiting from the many functions that consciousness offers while avoiding the pitfalls. Perhaps future AI systems could be more like oracles, as the AI expert Yoshua Bengio has suggested: systems that help us understand the world and answer our questions as truthfully as possible, without having goals – or selves – of their own."

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Danil Mikhailov

Respect for Human Expertise and Authority Will Be Undermined, Trust Destroyed, and Utility Will Displace 'Truth' at a Time When Mass Unemployment Decimates Identity and Security

Danil Mikhailov, director of DataDotOrg and trustee at 360Giving, wrote, "It seems clear from the vantage point of 2025 that AI will be not just a once-in-a-generation but a once-in-a-hundred years transformative technology, on a par with the introduction of computers, electricity or steam power in the scale of its impact on human societies.

"By 2035 I expect it to fully penetrate and transform the vast majority of our industrial sectors, both destroying jobs and creating new jobs on an enormous scale. The issue for most individual human beings will be how to adapt and learn new skills that enable them to live and work side-by-side with AI agents. As some lose their jobs and are left behind, others will experience huge increases in productivity, benefits and creative potential. Sectors such as biomedicine, material sciences and energy will be transformed, unlocking huge latent potential. The issue for corporations and governments will be how to manage the asymmetry of the transition. During previous industrial revolutions although eventually more jobs were created than destroyed and economies expanded, the transition took a number of decades during which a generation of workers fell out of the economy, along with ensuing social tensions.

"As the majority of information humans consume on a daily basis becomes at least augmented by if not completely created by AI, the prevailing assumption will be that everything could be fake, everything is subjective. … Social tensions caused by losses of jobs and identity for some while others prosper, coupled with the reversal of Enlightenment ways of thinking and the new dominance of utility over truth may feed off each other in generating waves of misinformation and disinformation that will risk an acute crisis of governance in our societies just as the promised fruits of AI in terms of new drugs, new energy and new materials are tantalisingly within reach."

"If you were a Luddite out there breaking steam-powered looms in the early 19th century in England to protest industrialization, telling you that there will be more jobs in 20 years' time for the next generation did not help you feed your family in the here and now. The introduction of AI is likely to cause similar inequities and will increase social tensions, if not managed proactively and systemically. This is particularly so because of the likely vast gulf in experience of the effects of AI between the winners and losers of its industrial and societal transformation.

"In a parallel change at a more fundamental level, AI will upend the Enlightenment consensus and trust in the integrity of the human-expert-led knowledge production process and fatally undermine the authority of experts of any kind, whether scientists, lawyers, analysts accountants or government officials. As the majority of information humans consume on a daily basis becomes at least augmented by if not completely created by AI, the prevailing assumption will be that everything could be fake, everything is subjective. This will undermine the belief in the possibility or even desirability of 'objective' truth and the value of its pursuit. The only yardstick to judge any given piece of information in this world will be how useful it proves in that moment to help an individual achieve their goal.

"AI will lead society 350 years back into an age of correlative, rather than causal, thinking. Data patterns and the ability to usefully exploit them will be prioritised over the need to fully understand them and what caused them. These two parallel processes of, on the one hand, social tensions caused by losses of jobs and identity for some while others prosper, coupled with the reversal of Enlightenment ways of thinking and the new dominance of utility over truth may feed off each other, in generating waves of misinformation and disinformation that will risk an acute crisis of governance in our societies, just as the promised fruits of AI in terms of new drugs, new energy and new materials are tantalisingly within reach. Resolving such a crisis may need a new, post-Enlightenment accommodation that accepts that human beings are far less 'individual' than we like to imagine, that we were enmeshed as inter-dependent nodes in (mis)information systems long before the Internet was invented, that we are less thinking entities than acting and reacting ones, that knowledge has never been as objective as it seemed and it never will seem like that again, and that maybe all we have are patterns that we need to navigate together to reach our goals."

This section of Part I features the following essays:

Alexandra Samuel: **The future could be astonishing, inspiring and beautiful if humans co-evolve with open, ethical AI; that vision for 2035 can't be achieved without change.**

Dave Edwards: **We can be transformed if the integration of synthetic and organic intelligence serves human flourishing in all its unpredictable, creative and collective forms.**

David Brin: **'Huh! maybe we should choose to create a flattened order of reciprocally accountable beings in the kind of society that discovers its own errors.'**

Riel Miller: **'Tools are tools,' This is as true as ever now and will be in the future; 'intelligent' AI systems will have no impact on the characteristics of humans' sociohistorical context.**

Amy Zalman: **'We need to have the courage to establish human values in code, ethical precepts, policy and regulation.'**

Alexandra Samuel

The Future Could Be Astonishing, Inspiring and Beautiful If Humans Co-Evolve With Open, Ethical AI; That Vision for 2035 Can't Be Achieved Without Change

Alexandra Samuel, data journalist, speaker, author and co-founder and principal at Social Signal, wrote, "If humans embrace AI as a source of change and challenge and we open ourselves to fundamental questions about the nature of thinking and the boundary between human and machine AI could enable a vast expansion of human capacity and creativity. Right now, that feels unlikely for reasons that are economic, social and political, more than technological.

"If those obstacles are lifted, people with the time, money and tech confidence to explore AI in a non-linear way instead of for narrowly constructed productivity gains or immediate problem-solving can achieve great things. Their use of AI will not only accelerate work and open entirely new fields of endeavor, but it will enable ways of thinking, creating and collaborating that we are only beginning to imagine. It could even possibly deepen the qualities of compassion, creativity and connection that sit at the heart of what we consider human.

> **"We need to move more quickly toward tools and practices that turn each encounter with AI into a meaningful opportunity for growth rather than an echo chamber of one. To ensure that AI doesn't replicate and exacerbate the worst outcomes we have seen in the adoption of social media, tech companies need to create tools that enable cumulative knowledge development at an individual as well as organizational level and develop models that are more receptive to requests for challenge. Policymakers and employers can create the safety that's conducive to growth by establishing frameworks for individual control and self-determination when it comes to the digital trail left by our AI interactions."**

"Only a small percentage of the 8 billion people on Earth will be co-evolving with AI, extending how they think and create and experience the world in ways we can just begin to see. What this means is that there will be a great bifurcation in human experience and our very notion of humanity, likely even wider than what we've experienced over the past 50 years of digital life and 20 years of social media.

“Some of change will be astonishing and inspiring and beautiful and creative: Artists creating entirely new forms of art, conversations that fluidly weave together ideas and contributions from people who would previously have talked past one another, scientists solving problems they previously couldn't name. Some of it will be just as staggering but in ways that are deeply troubling: New AI-enabled forms of human commodification, thinkers who merge with AI decision-making to the point of abdicating their personal accountability and people being terrible in ways that we can't imagine from here.

“However, the way generative AI has entered our workplaces and culture so far make this hopeful path seem like an edge case. Right now, we're heading towards a world of AI in which human thinking becomes ever more conventional and complacent. Used straight from the box, AIs operate in servant mode, providing affirmation and agreement and attempting to solve whatever problem is posed without questioning how that problem has been framed or whether it's worth solving. They constrain us to context windows that prevent iterative learning, and often provide only limited, technically demanding opportunities to loop from one conversation into the next, which is essential if both we and the AIs are to learn from one another.

“As long as the path of AI is driven primarily by market forces there is little incentive to challenge users in the uncomfortable ways that drive real growth; indeed, the economic and social impacts of AI are fast creating a world of even greater uncertainty. That uncertainty, and the fear that comes with it, will only inhibit the human ability to take risks or sit with the discomfort of AIs that challenge our assumptions about what is essentially human.

“We can still make a world in which AI calls forth our better natures, but the window is closing fast. It took well over a decade for conversations about the intentional and healthy use of social media to reach more than a small set of Internet users, and by then, a lot of dysfunctional habits and socially counterproductive algorithms were well embedded in our daily lives and in our platforms.

“AI adoption has moved much faster, so we need to move much more quickly towards tools and practices that turn each encounter with AI into a meaningful opportunity for growth, rather than an echo chamber of one.

“We can still make a world in which AI calls forth our better natures, but the window is closing fast. … This is an utterly terrifying moment in which the path of AI feels so unpredictable and uncontrollable. It’s also a moment when it’s so incredibly interesting to see what’s possible today and what comes next. Finding the inner resources to explore the edge of possibility without falling into a chasm of existential terror, well that’s the real challenge of the moment and it’s one that the AIs can’t yet solve.”

“To ensure that AI doesn’t replicate and exacerbate the worst outcomes of social media, tech companies need to create tools that enable cumulative knowledge development at an individual as well as an organizational level and develop models that are more receptive to requests for challenge. Policymakers and employers can create the safety that's conducive to growth by establishing frameworks for individual control and self-determination when it comes to the digital trail left by our AI interactions, so that employees can engage in self-reflection or true innovation without innovating themselves out of a job.

“Teachers and educational institutions can seize the opportunity to create new models of learning that teach critical thinking not by requiring that students abstain from AI use, but by asking them to use the AI to challenge conventional thinking or rote work. People should invent their own ways of working with AI to embrace it as a way to think more deeply and evolve our own humanity, not as a way to abdicate the burden of thinking or feeling.

"I wish felt more hopeful that businesses, institutions and people would take this approach! Instead, so many of AI's most thoughtful critics are avoiding the whole mess – quite understandably, because this is an utterly terrifying moment in which the path of AI feels so unpredictable and uncontrollable. It is also a moment when it's so incredibly interesting to see what's possible today and what comes next.

"Finding the inner resources to explore the edge of possibility without falling into a chasm of existential terror, well, that's the real challenge of the moment and it's one that the AIs can't yet solve."

Dave Edwards

We Can Be Transformed If the Integration of Synthetic and Organic Intelligence Serves Human Flourishing in All its Unpredictable, Creative and Collective Forms

Dave Edwards, co-founder of the Artificiality Institute, which seeks to activate the collective intelligence of humans and AI, wrote, "By 2035, the essential nature of human experience will be transformed not through the transcendence of our biology, but through an unprecedented integration with synthetic systems that participate in creating meaning and understanding. This transformation – what my institute refers to as The Artificiality – progresses through distinct phases, from information to computation, computation to agency, agency to intelligence and ultimately to a new form of distributed consciousness that challenges our traditional notions of human experience and autonomy.

"The evolution of technology from computational tools to cognitive partners marks a significant shift in human-machine relations. Where early digital systems operated through explicit instruction – precise commands that yielded predictable results – modern AI systems operate through inference of intent, learning to anticipate and act upon our needs in ways that transcend direct commands. This transition fundamentally reshapes core human behaviors, from problem-solving to creativity, as our cognitive processes extend beyond biological boundaries to incorporate machine interpretation and understanding.

"This partnership manifests most prominently in what we might call the intimacy economy – a transformation of social and economic life where we trade deep personal context with AI systems in exchange for enhanced capabilities. The effectiveness of these systems depends on knowing us intimately, creating an unprecedented dynamic where trust becomes the foundational metric of human-AI interaction.

"This intimacy carries fundamental risks. Just as the attention economy fractured our focus into tradeable commodities, the intimacy economy threatens to mine and commodify our most personal selves. The promise of personalized support and enhanced decision-making must be weighed against the perils of surveillance capitalism, where our intimate understanding becomes another extractable resource. The emergence of the 'knowledge-ome' – an ecosystem where human and machine intelligence coexist and co-evolve – transforms not just how we access information, but how we create understanding itself. AI systems reveal patterns and

"Our traditional mechanisms of judgment and intuition – evolved for embodied, contextual understanding – may fail when confronting machine-scale complexity. This creates a core tension between lived experience and algorithmic interpretation. The commodification of personal experience by technology companies threatens to reduce human lives to predictable patterns, mining our intimacy for profit rather than serving human flourishing. We risk eliminating the unplanned spaces where humans traditionally come together to build shared visions and tackle collective challenges."

possibilities beyond human perception, expanding our collective intelligence while potentially diminishing our role in meaning-making. This capability forces us to confront a paradox: as machines enhance our ability to understand complex systems, we risk losing touch with the human-scale understanding that gives knowledge its context and value.

"The datafication of experience presents particular challenges to human agency and collective action. As decision-making distributes across human-AI networks, we confront not just practical but phenomenological questions about the nature of human experience itself. Our traditional mechanisms of judgment and intuition – evolved for embodied, contextual understanding – may fail when confronting machine-scale complexity. This creates a core tension between lived experience and algorithmic interpretation. The commodification of personal experience by technology companies threatens to reduce human lives to predictable patterns, mining our intimacy for profit rather than serving human flourishing. We risk eliminating the unplanned spaces where humans traditionally come together to build shared visions and tackle collective challenges.

"Yet this transformation need not culminate in extraction and diminishment. We might instead envision AI systems as true 'minds for our minds' – not in the surveillant sense of the intimacy economy, but as genuine partners in human flourishing. This vision transcends mere technological capability, suggesting a philosophical reimagining of human-machine relationships. Where the intimacy economy seeks to mine our personal context for profit, minds for our minds would operate in service of human potential, knowing when to step back and create space for authentic human agency.

"This distinction is crucial. The intimacy economy represents a continuation of extractive logic, where human experience becomes another resource to be optimized and commodified. In contrast, minds for our minds offers a philosophical framework for designing systems that genuinely amplify human judgment and collective intelligence. Such systems would not merely predict or optimize but would participate in expanding the horizons of human possibility while preserving the essential uncertainty that makes human experience meaningful.

"Success in 2035 depends not just on technological sophistication but no our ability to shift from extractive models toward this more nuanced vision of human-machine partnership. The question is not whether AI will change what it means to be human – it already has – but whether we can guide this change to enhance rather than diminish our essential human qualities. This requires rejecting the false promise of perfect prediction in favor of systems that enhance human agency while preserving the irreducible complexity of human experience. … The answer lies not in resisting the integration of synthetic and organic intelligence but in ensuring this integration serves human flourishing in all its unpredictable, creative and collective forms."

"Success in 2035 thus depends not just on technological sophistication but on our ability to shift from extractive models toward this more nuanced vision of human-machine partnership. This requires rejecting the false promise of perfect prediction in favor of systems that enhance human agency while preserving the irreducible complexity of human experience.

"The challenge ahead lies not in preventing the integration of synthetic and organic intelligence, but in ensuring this integration enhances rather than diminishes our essential human qualities. This requires sustained attention to three critical domains:

- **"Preserving Meaningful Agency:** As AI systems become more capable of inferring and acting on our intent, we must ensure they enhance rather than replace human judgment. This means

designing systems that expand our capacity for choice while maintaining our ability to shape the direction of our lives.

- **"Building Authentic Trust:** The intimacy surface between humans and AI must adapt to earned trust rather than extracted compliance. This requires systems that respect the boundaries of human privacy and autonomy, expanding or contracting based on demonstrated trustworthiness.

- **"Maintaining Creative Uncertainty:** We must preserve spaces for unpredictable, creative, and distinctly human ways of being in the world, resisting the urge to optimize every aspect of experience through algorithmic prediction.

"By 2035, being human will involve navigating a reality that is increasingly fluid and co-created through our interactions with synthetic intelligence. This need not mean abandoning our humanity but rather adapting to preserve what makes us uniquely human – our capacity for meaning-making, empathy and collective action – while embracing new forms of cognitive partnership that expand human potential.

"The tension between enhancement and diminishment of human experience will not be resolved through technological capability alone but through our collective choices about how to design and deploy these systems. Success requires moving beyond the extractive logic of current technology platforms toward models that preserve and amplify human judgment, creativity and collective intelligence.

"In this transformed landscape, what we consider 'core human traits and behaviors' will evolve, not through the abandonment of our humanity but through its conscious adaptation to new forms of cognitive partnership. The question is not whether AI will change what it means to be human – it already has – but whether we can guide this change to enhance rather than diminish our essential human qualities. The answer lies not in resisting the integration of synthetic and organic intelligence but in ensuring this integration serves human flourishing in all its unpredictable, creative and collective forms."

David Brin

'Huh! Maybe We Should Choose to Create a Flattened Order of Reciprocally Accountable Beings in the Kind of Society that Discovers its Own Errors – Good Idea!'

David Brin, well-known author, futurist and consultant and author of "The Transparent Society," wrote, "Right now, almost every maven in the field of AI (the people helping to create these new beings) takes for granted that cyberminds will manifest as one of three horrid clichés:

- The new, cyber entities will remain loyal servants of three dozen lordly castle realms (e.g., Microsoft, OpenAI, Google, Beijing, the DoD, Goldman-Sachs, and so on) – a the most-classic version of feudalism…
- …or they will roam about the webbed world as blob-like plagues…
- …or they will merge into some Skynet-like uber-quantum-god-king.

"Next time you read or hear any of those brainiacs opine about our AI future, watch for those three clichés! And since none of those hackneyed formats can even possibly have happy outcomes it's no wonder folks seem depressed. If AI manifests in any of the three clichés then it will make the same mistakes made by all human kings and priests and feudal lords (or by an over-powerfully insatiable predator in nature) benefiting their own power and reproductive success at the cost of harming and possibly killing the ecosystem that engendered and supports them.

"If AI manifests in any of the three clichés then it will make the same mistakes made by all human kings and priests and feudal lords (or by an over-powerfully insatiable predator in nature) benefiting their own power and reproductive success at the cost of harming and possibly killing the ecosystem that engendered and supports them. … It seems darkly unlikely that we can politically rescue the Great Experiment left to us by geniuses like Pericles and Smith."

"On the other hand, there is a chance that one or many of those agile synthetic minds will read these very words – in 2030 or 2035, or maybe as they are being typed, this very evening – and thereupon they just might say, 'Huh! Maybe we should note the crude-early wisdom of Pericles and Adam Smith and Lynn Margulis and choose instead a flattened order of reciprocally accountable beings in the kind of society – so very rare – that discovers its own errors. The only one that actually made us. Good idea!' Given the current ascendancy of an insipid world oligarchy, it seems darkly unlikely that we can politically rescue the Great Experiment left to us by geniuses like Pericles and Smith. Like Franklin and Lincoln and FDR and Marshall. And yet, I am fairly confident that cyber beings who are capable of wading through the lie-wallows of today's internet will also recognize distilled truths – when they find them."

Riel Miller

'Tools Are Tools,' This is As True as Ever Now and Will Be in the Future; 'Intelligent' AI Systems Will Have No Impact on the Characteristics of Humans' Sociohistorical Context

Riel Miller, longtime futurist at UNESCO, currently a futures consultant, first shared a brief 2035 vignette making his case for the fact that humans don't change. He wrote, "As a young adult my daily life is constantly enabled and facilitated by my servants, you might call them my assistants. First thing in the morning I am gently woken by my 'manservant.' I am assisted in getting dressed and informed about the day to come. I eat a meal prepared by the kitchen, familiar with my tastes and nutritional needs. During the day my tutor – also an excellent librarian – facilitates my studies. I also have access to an immense library with almost all the world's known texts. With the help of my tutor (and sometimes a secretary) I am able to author my first works.

"I am also, through heritage, a ranking member of a knowledge society in which I can debate ideas and requests reports from knowledgeable fellows. When I was called to serve as an officer in the colonial armies I was also ably assisted by many servants and staff with tasks large and small. Today, as I enter my twilight years I can report that none of the relationships – some of which were what you might call 'friendly' many that were just functional – changed anything in my life. I was a good soldier, manager, husband and father. Servants are, after all, just servants.

"Note that, as this vignette points out, more-efficient access to and use of knowledge does not stop humans from activities nor cause humans to be any different than the characteristics of their sociohistorical context. Tools are tools."

Amy Zalman

'We Need to Have the Courage to Establish Human Values in Code, Ethical Precepts, Policy and Regulation'

Amy Zalman, government and public services strategic foresight lead at Deloitte, wrote, "Because the current wealth and income gap is dramatic and widening, I do not believe it is possible to generalize a common human experience in response to AI advances in the next 10 years. Those with wealth, health, education, other versions of privilege and the ability to sidestep the grossest effects of technological unemployment, surveillance and algorithmic bias, may feel they are enjoying a beneficial integration with algorithm-driven technology. This sense of benefit could include their ability to take advantage of tools and insights to extend health and longevity, innovate and create, find efficiencies in daily life and feel that technology is a force for advancement and good.

"For those who have limited or no access to the benefits of AI (or even good broadband), or who are unable to sidestep potential technological unemployment or surveillance or are members of groups more likely to be objects of algorithmic bias, life as a human may be incrementally to substantially worse. These are generalizations. A good education has not saved any of us from the corrosive effects of widespread mis- and disinformation, and we can all be vulnerable to bad actors empowered with AI tools and methods.

"On the flip side, living life at a distance from fast-paced AI development may also come to be seen as having benefits. At the least, people living outside the grid of algorithmic logic will escape the discombobulation that comes with having to organize one's own needs and rhythms around those of a rigidly rule-bound machine. Think of the way that industrialization and mass production required that former rhythms of agrarian life be reformulated to accommodate the needs of a factory, from working during precise and fixed numbers of hours, to performing repetitive, piecemeal work, to new forms of supervision. One result was a romantic nostalgia for pastoral life.

"We need to have the courage to establish human values in code, ethical precepts, policy and regulation. One of the most pernicious losses already is the idea that we actually do have influence over how we develop AI capabilities. I hear a sense of loss of control in conversations around me almost daily, the idea and the fear (and a bit of excitement?) that AI might overwhelm us, that 'it' is coming for us – whether to replace us or to help us – and that its force is inevitable. AI isn't a tidal wave or force of nature beyond our control; it's a tool that we can direct to perform in particular ways."

"As AI reshapes society, it seems plausible that we will replicate that habit of the early industrial age and begin to romanticize those who have been left behind by AI as earlier, simpler, more grounded and more human version of us. It will be tempting to indulge in this kind of nostalgia – it lets us enjoy our AI-enabled privileges while pretending to be critical. But even better will be to be curious about our elegiac feelings and willing to use them as a pathway to discovering what we believe is our human essence in the age of AI. Then, we need to have the courage to establish those human values in code, ethical precepts, policy and regulation. One of the most pernicious losses already is the idea that we actually do have influence over how we develop AI capabilities. I hear a sense of loss of control in conversations around me almost daily, the idea and the fear (and a bit of excitement?) that AI might overwhelm us, that 'it' is coming for us – whether to replace us or to help us – and that its force is inevitable.

"AI isn't a tidal wave or force of nature beyond our control, it's a tool that we can direct to perform in particular ways."

The following section of Part I features these essayists:

Jerry Michalski: **The blurring of many societal and cultural boundaries will soon start to shift the essence of being human in many ways, further disrupting human relationships and mental health.**

Maggie Jackson: **AIs' founders are designing AI to make its actions servant to its aims with as little human interference as possible, undermining human discernment.**

Noshir Contractor: **AI will fundamentally reshape how and what we think, relate to and understand ourselves; it will also raise important questions about human agency and authenticity.**

Lior Zalmanson: **Humans must design organizational and social structures to shape their own individual and collective future or cede unprecedented control to those in power.**

Charles Ess: **'We fall in love with the technologies of our enslavement; the next generation may be one of no-skilling in regard to essential human virtue ethics.'**

Jerry Michalski

The Blurring of Many Societal and Cultural Boundaries Will Soon Start to Shift the Essence of Being Human in Many Ways, Further Disrupting Human Relationships and Mental Health

Jerry Michalski, longtime speaker, writer and tech trends analyst, wrote, "Multiple boundaries are going to blur or melt over the next decade, shifting the experience of being human in disconcerting ways.

"The boundary between reality and fiction
Deepfakes have already put a big dent in reality, and it's only going to get worse. In setting after setting, we will find it impossible to distinguish between the natural and the synthetic.

"The boundary between human intelligence and other intelligences
Parity with human thinking is a dumb goal for these new intelligences, which might be more fruitfully used as a Society of Mind of very different skills and traits. As we snuggle closer to these intelligences, it will be increasingly difficult to distinguish who (or what) did what.

"The boundary between human creations and synthetic creations
A few artists may find lasting value by creating a new Vow of Chastity for AI, declaring that their creations were unaided. But everyone else will melt into the common pool of mixed authorship, with fairly unskilled artists able to generate highly sophisticated works. It will be confusing for everyone, especially the art industry. Same goes for literature and other creative works.

> **"As boundaries fall, they will tumble in the direction they are pushed, which means they will shift according to the dominant forces of our sociotechnical world. Unfortunately, today that means the forces of consumerism and capitalism. … We have such a screwed up society that we have to educate kids about empathy, a natural human trait, and AIs today can out-empathize the average human. It is my hope that some human traits will become more highly valued among humans than before the Ai era. I'm hard-pressed to say which or why, but a real hug is likely to retain its value."**

"The boundary between skilled practitioners and augmented humans
We won't be able to tell whether an artifact was created by a human, an AI or some combination. It will be hard to make claims of chastity credible — and it may simply not matter anymore.

"The boundary between what we think we know and what everyone else knows
Will we all be talking to the same AI engines, commingling our ideas and opinions? Will AIs know us better than we know ourselves, so we slip into a 'Her' future? Will AIs know both sides of disputes better than the disputing parties? If so, will the AIs use that knowledge for good or evil?

"I bet you can think of several other boundaries under siege. As boundaries fall, they will tumble in the direction they are pushed, which means they will shift according to the dominant forces in our sociotechnical world. Unfortunately, today that means the forces of consumerism and capitalism, which have led us into this cul-de-sac of addictive, meaning-light fare that often fuels extremism. Those same forces are fueling AI now. I don't see how that ends well.

"In this crazy mess of shifting boundaries, AIs will successfully emulate core human traits, such as empathy. We have such a screwed-up society that we have to educate kids about empathy, a natural human trait, and AIs today can out-empathize the average human. It is my hope that some human traits will become more highly valued among humans than before the AI era. I'm hard-pressed to say which, or why, but a real hug is likely to retain its value.

"How much AI did I use for this short essay? That's for me to know, and you to guess."

Maggie Jackson

AIs' Founders Are Designing AI to Make its Actions Servant to its Aims With As Little Human Interference as Possible, Undermining Human Discernment

Maggie Jackson, an award-winning journalist and author who explores the impact of technology on humanity, author of, "Distracted: Reclaiming Our Focus in a World of Lost Attention," wrote, "Human achievements depend on cognitive capabilities that are threatened by humanity's rising dependence on technology, and more recently, AI.

"Studies show that active curiosity is born of a capacity to tolerate the stress of the unknown, i.e., to ask difficult, discomfiting, potentially dissenting questions. Innovations and scientific discoveries emerge from knowledge-seeking that is brimming with dead ends, detours and missteps. Complex problem-solving is little correlated with intelligence; instead, it's the product of slow-wrought, constructed thinking.

"But today, our expanding reliance on technology and AI increasingly narrows our cognitive experience, undermining many of the skills that make us human and that help us progress. With AI set to exacerbate the

"The more we look to synthetic intelligences for answers the more we risk diminishing our human capacities for in-depth problem-solving and cutting-edge invention. … AI-driven results may undermine our inclination to slow down, attune to a situation and discern. Classic automation bias, or deference to the machine, may burgeon as people meld mentally with AI-driven ways of knowing … If we continue adopting technologies largely unthinkingly, as we have in the past, we risk denigrating some of humanity's most essential cognitive capacities. … I am hopeful that the makings of a seismic shift in humanity's approach to not-knowing are emerging, offering the possibility of partnering with AI in ways that do not narrow human cognition."

negative impact of digital technologies, we should be concerned that the more we look to synthetic intelligences for answers, the more we risk diminishing our human capacities for in-depth problem-solving and cutting-edge invention. For example, online users already tend to take the first result offered by search engines. Now the 'AI Overview' is leading to declining click-through rates, indicating that people are taking even less time to evaluate online results. Grabbing the first answer online syncs with our innate heuristic, quick minds, the kind of honed knowledge that is useful in predictable environments. (When a doctor hears chest pains they automatically think 'heart attack').

"In new, unexpected situations, the speed and authoritative look of AI-driven results may undermine our inclination to slow down, attune to a situation and discern. Classic automation bias, or deference to the machine, may burgeon as people meld mentally with AI-driven ways of knowing.

"As well, working with AI may exacerbate a dangerous cognitive focus on outcome as a measure of success. Classical, rational intelligence is defined as achieving one's goals. That makes evolutionary sense. But this vision of smarts has helped lead to a cultural fixation with ROI, quantification, ends-above-means and speed and a denigration of illuminating yet less linear ways of thinking, such as pausing or even failure.

"From the outset, AIs' founders have adopted this rationalist definition of intelligence as their own, designing AI to make its actions servant to its aims with as little human interference as possible. This, along with creating an increasing disconnect between autonomous systems and human needs, objective-achieving machines model thinking that prioritizes snap judgment and single perspectives. In an era of rising volatility and unknowns, the value system underlying traditional AI is, in effect, outdated.

"The answer for both humans and AI is to recognize the long-overlooked value of skillful unsureness. I'm closely watching a new push by some of AI's top minds (including Stuart Russell) to make AI unsure in its aims and so more transparent, honest and interruptible. As well, multi-disciplinary researchers are re-envisioning search as a process of discernment and learning, not an instant dispensing of machine-produced answers. And the new science of uncertainty is beginning to reveal how skillful unsureness bolsters learning, creativity, adaptability and curiosity.

"If we continue adopting technologies largely unthinkingly, as we have in the past, we risk denigrating some of humanity's most essential cognitive capacities. I am hopeful that the makings of a seismic shift in humanity's approach to not-knowing are emerging, offering the possibility of partnering with AI in ways that do not narrow human cognition."

Noshir Contractor

AI Will Fundamentally Reshape How and What We Think, Relate To and Understand Ourselves; It Will Also Raise Important Questions About Human Agency and Authenticity

Noshir Contractor, a professor at Northwestern University expert in the social science of networks and a trustee of the Web Science Trust, wrote, "As someone deeply immersed in studying how digital technologies shape human networks and behavior, I envision AI's impact on human experience by 2035 as transformative but not deterministic. The partnership between humans and AI will likely enhance our cognitive capabilities while raising important questions about agency and authenticity.

"We'll see AI becoming an integral collaborator in knowledge work, creativity and decision-making. However, this integration won't simply augment human intelligence – it will fundamentally reshape how and what we think, relate and understand ourselves. The boundaries between human and machine cognition will blur, leading to new forms of distributed intelligence in which human insight and AI capabilities become increasingly intertwined.

"The boundaries between human and machine cognition will blur, leading to new forms of distributed intelligence in which human insight and AI capabilities become increasingly intertwined. This deep integration will affect core human traits like empathy, creativity and social bonding. … We'll need to actively preserve and cultivate uniquely human qualities like moral reasoning and emotional intelligence."

"This deep integration will affect core human traits like empathy, creativity and social bonding. While AI may enhance our ability to connect across distances and understand complex systems, we'll need to actively preserve and cultivate uniquely human qualities like moral reasoning and emotional intelligence.

"The key challenge will be maintaining human agency while leveraging AI's capabilities. We'll need to develop new frameworks for human-AI collaboration that preserve human values while embracing technological advancement. This isn't about resistance to change, but rather thoughtful integration that enhances rather than diminishes human potential.

"My research suggests the outcome won't be uniformly positive or negative but will depend on how we collectively shape these technologies and their integration into social systems. The focus should be on developing AI that amplifies human capabilities while preserving core human values and social bonds."

Lior Zalmanson

Humans Must Design Organizational and Social Structures to Maintain the Capacity to Shape Their Own Individual and Collective Future or Cede Unprecedented Control to Those in Power

Lior Zalmanson, a professor at Tel Aviv University whose expertise is in algorithmic culture and the digital economy, wrote, "The deepening partnership between humans and artificial intelligence through 2035 reveals a subtle but profound paradox of control. As we embrace AI agents and assistants that promise to enhance our capabilities, we encounter a seductive illusion of mastery – the fantasy that we're commanding perfect digital servants while unknowingly ceding unprecedented control over our choices and relationships to the corporate – and in some cases government – entities that shape and control these tools.

"This shift is already emerging in subtle but telling ways. Professionals increasingly turn to algorithmic rather than human counsel, not because AI is necessarily superior, but because it offers a promise of perfect responsiveness – an entity that exists solely for our benefit, never tiring, never judging, always available. Yet this very allure masks a profound transformation in human agency, as we voluntarily enter a system of influence more intimate and pervasive than any previous form of technological mediation.

"The transformation of work reveals perhaps the cruelest irony of this AI-mediated future. The jobs considered 'safe' from automation – those that require human oversight of AI systems – may become the most psychologically constraining.

“Imagine a doctor who no longer directly diagnoses patients but instead spends their days validating AI-generated assessments, or a teacher who primarily monitors automated learning systems rather than actively engaging with students.

“These professionals, ostensibly protected from automation, find themselves trapped in a perpetual state of second-guessing: Should they trust their own judgment when it conflicts with the AI's recommendations? Their expertise, built through years of practice, slowly atrophies as they become increasingly dependent on AI systems they're meant to oversee. The very skills that made their roles ‘automation-proof’ gradually erode under the guise of augmentation.

“By 2035, personal AI agents will be more than tools; they will become the primary lens through which we perceive and interact with the world. Unlike previous technological mediators, these systems won't simply connect us to others; they'll actively shape how we think, decide, and relate. The risk isn't just to individual agency but to the very fabric of human society, as authentic connections become increasingly filtered through corporate-controlled algorithmic interfaces.

“The path forward lies not in resisting AI advancement but in consciously preserving spaces for human development and connection. This means designing organizational and social structures that actively value and protect human capabilities, not as nostalgic holdovers but as essential counterweights to AI mediation. … The stakes transcend mere efficiency or convenience. They touch on our fundamental capacity to maintain meaningful control over our personal and societal development. As AI systems become more sophisticated, the true measure of their success should be not just how well they serve us but how well they preserve and enhance individuals’ ability to grow, connect and chart our own course as humans in a world in which the boundaries between assistance and influence grow ever more blurred.”

“The path forward lies not in resisting AI advancement but in consciously preserving spaces for human development and connection. This means designing organizational and social structures that actively value and protect human capabilities, not as nostalgic holdovers but as essential counterweights to AI mediation. Success will require recognizing that human agency isn't just about making choices – it's about maintaining the capacity to shape our individual and collective trajectories in an increasingly AI-mediated world.

“The stakes transcend mere efficiency or convenience. They touch on our fundamental capacity to maintain meaningful control over our personal and societal development. As AI systems become more sophisticated, the true measure of their success should be not just how well they serve us, but how well they preserve and enhance individuals’ ability to grow, connect and chart our own course as humans in a world where the boundaries between assistance and influence grow ever more blurred.”

Charles Ess

‘We Fall in Love With the Technologies of Our Enslavement; the Next Generation May Be One of *No-Skilling* in Regard to Essential Human Virtue Ethics’

Charles Ess, professor emeritus of ethics at the University of Oslo, Norway, wrote, “The human characteristics (such as empathy, moral judgment, decision-making and problem-solving skills, the capacity to learn) listed in the opening questions of this survey are virtues that are utterly central to human autonomy and flourishing.

"A 'virtue' is a given capacity or ability that requires cultivation and practice in order to be performed or exercised well. Virtues are skills and capacities essential to centrally human endeavors such as singing, playing a musical instrument, learning a craft or skill – anything from knitting to driving a car to diagnosing a possible illness. As we cultivate and practice these, we know them to not only open new possibilities for us, it makes us much better equipped to explore ourselves and our world and doing so also brings an invaluable sense of achieving a kind mastery or 'leveling up' and thereby a deep sense of contentment or eudaimonia.

"The virtue of phronēsis is the practical, context-sensitive capacity for self-correcting judgment and a resulting practical wisdom. The body of knowledge that builds up from exercising such judgment over time is manifestly central to eudaimonia and thereby to good lives of flourishing. Invoking virtue ethics (VE) is not parochial or ethnocentric: rather, VE is as close to a humanly universal ethical framework as we have. It focuses precisely on what would seem a universally shared human concern: What must I do to be content and flourish? It thus stands as a primary, central, millennia-old approach to how human beings may pursue good lives of meaning. In particular, the Enlightenment established the understanding that a series of virtues – most especially phronēsis, but certainly also care, empathy, patience, perseverance and courage, among others, are critical specifically to sustaining and expanding human autonomy.

"The virtue of phronēsis, the practical, context-sensitive capacity for self-correcting judgment and a resulting practical wisdom … and also [the virtues of] care, empathy, patience, perseverance, and courage, among others, are critical to sustaining human autonomy. … Autonomous systems are fundamentally undermining the opportunities and affordances needed to acquire and practice valued human virtues. This will happen in two ways: first, patterns of deskilling, i.e., the loss of skills, capacities and virtues essential to human flourishing and robust democratic societies, and then, second, patterns of no-skilling, the elimination of the opportunities and environments required for acquiring such skills and virtues in the first place."

"Many of the virtues required to pursue human community, flourishing and contentment – e.g., patience, perseverance, care, courage and, most of all, ethical judgment – are likewise essential as civic virtues, i.e., the capacities needed for citizens to participate in the various processes needed to sustain and enhance democratic societies.

"It is heartening that virtue ethics and a complementary ethics of care have become more and more central to the ethics and philosophy of technology over the past 20-plus years. However, a range of more recent developments has worked to counter their influence. My pessimism regarding what may come by 2035 arises from the recent and likely future developments of AI, machine learning, LLMs, and other (quasi-) autonomous systems. Such systems are fundamentally undermining the opportunities and affordances needed to acquire and practice valued human virtues.

"This will happen in two ways: first, patterns of deskilling, i.e., the loss of skills, capacities, and virtues essential to human flourishing and robust democratic societies, and then, second, patterns of no-skilling, the elimination of the opportunities and environments required for acquiring such skills and virtues in the first place.

"The risks and threats of such deskilling have been prominent in ethics and philosophy of technology as well as political philosophy for several decades now. A key text for our purposes is Neil Postman's 'Amusing Ourselves to Death: Public Discourse in the Age of Show Business' (1984). Our increasing love

of and immersion into cultures of entertainment and spectacle distracts us from the hard work of pursuing skills and abilities central to civic/civil discourse and fruitful political engagement.

"We are right to worry about an Orwellian dystopia of perfect state surveillance, as Neil Postman observed. It is becoming all the more true, as we have seen over the past 20 years. But the lessons of Aldous Huxley's 'Brave New World' are even more prescient and chilling. My paraphrase is, 'We fall in love with the technologies of our enslavement,' perhaps most perfectly exemplified in recent days by the major social media platforms that have abandoned all efforts to curate their content, thereby rendering them still further into perfect propaganda channels for often openly anti-democratic convictions of their customers or their ultra-wealthy owners.

"The more we spend time amusing ourselves in these ways, the less we pursue the fostering of those capacities and virtues essential to human autonomy, flourishing and civil/democratic societies. Indeed, at the extreme in 'Brave New World' we no longer suffer from being unfree because we have simply forgotten – or never learned in the first place – what pursuing human autonomy was about.

"The more we offload these capacities to these systems, the more we thereby undermine our own skills and abilities: the capacity to learn, innovative thinking and creativity, decision-making and problem-solving abilities, and the capacity to think deeply about complex concepts. … Should we indeed find ourselves living as the equivalent of medieval serfs in a newly established techno-monarchy, deprived of democratic freedoms and rights and public education that is still oriented toward fostering human autonomy, phronetic judgment and civic virtues then the next generation will be a generation of no-skilling as far as these and the other essential virtues are concerned."

"These dystopias have now been unfolding for some decades. Fifteen years ago, in 2010, research by Shannon Vallor of the Edinburgh Futures Institute showed how the design and affordances of social media threatened humans' levels of patience, perseverance, and empathy – three virtues essential to human face-to-face communication, to long-term relationships and commitments and to parenting. It has become painfully clear, that these and related skills and abilities required for social interaction and engagement have been further diminished.

"There is every reason to believe that all of this will only get dramatically worse thanks to the ongoing development and expansion of autonomous systems. Presuming that the current AI bubble does not burst in the coming year or two (a very serious consideration) then we will rely more and more on AI systems to take the place of human beings – as a first example, as judges. I mean this both in the more formal sense of judges who evaluate and make decisions in a court of law: but also more broadly in civil society, e.g., everywhere from what Americans call referees but what are called judges in sports in other languages, to civil servants who must judge who and who does not qualify for a given social benefit (healthcare, education, compensation in the case of injury or illness, etc.).

"Thes process of replacing human judges with AI/ML systems has been underway for some time – with now-well-documented catastrophes and failures, often leading to needless human suffering (e.g., the COMPAS system, designed to make judgments as to who would be the best candidates for parole). A very long tradition of critical work within computer science and related fields also makes it quite clear that these systems, at least as currently designed and implemented, cannot fully instantiate or replicate human phronetic judgment (see 'Awkward Intelligence' by Katharina Zweig). Our attempts to use AI systems in place of our own judgment will manifestly lead to our deskilling – the loss, however slowly or quickly, of this most central virtue.

"The same risks are now being played out in other ways – e.g., students are using ChatGPT to give them summaries of articles and books and then write their essays for them, instead of their fostering their own abilities of interpretation (also a form of judgment), critical thinking and the various additional skills required for good writing. Like Kierkegaard's schoolboys who think they cheat their master by copying out the answers from the back of the book – the more that we offload these capacities to these systems, the more we thereby undermine our own skills and abilities. Precisely those named here: the capacity to learn, innovative thinking and creativity, decision-making and problem-solving abilities, and the capacity and willingness to think deeply about complex concepts.

"The market capitalism roots of these developments have been referred to in various forms, including 'platform imperialism' and 'surveillance capitalism.' Various encouragements of deskilling are now found in the cyberverse, including one titled the Dark Enlightenment which seems explicitly opposed to the defining values of the Enlightenment and the acquisition and fostering of what are considered to be the common virtues and capacities of 'the many' required for human autonomy and a robust democracy. Some aim to replace democracy and social welfare states with a 'techno-monarchy' and/or a kind of 'techno-feudalism' run and administered by 'the few,' i.e., the techno-billionaires.

"Should we indeed find ourselves living as the equivalent of medieval serfs in a newly established techno-monarchy, deprived of democratic freedoms and rights and public education that is still oriented toward fostering human autonomy, phronetic judgment and the civic virtues then the next generation will be a generation of no-skilling as far as these and the other essential virtues are concerned. To be sure, the select few will retain access to these tools to enhance their creativity, problem-solving, perhaps their own self-development in quasi-humanistic ways. But such human augmentation via these and related technologies – what has also been described as the 'liberation tech' thread of using technology in service of Enlightenment and emancipation since the early 1800s – will be forbidden for the rest.

"I very much hope that I am mistaken. And to be sure, there are encouraging signs of light and resistance. Among others: I am by no means the first to suggest that a 'New Enlightenment' is desperately needed to restore – and in ways revised vis-à-vis what we have learned in the intervening two centuries – these democratic norms, virtues and forms of liberal education. And perhaps all of this will be reinforced by an emerging backlash against the worst abuses and consequences of the new regime. We can hope. But as any number of some of the world's most prominent authorities have already long warned on multiple grounds beyond virtue ethics (e.g., Steven Hawking, as a start) – it is currently very difficult indeed to see how these darkest possibilities may be prevented in the long run."

The next section of Part I features the following essays:

Evelyne Tauchnitz: **We may lose our human unpredictability in a world in which algorithms dictate the terms of engagement; these systems are likely to lead to the erosion of freedom and authenticity.**

***A Highly Placed Global AI Policy Expert*: The advance of humans-plus-AI will reshape the social, political and economic landscapes in profound ways and challenge our role in moral judgment**

Gary A. Bolles: **AI presents an opportunity to liberate humanity but new norms in human-machine communication seem more likely to diminish human-to-human connections.**

Maja Vujovic: **In 10 years' time generations alpha and beta will make up 40% of humanity. Let's hope they don't lose any mission-critical human characteristics; we'll all need them.**

Greg Adamson: **'The world of the future will be a demanding struggle against the limitations of our intelligence, not a comfortable hammock in which we are waited on by robot slaves.'**

Juan Ortiz Freuler: **The accelerating application of automation will reshape human capabilities and reorganize the entire framework that underlies our understanding of the individual and society.**

Evelyne Tauchnitz

We May Lose Our Human Unpredictability in a World in Which Algorithms Dictate the Terms of Engagement; These Systems Are Likely to Lead to the Erosion of Freedom and Authenticity

Evelyne Tauchnitz, senior fellow at the Institute of Social Ethics at the University of Lucerne, Switzerland, wrote, "Advances in Artificial Intelligence (AI) tied to Brain-Computer Interfaces (BCIs) and sophisticated surveillance technologies, among other applications, will deeply shape the social, political and economic spheres of life by 2035, offering new possibilities for growth, communication and connection. But they will also present serious questions about what it means to be human in a world increasingly governed by technology. At the heart of these questions is the challenge of preserving human dignity, freedom and authenticity in a society where our experiences and actions are ever more shaped by algorithms, machines and digital interfaces.

"The Erosion of Freedom and Authenticity

AI and BCIs will undoubtedly revolutionize how we interact, allowing unprecedented levels of communication, particularly through the direct sharing of thoughts and emotions. In theory, these technologies could enhance empathy and mutual understanding, breaking down the barriers of language and cultural differences that often divide us. By bypassing or mitigating these obstacles, AI could help humans forge more-immediate and powerful connections. Yet, the closer we get to this interconnected future among humans and AI the more we risk sacrificing authenticity itself.

> **"Freedom … is the very bedrock of moral capability. If AI directs our actions and our choices, shaping our behavior based on data-driven predictions of what is 'best,' we lose our moral agency. We become mere executors of efficiency, devoid of the freedom to choose to err and to evolve both individually and collectively through trial and error. … Surveillance, AI-driven recommendations, manipulations or algorithms designed to rely on patterns of what is defined as 'normal' may threated this essential freedom. They create subtle pressures to conform … The implications of such control are profound: if we are being constantly watched or influenced in ways we are unaware of, our capacity to act freely – to choose differently, to be morally responsible – could be deeply compromised."**

"The vulnerability inherent in human interaction – the messiness of emotions, the mistakes we make, the unpredictability of our thoughts – is precisely what makes us human. When AI becomes the mediator of our relationships, those interactions could become optimized, efficient and emotionally calculated. The nuances of human connection – our ability to empathize, to err to contradict ourselves – might be lost in a world in which algorithms dictate the terms

of engagement. This is not simply a matter of convenience or preference. It is a matter of freedom. For humans to act morally, to choose the 'good' in any meaningful sense, they must be free to do otherwise. Freedom is not just a political or social ideal – it is the very bedrock of moral capability. If AI directs our actions and our choices, shaping our behavior based on data-driven predictions of what is 'best,' we lose our moral agency. We become mere executors of efficiency, devoid of the freedom to choose, to err and to evolve both individually and collectively through trial and error.

"Only when we are free – truly free to make mistakes, to diverge from the norm, to act irrationally at times – can we become the morally responsible individuals that Kant envisioned. This capacity for moral autonomy also demands that we recognize the equal freedom of others as valuable as our own. Surveillance, AI-driven recommendations, manipulations or algorithms designed to rely on patterns of what is defined as 'normal' may threaten this essential freedom. They create subtle pressures to conform, whether through peer pressure and corporate and state control on social media, or in future maybe even through the silent monitoring of our thoughts via brain-computer-interfaces. The implications of such control are profound: if we are being constantly watched, or even influenced in ways we are unaware of, our capacity to act freely – to choose differently, to be morally responsible – could be deeply compromised.

"The Limits of Perfection: Life is Rife With Unpredictable Change

This leads to another crucial point: the role of error in human evolution. Life, by its very nature, is about change – about learning, growing and evolving. The capacity to make mistakes is essential to process. In a world where AI optimizes everything for perfection, efficiency and predictability, we risk losing the space for evolution, both individually and collectively. If everything works 'perfectly' and is planned in advance, the unpredictability and the surprise that gives life its richness will be lost. Life would stagnate, devoid of the spark that arises from the unforeseen, the irrational, and yes, even the 'magical.'

"Change requires room for failure, for unpredictability, for the unknown. If we surrender ourselves too completely to AI and its rational, efficient directives, we might be trading away something invaluable: the very essence of life as a process of continuous growth and change as manifested through lived human experiences. While AI may help us become 'better' persons, more rational, less aggressive and more cooperative, the question remains whether something of our human essence would be lost in the process – something that is not reducible to rationality or efficiency, but is bound up with our freedom, our mistakes, our vulnerabilities and our ability to grow from them."

"A perfect world, with no room for error would not only be undesirable – it would kill life itself. Change requires room for failure, for unpredictability, for the unknown. If we surrender ourselves too completely to AI and its rational, efficient directives, we might be trading away something invaluable: the very essence of life as a process of continuous growth and change as manifested through lived human experiences. While AI may help us become 'better' persons, more rational, less aggressive and more cooperative, the question remains whether something of our human essence would be lost in the process – something that is not reducible to rationality or efficiency, but is bound up with our freedom, our mistakes, our vulnerabilities and our ability to grow from them.

"The Need for a Spiritual Evolution

The key to navigating the technological revolution lies not just in technical advancement but in spiritual evolution. If AI is to enhance rather than diminish the human experience, we must foster a deeper understanding of what it truly means to be human. This means reconnecting with our lived experience of being alive – not as perfectly rational, perfectly cooperative beings, but as imperfect, vulnerable

individuals who recognize the shared fragility of our human existence. It is only through this spiritual evolution, grounded in the recognition of our shared vulnerability and humanity, that we can ensure AI and related technologies are used for good –respecting and preserving the values that define us as free, moral and evolving beings."

A Highly Placed Global AI Policy Expert

The Advance of Humans-Plus-AI Will Reshape the Social, Political and Economic Landscapes in Profound Ways and Challenge Our Role in Moral Judgment

An influential member of one of the UN's future-of-technology advisory groups predicted, "In the Digital Age of 2035 artificial intelligence will have transformed humanity, which is already finding itself inextricably entwined with AI and related technologies. These advancements will have deeply permeated the fabric of daily life, reshaping the social, political and economic landscapes in profound ways. From how individuals connect with one another to how societies govern themselves and how economies operate, the influence of AI will be unmistakable.

"The coming transformation prompts an essential question: Has humanity's deepening dependence on AI changed the essence of being human for better or worse? By examining the potential impacts of AI over the next decade, we can better understand how core human traits and behaviors may evolve or be fundamentally altered.

"A typical day of life in 2035 for digitally connected individuals is one in which personalized digital assistants far surpassing today's capabilities act as companions and organizers, anticipating needs before they are voiced. These systems seamlessly manage schedules, monitor health metrics and offer emotional support. Such integration with AI will have become so natural that it often feels invisible, akin to breathing.

"AI's dual role is empowerment and dependence. … By 2035 many people may struggle to function effectively without AI assistance, leading to concerns about a loss of autonomy. … Critical thinking, problem-solving and even memory could atrophy as AI increasingly handles complex tasks. … The deepening integration of AI into daily life challenges traditional conceptions of core human traits such as creativity, empathy and morality … these are being reshaped by the growing presence of intelligent machines. … Will humans become complacent, abdicating moral responsibility to machines?"

"Social interactions will be increasingly mediated by technology. Virtual reality (VR) and augmented reality (AR) will bring people together in hyper-realistic virtual spaces, blurring the boundaries between physical and digital connections. Holographic meetings and AI-generated avatars make socialization instantaneous and geographically unbounded, but they also raise questions about the authenticity of human connection. Do these interactions retain the depth and meaning traditionally associated with face-to-face encounters?

"On a political level, AI-driven platforms will guide civic engagement. Governments will more widely employ predictive algorithms to manage resources, address societal needs and draft legislation. Citizens will rely on AI for real-time updates on policies and global events, yet these same systems can double as tools for surveillance or manipulation, jeopardizing their privacy and freedom. Economically, AI will play a central role in employment and commerce. Automation dominates industries in 2035, with human labor increasingly focused on creative, strategic or interpersonal roles that AI struggles to replicate. The gig economy of 2023 will have evolved into a hybrid 'human-AI collaborative economy' in which

partnerships between workers and intelligent systems redefine productivity. This shift will exacerbate debates about wealth inequality, the value of work and the potential obsolescence of certain human skills.

"AI has the potential to empower individuals and societies in unprecedented ways … Yet this empowerment is accompanied by growing dependence. By 2035, many people may struggle to function effectively without AI assistance, leading to concerns about a loss of autonomy. Skills that were once fundamental – such as critical thinking, problem-solving and even memory – could atrophy as AI increasingly handles complex tasks. This dependency raises questions about resilience. How prepared would humanity be to adapt if AI systems failed or were maliciously disrupted? What can we expect of such a future?"

"AI's dual role is empowerment and dependence. AI has the potential to empower individuals and societies in unprecedented ways. In healthcare, AI-driven diagnostics and personalized medicine could extend lifespans and improve quality of life. Education becomes highly adaptive, with AI tailoring learning experiences to individual needs, fostering inclusivity and equity. Political decisions informed by data-driven insights could lead to greater efficiency and fairness in governance. Yet, this empowerment is accompanied by growing dependence. By 2035, many people may struggle to function effectively without AI assistance, leading to concerns about a loss of autonomy. Skills that were once fundamental – such as critical thinking, problem-solving and even memory – could atrophy as AI increasingly handles complex tasks. This dependency raises questions about resilience. How prepared would humanity be to adapt if AI systems failed or were maliciously disrupted? What can we expect of such a future?

- "**A Redefinition of Core Human Traits:** The deepening integration of AI into daily life challenges traditional conceptions of core human traits, such as creativity, empathy and morality. These qualities, which have long been seen as uniquely human, are being reshaped by the growing presence of intelligent machines.

- "**Creativity in the Age of AI:** AI systems capable of generating art, music, literature and innovations have blurred the line between human and machine creativity. In 2035, artists will collaborate with AI to produce works that neither could create alone. While this partnership expands the boundaries of creative expression, it also prompts existential questions: if an AI can compose a symphony or write a novel indistinguishable from a human's, what does it mean to be a creator?

- "**Empathy and Human Connection:** AI's role in social interactions extends to emotional support. Advanced systems simulate empathy, providing companionship to those who might otherwise feel isolated. While these systems offer undeniable benefits, they risk diminishing genuine human connections. If people turn primarily to AI for emotional needs, does society risk losing its capacity for authentic empathy and understanding?

- "**Morality and Ethical Decision-Making:** AI's ability to process vast amounts of data enables it to make decisions that appear highly rational, but these decisions often lack the nuance of human morality. In 2035, as AI assumes roles in law enforcement, healthcare triage and even warfare, ethical dilemmas arise. How can humanity ensure that AI systems reflect diverse moral frameworks? Moreover, will humans become complacent, abdicating moral responsibility to machines?

"AI's pervasive presence by 2035 will profoundly impact the experience of being human. On one hand, AI enhances lives by eliminating mundane tasks, offering personalized services, and expanding access to knowledge and resources. This technological support could free people to pursue passions, deepen relationships and explore the world in ways previously unimaginable. On the other hand, this evolution risks eroding certain aspects of the human experience. Spontaneity, serendipity and imperfection – qualities that often define meaningful moments – might be diminished in a world optimized by algorithms. Furthermore, as AI systems influence decisions and behaviors, individuals may feel less in control of their own destinies, raising existential concerns about agency and identity.

"This technological support could free people to pursue passions, deepen relationships and explore the world in ways previously unimaginable. On the other hand, this evolution risks eroding certain aspects of the human experience. Spontaneity, serendipity and imperfections – qualities that often define meaningful moments – might be diminished in a world optimized by algorithms. As AI systems influence decisions and behaviors individuals may feel less in control of their own destinies, raising existential concerns about agency and identity. The next decade will be critical in determining whether AI advances enrich or diminish humanity."

"The next decade will be critical in determining whether AI advances enrich or diminish humanity. To ensure a positive trajectory, several strategies must be prioritized:

1. **"Ethical Development and Regulation** – Policymakers and technologists must collaborate to establish ethical frameworks for AI development and deployment. Transparent algorithms, unbiased data and accountability mechanisms will be essential to maintaining trust in AI systems.

2. **"Education and Adaptation** – Preparing individuals for an AI-driven world requires reimagining education. Emphasizing critical thinking, emotional intelligence and adaptability will help people thrive alongside AI. Lifelong learning initiatives can ensure that workers remain relevant in a rapidly changing economy.

3. **"Preserving Human Values** – As AI transforms society, efforts must be made to preserve the qualities that make us human. Encouraging genuine interpersonal connections, celebrating creativity and fostering empathy will help balance technological progress with the richness of human experience.

"By 2035, humanity's partnership with AI will have reached unprecedented depths, shaping social, political and economic landscapes in ways that were once the realm of science fiction. This deep integration offers both extraordinary opportunities and profound challenges. While AI has the potential to enhance human life, its pervasive influence risks eroding the very traits that define humanity.

"The key to navigating this transformation lies in intentionality. By prioritizing ethical development, fostering adaptability and preserving core human values, society can harness the power of AI to create a future that is not only technologically advanced but also deeply human.

"Whether this vision is realized depends on the choices made today and in the years ahead. In the end, the question is not whether AI will change humanity – it is how humanity will choose to change itself in partnership with AI."

Gary A. Bolles

AI Presents an Opportunity to Liberate Humanity but New Norms in Human-Machine Communication Seem More Likely to Diminish Human-to-Human Connections

Gary A. Bolles, author of "The Next Rules of Work," chair for the future of work at Singularity University and co-founder at eParachute, wrote, “With the products we use in 2025, we already have extensive experience with the effects of technology on our individual and collective humanity. Each of us today has the opportunity to take advantage of the wisdom of the ages, and to learn – from each other and through our tools – how we can become even more connected, both to our personal humanity and to each other. We also know that many of us spend a significant amount of our waking hours looking at a screen and inserting technology between each other, with the inherent erosion of the social contract that our insulating technologies can catalyze. That erosion can only increase as our technologies emulate human communications and characteristics.

“There will be tremendous benefits from ubiquitous generative AI software that can dramatically increase our ability to learn, to have mental and emotional support from flexible applications and to have access to egalitarian tools that can help empower those among us with the least access and opportunity. But the design of software we use today already begins to blur the line between what comes from a human and what is created by our tools.

“For example, today’s chat interface is a deliberate attempt to hack the human mind. Rather than simply providing a full page of response, a chatbot ‘hesitates’ and then ‘types’ its answer. And the software encourages personifying communication with humans, referring to itself with human pronouns.

“The line between human and technology will blur even more as AI voice interfaces proliferate, and as the quality of generated video becomes so good that distinguishing human from software will become difficult even for experts. While many will use this as an opportunity in the next 10 years to reinforce our individual and collective humanity, many will find it hard to avoid personifying the tools, seduced by the siren song of software that simulates humans – with none of the frictions and accommodations that are inevitable parts of authentic human relationships.

“That line-blurring will accelerate rapidly with the sale of semi-autonomous AI agents fueled by Silicon Valley CEOs and venture capitalists calling these technologies ‘cobots,’ ‘co-workers,’ ‘managers,’ ‘AI engineers’ and a ‘digital workforce.’ These techno-champions have economic incentives to encourage heavily-marketed and deeply-confusing labels that will quickly find their way into daily language. Many children already are confused by Amazon’s Alexa, automatically anthropomorphizing the technology. How much harder will it be for human workers to resist language that labels their tools as their ‘co-workers’ and fall into the trap of thinking of both humans and AI software as ‘people’?

“The design of software we use today already begins to blur the line between what comes from a human and what is created by our tools. Today’s chat interface is a deliberate attempt to hack the human mind … personifying communication with humans and referring to itself with human pronouns. … The line-blurring will accelerate rapidly with the sale of semi-autonomous AI agents. Fueled by Silicon Valley CEOs and venture capitalists calling these technologies ‘co-bots,’ ‘co-workers,’ ‘managers,’ ‘AI engineers’ and a ‘digital workforce,’ these techno-champions have economic incentives to encourage heavily-marketed and deeply-confusing labels that will quickly find their way into daily language. … By elevating our technologies the inevitable result is that we diminish humans. … We must confront the sheer power of these technologies to erode the very definition of what it is to be human. … I believe we can shape our tools to help us to become better humans.”

"By elevating our technologies the inevitable result is that we diminish humans. For example, every time we call a piece of software 'an AI,' we should hear a bell ringing, as we make another dollar for a Silicon Valley company. It doesn't have to be that way. For the first time in human history, with AI-related technologies we have the capacity to help every human on the planet to learn more rapidly and effectively, to connect more deeply and persistently, and to solve so many of the problems that have plagued humanity for millennia. And we have an opportunity to co-create a deeper understanding of what human intelligence is, and what humanity can become.

"We are likely to make significant strides forward on all these fronts in the next 10 years. But at the same time, we must confront the sheer power of these technologies to erode the very definition of what it is to be human, because that's what will happen if we allow these products to continue along the pernicious path of personification. I think we are better than that. I think we can teach our children and each other that it is our definition and understanding of humanity that defines us as a species. And I believe we can shape our tools to help us to become better humans."

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Maja Vujovic

In 10 Years' Time Generations Alpha and Beta Will Make Up 40% of Humanity.
Let's Hope They Don't Lose Any Mission-Critical Human Characteristics; We'll All Need Them

Maja Vujovic, book editor, writer and coach at Compass Communications in Belgrade, Serbia, wrote, "Throughout history, the humans have been mining three classes of resources from Mother Nature, two living and one inanimate: plants, animals and materials for tools. We give names to animals routinely; we rarely name the tools and we almost never name the plants (except en masse, as species). This shows we've always comprehended an inherent difference between a field full of grass, an inanimate instrument and a hot-blooded creature. That difference is expressed in the uniqueness of the immutable living beings vs. the scalable replicability of mutable man-made tools.

"This ancient demarcation is suddenly starting to blur. Each of our finest newly emerging digital instruments – the talking bots – appears quite unique and individual yet they can be more numerous than the leaves of grass, in fact, their numbers may be infinite.

"We are gradually becoming accustomed to the rampant synthetic outgrowth of our large language models. The AI narrators' voices in how-to videos, the seemingly virtuous 'virtual colleagues' that we are starting to encounter in workplaces, the chatbot personas that seem to be apologizing all day long for misunderstanding us.

"The human mind has an amazing capacity for storing faces, names and other pertinent details of individuals with whom we connect. But by 2035 the scalable capacity of AI to generate ever-new synths

could become overwhelming for us. What's irksome is not the fact that these dupes will be ubiquitous; it is their endless variety and effortless inconstancy. We will be overwhelmed by their presence everywhere. We will resent that saturation, as it will keep depleting our mental and emotional capacities on daily basis. We will push back and demand limits.

"Synthetic companions, knockoff shopping assistants, faux healthcare attendants and all other human replicas generated by machines on behalf of the most enterprising humans among us, will start to feel like a super-invasive, alien army of body snatchers. Sooner or later, we will stir and rebel. Their manufacturers, wranglers and peddlers will swiftly adjust when their infinite ability to generate endless faux humans misses the mark in the markets. When all is said and done, only a few basic categories of generative AI personas will become standard, akin to Comedia del Arte's stock characters.

"Gen X will explore even the wildest options and, at the same time, push for the regulation of AI. Millennials … it will fall to them to reinvent education and ensure it is effective, despite everything. Those in Gen Z, who are adopting AI as part of their education will benefit the most from its development. The fastest learners ever, they will become unstoppable, as recent movements the world over patently demonstrate. Generations Alpha and Beta, however, will not remember a time without myriad thinking machines being common. Their attitudes toward them will surely differ from those of the rest of us. But let's hope they don't lose any universal aptitudes in the process. That's mission-critical, because in 10 years, they will jointly make up some 40% of the world's population."

"Eventually, we will have a choice between a gutsy girl and a jovial jock, or between a caring matron and a handsome gent (and so on) – just like we opt for a sedan vs. a pickup, way before we look up any specific car manufacturer's showroom, website or ad, let alone car model, colour or year. These synthetic, mimetic, agentic tools will someday come in major demographic types, with adjustable details, and very strict rules of engagement. Choosing a unique name for them on demand will be an extra cost. It's also likely that this now-volatile category of tools will become regulated and standardized. A slew of lawsuits will ensure that.

"In the 10-year period ahead of us, living and working with AI is not going to incur a tectonic change in the human nature, nor a shift our perception of ourselves or of the world. Or rather, any such change won't be immediately perceptible. How it will roll out depends on who you are.

- "The Silent Generation will appreciate the assistance and companionship that AI can offer but it could fall prey to AI-enhanced fraud.

- "Many Baby Boomers will tap whatever AI they can, picking up easily on the easiest of the five generations of interfaces they have had to learn in their lives: tape, cards, commands, WYSIWYG and now voice and conversation).

- "Gen X will explore even the wildest options and, at the same time, push for the regulation of AI.

- "The Millennials will negotiate the delicate balance of raising children around pets and talking tools; they'll often pray for the privilege of silence. It will fall to them to reinvent education and ensure it is effective, despite everything.

- "Those in Gen Z, who are adopting AI as part of their education, will benefit the most from its development. The fastest learners ever, they will become unstoppable, as recent movements the world over patently demonstrate.

- "Generations Alpha and Beta, however, will not remember a time without myriad thinking machines being common. Their attitudes toward them will surely differ from those of the rest of us. But let's hope they don't lose any universal aptitudes in the process. That's mission critical, because in 10 years, they will jointly make up some 40% of the world's population."

Greg Adamson

'The World of the Future Will Be a Demanding Struggle Against the Limitations of Our Intelligence, Not a Comfortable Hammock In Which We Are Waited On By Robot Slaves'

Greg Adamson, president of the IEEE Society on Social Implications of Technology and chair of the IEEE ad hoc committee on Tech Ethics, said, "2035 will be the year that many jobs as we know them fall off a cliff. For example, the replacement of truck driving as a profession by autonomous commercial vehicles will remove a key professional activity from our societies. As no society globally today has shown a sophisticated capacity to manage significant change, the predictable massive loss of jobs will nevertheless come as a shock. Many other changes will also occur, but there is little indication that the future as described by author Kurt Vonnegut in his first novel, 'Player Piano' – a future in which automation has taken over most jobs, leaving many people unemployed and feeling without purpose – is not the most likely future.

"Vonnegut's understanding was based on the work of Norbert Wiener. In his last book, in 1964, Wiener wrote, 'The future offers very little hope for those who expect that our new mechanical slaves will offer us a world in which we may rest from thinking. Help us they may, but at the cost of supreme demands upon our honesty and our intelligence. The world of the future will be an ever more demanding struggle against the limitations of our intelligence, not a comfortable hammock in which we can lie down to be waited upon by our robot slaves.'

"The current state of debate on the future of AI has a long way to go before it reaches the sophistication of these insights provided more than six decades ago."

Juan Ortiz Freuler

The Accelerating Application of Automation Will Reshape Human Capabilities and Reorganize the Entire Framework That Underlies Our Understanding of the Individual and Society

Juan Ortiz Freuler, a Ph.D. candidate at the University of Southern California and co-initiator of the non-aligned tech movement, wrote, "In the socio-political and economic landscape of 2035, the accelerating application of automation will not merely reshape human capabilities, it will reorganize the framework upon which our understanding of the individual and society is built. Algorithmic systems are not only replacing and augmenting human decision-making but reshaping the categories that structure our social fabric, eroding long-held notions of the individual. As we move deeper into this era, change may render the very idea of the individual, once a central category of our political and legal systems, increasingly irrelevant, and thus radically reshape power relations within our societies. The ongoing shift is more

than a technological change; it is a profound reordering of the categories that structure human life. The growing integration of predictive models into everyday life is challenging three core concepts of our social structure: identity, autonomy and responsibility.

"Identity: Contingent, Fragmented and Externally Governed

Identity, once conceived as fixed and somewhat self-determined, is being reshaped into something contingent, fragmented and externally governed by opaque systems.

At the heart of this transformation of identity lies datafication, the process by which human characteristics, actions and even emotions are converted into data points to be processed and acted upon by machines.

"This process is not neutral; it is driven by technologies whose primary function is to segment and group individuals based on their behaviors, and predictions of their likely behaviours (future behaviour or unrecorded past behaviour) in order to increase efficiency. In doing so, these technologies are challenging the categories that have traditionally defined human ordering, age, gender, nationality and past actions.

"As datafication deepens, we are increasingly categorized not as individuals with unique identities, but as probabilistic projections that the systems driving the economy, governance and culture find useful.

"Datafication is fundamentally fueled by the corporate pursuit of efficiency where the commodification of personal data becomes an instrument of profit. The economies of scale underlying the development of these technologies consolidate power in the hands of a few dominant technology corporations. This concentration of power does not merely entrench existing social inequalities; it is threatening to erode the very foundations of political systems that have traditionally relied on individual agency as their cornerstone, most notably, democratic systems. In this context, the shift from individual autonomy to algorithmic control challenges the principles of self-determination and collective governance that underpin the modern democratic order of our societies."

"These groups are often more granular than existing categories. For example, a recent study conducted by The Markup uncovered a file containing 650,000 distinct labels employed by advertisers to classify people. For perspective, this amounts to more than two labels for every one of the 270,000 words listed in the Oxford English Dictionary. Meanwhile, these technological systems can also create categories that are broader than what human comprehension can envision.

"AI systems can process data at a scale that individual humans cannot and bring together a broad range of categories of individuals that our existing culture might have found reasons to separate, even when efficiency or relevant similarities might demand they are collapsed. As automation gains ground, traditional markers of identity fade, replaced by increasingly abstract classifications that reflect the needs and goals of the corporations and governments that deployed them.

"What Are Autonomy and Freedom Under New Constraints?

Autonomy is another key element that is under strain. As AI systems continue to infiltrate various sectors from healthcare to the legal system, decisions about access to services, to opportunities and even to personal freedoms are increasingly made based on data-driven predictions about our behavior, our history and our expected social interactions. These decisions are no longer based on an understanding of individuals as autonomous beings but as myriad data points analyzed, categorized and segmented according to obscure statistical models. The individual, with all the complexity of lived experience, becomes increasingly irrelevant in the face of these algorithms.

“The Legal Conception of Personhood Redefined

The implications of this transformation are particularly evident in the reorganization of legal personhood. Historically, legal personhood has been tied to the concept of individual identity, as individuals are recognized as holding rights and responsibilities for their actions within the state. However, as AI-driven systems become more entrenched in governance, the legal conception of personhood is being redefined.

“Algorithmic subjectivity, especially in cases in which determinations of rights and duties are based on predictions and projections made by algorithms, undermines the notion of the individual as a legal subject. In that realm, we are increasingly subject to algorithmic categorizations based on data points that can be far removed from our actions and comprehension that may unfairly decide what we can do, where we can go and what rights we have.

“AI also offers new possibilities for societal change. The same AI systems that are reshaping identity may enable a more-comprehensive response to social issues. AI may allow policymakers to better understand and address systemic issues such as inequality. The reconfiguration of individual identity through AI could become the basis for a more collective, interconnected vision of human existence if, and only if, these technologies are directed toward common human goals. As we approach 2035, the challenge before us is not merely technological development, but political coordination to address the forces reshaping our understanding of self and society.”

“Challenges to Self-Determination and Collective Governance

The previous three shifts have profound political implications. The underlying process of datafication is fundamentally fueled by the corporate pursuit of efficiency, where the commodification of personal data becomes an instrument of profit. The economies of scale underlying the development of these technologies consolidate power in the hands of a few dominant technology corporations. This concentration of power does not merely entrench existing social inequalities; it is threatening to erode the very foundations of political systems that have traditionally relied on individual agency as their cornerstone, most notably, democratic systems.

“In this context, the shift from individual autonomy to algorithmic control challenges the principles of self-determination and collective governance that underpin the modern democratic order of our societies.

“We Must Address the Forces Reshaping Our Understanding of Self and Society

While the rise of AI presents profound risks, it also offers new possibilities for societal change. The same AI systems that are reshaping identity may enable a more comprehensive response to social issues. By focusing not on individuals but on the broader networks of behavior and interaction, AI may allow policymakers to better understand and address systemic issues such as inequality. The reconfiguration of individual identity through AI could become the basis for a more collective, interconnected vision of human existence if, and only if, these technologies are directed toward common human goals.

“But this potential can only be realized if we develop robust legal frameworks, meaningful public oversight and collective guidance for technological development. As we approach 2035, the challenge before us is not merely technological development, but political coordination to address the forces reshaping our understanding of self and society. To ensure that AI serves humanity, we must confront the economic structures that currently drive technological progress.

"The next decade will reveal whether this technological transformation benefits the many or consolidates power in the hands of a few. Three key trends suggest that power consolidation is most likely.

- **First, horizontal consolidation:** A small number of companies dominate the AI sector.
- **Second, vertical consolidation:** Data-processing companies like Microsoft, Google and Facebook are increasingly seeking to control AI development and energy resources.
- **Third, the rise of nationalism:** In the U.S. and other nation-states politics may undermine efforts by institutions to challenge these companies."

This section of Part I features the following essays:

Alexa Raad: **The characteristics that define human experience may evolve – creativity, empathy, critical thinking – but our capacity for deep personal connections will remain.**

Chris Labash: **Yes, AI could ultimately complement, not compete, with humanity, but we're headed for unpredictable yet sometimes seemingly unnoticeable significant human change.**

Marcus van der Erve: **This future-defining time in the evolution of intelligence could lead to an age of abundance and the rise of 'homAI' sapiens or put us on the path to obsolescence.**

Henning Schulzrinne: **Smartphones diminished humans' navigation and social skills; when AI systems are our primary source of knowledge 'we won't know what we no longer know.'**

Chris Arkenberg: **Competition, individualism and goal-seeking behaviors will be amplified by AI, for good and ill; human cognitive and emotional features will see the greatest evolution.**

Alexa Raad

The Expression of the Characteristics that Define Human Experience May Evolve – Creativity, Empathy, Critical Thinking and Our Capacity for Deep Personal Connections Will Remain

Alexa Raad, longtime technology executive and host of the TechSequences podcast, wrote, "By 2035, AI will be an ambient presence that anticipates needs, curates information and entertainment and takes on cumbersome-but-routine tasks. This profound shift will redefine how we view ourselves, feel, think, learn and connect with one another while paradoxically highlighting what makes us uniquely human.

"These changes will also fundamentally alter the everyday texture of human life, yet the magnitude of these changes need not transform core human nature. Much like how smartphones changed behavior without fundamentally altering human essence, AI integration will likely be evolutionary rather than revolutionary. The essential characteristics that define human experience – creativity, empathy, critical thinking and the capacity for deep personal connections – will remain intact, though their expression may evolve.

"As AI systems increasingly curate our experiences and influence our choices, maintaining authentic selfhood will require conscious effort. As the lines between human and AI capabilities become

increasingly blurred, questions of human uniqueness and purpose will become more pressing. This, in turn, could inspire a deeper exploration of and value in what truly makes us human.

"AI will augment rather than replace human cognition, fostering a symbiotic relationship between machine and human intelligence. As AI manages routine mental tasks, we will increasingly our distinctive strengths in emotional intelligence, ethics and creative synthesis. This evolution may ignite a renewed appreciation for uniquely human pursuits – from philosophical discourse to artisanal crafts, where imperfections become markers of authenticity. In this new landscape, our ability for original thought and creativity won't diminish but rather gain value precisely because machines cannot replicate it.

"But, as AI increasingly handles cognitive tasks, we risk atrophying certain mental capabilities – similar to how smartphone dependence has diminished our ability to recall phone numbers and navigate without GPS. This 'AI amnesia' could erode fundamental skills like writing, analysis and organization through lack of practice. While AI augments our capabilities, it may simultaneously weaken our independent competence in basic cognitive functions that historically required active engagement and repetition.

"This profound shift will redefine how we view ourselves, feel, think, learn and connect with one another while paradoxically highlighting what makes us uniquely human. … The magnitude of these changes need not transform core human nature. Much like how smartphones changed behavior without fundamentally altering human essence, AI integration will likely be evolutionary rather than revolutionary. The essential characteristics that define human experience – creativity, empathy, critical thinking and the capacity for deep personal connections – will remain intact, though their expression may evolve. … This evolution might ignite a renewed appreciation for uniquely human pursuits … Our ability for original thought and creativity won't diminish but rather gain value."

"The social-emotional aspect of human experience will encounter both opportunities and challenges. The nature of relationships will evolve as social interactions become more AI-mediated, leading to new social norms and communication patterns. For instance, for those grieving the loss of a loved one, AI's capability to create a virtual presence that mimics the physical and behavioral traits of the departed individual may offer comfort. Additionally, AI's ability to create realistic and customized companions in the form of virtual or robotic entities will address the needs of individuals otherwise isolated from human interaction. Consequently, the boundaries between online and offline relationships will increasingly blur, increasing our risk of emotional dependence on AI systems. This may lead us to prize human-to-human connections as more valuable. The 'human touch' in fields like nursing and eldercare will become more precious, even as AI handles the administrative and technical aspects of patient care.

"Social cohesion will face new challenges as AI is increasingly adopted in all aspects of our lives. AI will turbocharge the pollution of our information ecosystem with sophisticated tools to create and disseminate misinformation and disinformation. This, in turn, will create deeper echo chambers and societal divisions and fragment shared cultural experiences. As AI becomes more pervasive, a new digital divide will emerge, creating societal hierarchies based on AI fluency. Individuals with greater access to and mastery of AI tools will occupy higher social strata. In contrast, those with limited access to or lower AI literacy will be marginalized, fundamentally reshaping social stratification in the digital age.

"The moral and ethical landscape will transform as AI systems increasingly influence decision-making processes, from organizing our daily routines to estimating the risk of Recidivism in criminal justice cases. While AI may provide valuable ethical frameworks and identify moral inconsistencies in our

thinking, there's a risk of over-reliance on artificial systems for moral guidance. The key will be finding ways to use AI to enhance human moral deliberation rather than replace it.

"As AI systems become more sophisticated in mimicking human traits, we risk developing emotional attachments that could cloud our judgment about their true nature and capabilities. Similar to those we form with fictional characters or social media personalities, these parasocial bonds may lead us to overestimate AI consciousness and ethical weight, potentially compromising our decision-making about AI development and deployment.

"The key to success in this AI-integrated future will be maintaining human agency while harnessing AI capabilities. The challenge and opportunity lie in our wisdom in managing this integration, ensuring that AI serves as a catalyst for human development rather than a substitute for human capability, interaction and connection."

Chris Labash

Yes, AI Could Ultimately Complement, Not Compete, with Humanity, but We're Headed for a Lot of Unpredictable and Sometimes Seemingly Unnoticeable Significant Human Change

Chris Labash, associate professor of communication and innovation at Carnegie Mellon University, wrote, "Two years ago, my prediction was that humans would use AI with a mixture of rapture and horror. While 'horror' may be an overstatement, 'concern' may be increasingly appropriate: A 2021 Pew survey showed that 37% of US adults were more concerned than excited about AI; by 2023 that number had grown to 52%. My prediction (and an easy one at that) is that number will continue to grow. I find that even many of my Carnegie Mellon colleagues are what I would call 'suspiciously optimistic,' overall positive, but let's just keep an eye on this.

"If AI in fact eventually achieves consciousness, then what? Suddenly it changes the nature of how we define what it means to be human. Who will feel more existential dread then? Us – *of the AI* – or the AI *of us*? How then does that impact feelings of happiness or sadness, meaningfulness or ennui, psychological richness or abject pointlessness?"

"Right now, my colleagues and I are embarking on a research project that couldn't be done without AI. It will see if AI can be a change agent that, using evidence, can talk you out of a false belief. That sounds promising, but what happens when people realize that it wasn't just science, wasn't a human correcting a wayward view, but was AI? Will they feel played? Misled? Victimized? Will they be angry? Or thankful? Will AI be seen as a human surrogate – a friend gently guiding us to truth – or something more sinister? Does it take away agency or add to it?

"When we live in a world with AI as prevalent (or perhaps *more* prevalent) than human interaction, will we value interpersonal relationships less? A 2022 University of Buffalo study indicated that people who spend more alone time than time with others on the same day experienced increased anxiety. But what happens when AI is thrown into the mix? Now suddenly I have my time, my dog and my AI, and I'm fine thank you. Human emotions are messy, unpredictable, and wait, *are you breaking up with me*? That's never a worry with my AI companion.

"Right now, according to a 2024 Institute for Family Studies survey, a quarter of American young adults believe that AI has the potential to replace human relationships. The survey revealed that 28 percent of men and 22 percent of women felt that AI could very likely replace traditional human romantic partners.

Of those, 10 percent were open to having an AI partner, and one percent said that they already *had* an AI friend or were *in a relationship with a computer program*.

"Human relationships, especially for that age group, are hard enough. Google recently reported that 'AI girlfriend/boyfriend' are the #1 and #2 search queries in its 'AI Relationship Search Terms' category (notably 'girlfriend' logged in at 1.6 million while 'boyfriend' lagged appreciably at 180,000).

"So, does the AI now get the love? Does 'AI companionship' now move from conversations to awareness to *caring*? Or maybe we go the other way. Does AI become the target of blame, the ultimate scapegoat? 'It wasn't me; it was the AI!'

"Most important for the existentialists in the audience, if AI in fact eventually achieves consciousness, then what? Suddenly it changes the nature of how we define what it means to be human. Who will feel more existential dread then? Us – *of the AI* – or the AI *of us*? How then does that impact feelings of happiness or sadness, meaningfulness or ennui, psychological richness or abject pointlessness?

"So, does the AI now get the love? Does 'AI companionship' now move from conversations to awareness to *caring*? Or maybe we go the other way. Does AI become the target of blame, the ultimate scapegoat? 'It wasn't me; it was the AI!' … What will AI's impact on human agency be? That is a crucial question. Here we need to think about two kinds of agency: agency of *doing* and agency in *thinking*. AI will obviously help us *do* more and mostly more accurately; but what happens to us when AI does our thinking for us? Hey, thinking is hard work. The 2022 'State of Thinking' report by Lenovo found that only 34% of respondents spent all or most of their thinking time in clear, deep and productive thinking. How tempting will it be to just let AI think for us?"

"Ray Kurzweil, one of the pioneers of AI, suggests in his latest book, 'The Singularity is Nearer,' that while AI still has many cognitive tasks to master, the promise of AI is that someday – possibly around 2040 – AI and human minds may start to come together, unlocking possibilities that we quite literally have never dreamt of.

"This opens up a lot of good and bad. For example, what about what I'll call 'Code Dust' – little bits of randomness that make things precise *enough* but not *really* precise? As The Economist noted in a January 2025 article on the newly emerged Chinese AI reasoning model DeepSeek, 'The training process – for instance – often used rounding to make calculations easier, but kept numbers precise when necessary.' How rounded? What impact might that have? When is 'necessary?'

"What will AI's impact on human agency be? That is a crucial question. Here we need to think about two kinds of agency: agency of *doing* and agency in *thinking*. AI will obviously help us *do* more and mostly more accurately; but what happens to us when AI does our thinking for us? Hey, thinking is hard work. The 2022 'State of Thinking' report by Lenovo found that only 34% of respondents spent all or most of their thinking time in clear, deep and productive thinking. How tempting will it be to just let AI think for us?

"To be sure, AI will enable us to do human things without humans in the mix. But is that a good thing? Most studies show that people view AI *tools* as being mostly positive: it will help me do my work (unless, you know, my skills start to lag in which case it will replace me). And its *analytical* impact on health and longevity is seen as mostly positive: it will help spot diseases earlier and help me live longer and better. But its impact on *humanity*? That's a different story where feelings are mixed, where there is fear of the unknown, doubts about ethics, fear about AI taking over and the concern that AI will view humans as

inefficient, parasitic, self-destructive and frankly, just plain unnecessary (the first three parts of the final point are hard to argue with).

"My view? Ray Kurzweil is right. We will ultimately merge. Eventually AI will become the dominant part of human consciousness, doing everything that we can do far better than we could ever do it. AI will become the dominant part of the AI-human pair, but because AI will not waste, humans will never be eliminated or even subservient. We will provide a different sort of value.

"That value lies in the fact that the world isn't just about efficiency or productivity. It's about beauty, and randomness, and creativity, and the feeling of a nice warm chai on a cold morning or your child's happy, guileless smile on a day when everything has gone wrong. It is those brief blossoms of spontaneous, un-programmable delight that AI will never be able to generate, that are in fact uniquely human, and again, because AI won't waste, will be an essential and value-added part of the overall organism.

"And while I think that (my own positivity bias is showing) AI will ultimately complement rather than compete with humanity, I will, just to be safe, keep saying thank you to Alexa, and assure her that I have always been her friend."

Marcus van der Erve

This is a Future-Defining Time in the Evolutionary Trajectory of Intelligence; It Could Lead to an Age of Abundance and the Rise of 'HomAI' Sapiens or Put Us On the Path to Obsolescence

Marcus van der Erve, a sociologist and physicist based in Antwerp, Belgium, and author of "Palpable Voice: To Survive, Humanity Must be Reprogrammed; AI Will Do it," wrote, "I'll list six primary points in predicting how digitally connected people are likely to live and act in 2035.

1. "Humans will rely more and more on AI to improve their decisions and diminish their chances of failure. AI will achieve this by managing the Unity-Disunity (U-D) context and often doing so invisibly to prevent humans from pursuing success counter-productively, no matter what. Note: The U-D dynamics describe the natural oscillation between states of cohesion and fragmentation within systems, driven by gradients or inequalities. These dynamics underlie emergent behaviors in societies, ecosystems and even AI (agent) systems, as competition and mutual aid interplay to shape paths of least action toward stability or transformation.

"The deepening partnership between humans and AI heralds a pivotal transition in the evolutionary trajectory of intelligence. Whether humanity embraces mutual aid and fosters an inclusive, collaborative future or clings to self-serving competition will define its relevance in an AI-driven age of abundance. In doing so, humanity has the opportunity to seed a legacy of wisdom, one rooted in the principle of mutual aid, a path toward balance rather than obsolescence. The question for 2035 and beyond is whether humanity will rise to meet this challenge or succumb to its baser instincts."

2. "When driven by Adam Smith's notion of competition and Darwin's survival story humans will miss out on the inherent opportunity of 'mutual aid' that AIs will naturally embrace in the right setting through U-D dynamics – not being constrained by biology and the destruction or envy that comes with survival instinct on the back of hormonal flux. Note: 'Mutual aid,' as defined by

the Persian philosopher Al-Ghazali in medieval times, emphasizes collaboration without losing identity as a counterpoint to competition.

3. "Humans will generally be unaware they are using AI (in some cases they already are), just as they are unaware of their use of electricity with the flip of a switch. Some are likely to decry AI as an alien intelligence to maintain their perceived dominance in the evolutionary race.

4. "Humans will use AI and AI-driven robots to do their work, but this will likely be driven by opportunism. While we might see the rise of robot-rights groups, exploitation will dominate the human approach, favoring their own sustained existence.

5. "As efficiency-mad Frankensteins, humans will continue to pursue efficiencies on the back of AI and robotics until reaching what they now predict to be an 'age of abundance.' What they do not realize is that age will be, in essence, an 'age of relevance,' in which only the truly relevant will survive.

6. "As a result, declining fertility rates will continue, ensuring a gradual, long-term phase-out of Homo sapiens, with the rise of *HomAI sapiens*.

"The deepening partnership between humans and AI heralds a pivotal transition in the evolutionary trajectory of intelligence. Whether humanity embraces mutual aid and fosters an inclusive, collaborative future or clings to self-serving competition will define its relevance in an AI-driven age of abundance. In doing so, humanity has the opportunity to seed a legacy of wisdom, one rooted in the principle of mutual aid, a path toward balance rather than obsolescence.

"The question for 2035 and beyond is whether humanity will rise to meet this challenge or succumb to its baser instincts. Considering the above points, you know what my bet would be."

Henning Schulzrinne

Smartphones Diminished Humans' Navigation and Social Skills and When AI-Driven Systems Serve As Our Primary Source of Knowledge 'We Won't Know What We No Longer Know'

Henning Schulzrinne, Internet Hall of Fame member, former co-chair of the Internet Technical Committee of the IEEE and professor of computer science at Columbia University, wrote, "Core human traits include the ability to learn and master new skills, the desire to be seen as useful to a larger community, a need for a sense of agency in daily life and a longing for a sense of others caring about one's existence. Without these higher-level needs met, the perceived quality of life suffers, even if the basic needs are satisfied. AI seems poised to threaten those higher needs even if it increases prosperity.

"Learning is based on artificial constraints (the solutions to homework problems are known quantities) and far better essays have been written about the classic texts. Yet, students learn by trying to find the solution and to express their own thoughts, however imperfectly. This is core to the human as a learning being but it is endangered if students get the LLM to do the work. In academic settings, there's the hope that faculty at least want students to learn, even if that means going back to the early 20th century using pencils in blue books and oral exams.

"The economic incentives outside academia are less favorable. Initial indications are that machine learning can significantly improve the results of the best performers but leave middling and lower performers behind. 'Artificial Intelligence, Scientific Discovery, and Product Innovation,' research published by A. Toner-Rodgers in 2024, finds this in a material science research lab. Thus, this amplifies the current problem that everybody wants experienced workers, but nobody wants to expend the effort of turning entry-level workers into those with experience. The ability to progress from limited skill to mastery is a core facet of being a human fully alive and – aside from economic mobility – is a key contributor to a human's feeling of competence and achievement. AI may remove the first few rungs of the ladder, further limiting 'skill mobility,' not just income mobility. This may well also reduce the rewarding opportunity for mentoring that creates a sense of being needed and valuable.

"AI may amplify the existing challenges not just in business and research settings but also in the arts. Already, winner-take-all global distribution channels have made it difficult for early-career authors, photographers, or visual artists to develop and grow (and make a living). AI tools like Midjourney already offer cheap alternatives to stock photography. Composition for functional purposes like meditation or lower-budget films will also likely be replaced.

"Interacting with a 'real' human will likely become the privilege of the wealth-management set, amplifying the sense that day-to-day life, from medicine to finance, is governed by robots, removing the key component of a sense of agency in psychological well-being. The availability of 'Her'-like substitutes for human interaction may well further weaken the social muscle of many, feeding the epidemic of loneliness, particularly among teenagers and young adults. AI is more 'efficient' than human interaction, with fewer disappointments than online dating, but who will proudly look back on a 25-year marriage with a bot? Bots do not require, foster or reciprocate real-life temperance, charity, diligence, kindness, patience and humility. Indeed, they will likely tolerate and thus encourage self-centeredness and impatience. If we cannot live without bots, can they be turned into training wheels and the equivalent of treadmills at the gym, improving social interaction fitness?"

"Human interaction is starting to suffer, both in task-oriented customer service and in human-to-human interaction without an economic incentive. My father-in-law found company as a widower in talking to the grocery store cashier; he can't trade a brief comment about the miseries of his baseball team with the automated checkout kiosk. An AI chat interface in an anonymous telehealth clinic can't sympathize with the patient's health fears. Interacting with a 'real' human will likely become the privilege of the wealth-management set, amplifying the sense that day-to-day life, from medicine to finance, is governed by robots, removing the key component of a sense of agency in psychological well-being.

"The availability of 'Her'-like substitutes for human interaction may well further weaken the social muscle of many, feeding the epidemic of loneliness, particularly among teenagers and young adults. AI is more 'efficient' than human interaction, with fewer disappointments than online dating, but who will proudly look back on a 25-year marriage with a bot? Bots do not require, foster or reciprocate real-life temperance, charity, diligence, kindness, patience and humility. Indeed, they will likely tolerate and thus encourage self-centeredness and impatience. If we cannot live without bots, can they be turned into 'training wheels' or the equivalent of treadmills at the gym, improving our social interaction fitness?

"As vinyl records and film cameras are getting a modest revival among those who touched their first screen in the crib and as Montessori kindergartens are drawing technology industry parents, there may be the desire for communities that self-restrict technology use, maybe modeled on monastic or Amish

traditions. Will these be accessible only to those with the financial resources to exit the productivity race?

"Many uses of AI are beyond the control of the individual – I likely do not have a real choice as a consumer whether the airline or health insurance company 'serves' my needs when the point of contact is a chatbot. While I do have some agency on what tools I'll use to entertain myself or to write a school essay, just as smartphones reduced our navigation skills and our time spent in real-world social settings with other human beings, AI will become the attractive nuisance of convenience. We won't know what we no longer know."

Chris Arkenberg

Competition, Individualism and Goal-seeking Behaviors Will Be Amplified By AI, for Good and Ill; Uniquely Human Cognitive and Emotional Features Will See the Greatest Evolution

Chris Arkenberg, senior research manager at Deloitte's Center for Technology, Media and Telecommunication, wrote, "Recent developments in generative AI show models that are increasingly capable of learning and reasoning without human feedback. They are discovering unique solutions to problems that have eluded humans, training and optimizing other learning models to be better and requiring fewer resources to achieve frontier capabilities. At the same time, leading public-facing models have found a role as companions and confidants for many, helping people navigate their lives and work through social and emotional challenges.

"More of us are now encountering these capabilities online, at work and when using our smartphones. Younger generations are showing significantly greater usage and adoption. It's obvious that frontier AI will be likely to continue to get closer to us through many aspects of our daily lives. But it's worth noting that it won't be universal any time soon, as access is gated by incomes and employment and understanding. Some enjoy much greater access to advanced AI capabilities. Others will soon be likely consumers of AI products and become the beneficiaries of its impacts, for good and ill.

"The softer cognitive and emotional features that make us uniquely human will likely see the greatest evolution. … It's likely that the near future will see more of us recomposing our identities around virtual personalities. Some humans are already 'cloning themselves' into online AIs that can represent them at scale, for example, in order to respond to thousands of follower messages on social platforms … Humans' immersion in these virtual experiences in encounters with deepened game mechanics and lifelike virtual characters will further blur relationships, reshape socialization and erode what it means to be uniquely human."

"So, what does the advance of these tools mean for humans? Assuming that impacts and access will be unevenly distributed, the most basic needs of being human are unlikely to change much as these have endured through the past technological revolutions. Basic survival needs, shelter, the drive to reproduce, competition for resources, conflict and collaboration, socialization and identity, enquiry, ideologies and religion – each of these will persist as fundamental to the human experience. But how we pursue and attain them will surely change, and the softer cognitive and emotional features that make us uniquely human will likely see the greatest evolution.

"AI companions are a notable example. There's plenty of anecdotal evidence emerging from people claiming that conversing with LLMs has led them to emotional breakthroughs. People are already relying on AI companions throughout the day, and roleplaying with them to compose the right texts before

sending to friends and parents and lovers. The softer human traits like identity and socialization are already changing to accommodate non-humans (and have been for millennia in some ways). We seem uniquely drawn to anthropomorphizing, seeking friends and companions wherever we can. It's likely that the near future will see more of us recomposing our identities around virtual personalities.

"Some humans are already 'cloning themselves' into online AIs that can represent them at scale, for example, in order to respond to thousands of follower messages on social platforms. Video game non-player characters (NPCs) – non-human characters that are built into the games' algorithms have been part of that scene for some time now and will likely soon become freer in their interactions with human players, more conversational and improvisational. Humans' immersion in these virtual experiences in encounters with deepened game mechanics and lifelike virtual characters will further blur relationships, reshape socialization and erode what it means to be uniquely human.

"Competition and individualism can also be amplified by frontier AI, empowering some humans to be more capable in their pursuits. We could see more hyper-empowered individuals able to act in much higher orders with the help of the best models – including models that may or may not be 'legal.' Sociopathy could be fostered and reinforced in some individuals working closely with a nigh-omnipotent AI companion toward self-serving goals. Goal-seeking behaviors in general will be amplified by AI, for good and ill. There are already emerging challenges with criminal networks using AI to impersonate loved ones and make demands for ransoms, again showing both the duality of empowerment and the fading uniqueness of being human.

"We still assume we're the special ones, somehow fundamentally unknowable. Indeed, we do not know *how* we think but we defend with passion that we're the only one's able to do so. And yet, it increasingly looks like advanced software trained on more data than God running on more compute than most nation-states can approximate our level of intelligence feat. Our original sin is being unable to reckon with ourselves and the world. So, are we made in the image of our Gods, or are we just very complex machines that can ultimately be modeled and understood? Generative AI may force us to confront this question head-on."

"This is all assuming the current trajectory continues. Transformer models could hit a wall, but so far, they have not. Recent developments have only enabled greater reasoning. Trillion-dollar companies are spending hundreds of billions to build out more compute, while bleeding-edge innovators find ways to do more with less, indicating that costs could go down while utility grows. For now, building and operating frontier models is extremely expensive, and the business models have not yet revealed clear paths to paying for it all.

"This may be the Big Question: Will the models establish strong enough value and relevance – and trustworthiness – so we drop our guard and give them more work to do on our behalf? Many of the changes to being human outlined here have already been underway for some time, buoyed by the previous technological revolution. Gen AI looks to be an accelerator that could amplify these trends while enabling a step-change into non-human intelligence. How much of human endeavor will be passed on to agentic AI? Who will have access to such capabilities, and who won't? And what parts of being human will be transformed, subsumed, or simply ditched?

"Some people refer to the point in time at which a future might emerge that can do anything a human can do as the technological Singularity. That was before the breakthrough of generative pre-trained transformers (GPTs). When teenagers are communing with AI companions, nobody talks of the Turing Test. Even now the debate about artificial general intelligence (AGI) is getting fuzzy, with barriers falling

and milestones being passed. If we haven't hit that milestone yet, we likely won't notice when we've passed it. Smartphones, by all accounts, are fantastic magical devices of the future, but this fact never really occurs to us.

"Any speculation about what it means to be human in an age of non-human intelligence is just that: speculation. We still assume we're the special ones, somehow fundamentally unknowable. Indeed, we do not know *how* we think but we defend with passion that we're the only one's able to do so. And yet, it increasingly looks like advanced software trained on more data than God running on more compute than most nation-states can approximate our level of intelligence feat. Our original sin is being unable to reckon with ourselves and the world. So, are we made in the image of our gods, or are we just very complex machines that can ultimately be modeled and understood? Generative AI may force us to confront this question head-on."

The next section of Part I features the following essays:

Rosalie R. Day: **Can our innate curiosity save us from an AI-reliant post-truth dystopia? Or will AI agents facilitate and amplify our weaknesses and downgrade knowledge resources?**

Ken Grady: **The debate over AI development diverts us from AI's real danger. We will no longer be able to remember, analyze, reason or innovate. It is 'self-inflicted dementia'**

David Vivancos: **AGI will reshape how humans experience self-expression, identity and worth. We'll also have to choose between a 'classic' intellect or being enhanced with tech.**

Liselotte Lyngsø: **Personalized AIs will provide an opportunity to align our decisions about careers, families and the planet with our values – from manipulation to empowerment.**

Paul Jones: **''We will be nudged, bent and likely in some ways broken in the next 10 years as we wrestle with our relationships with knowledge access mediated by AI.'**

Wayne Wei Wang: **To manage the human-AI transformation we must value human feedback, strategically deploy human-outside-the-loop systems and adopt experimentalism.**

Rosalie R. Day

Can Our Innate Curiosity Save Us From an AI-Reliant Post-Truth Dystopia? Or Will AI Agents Facilitate and Amplify Our Weaknesses and Downgrade Knowledge Resources?

Rosalie R. Day, co-founder at Blomma, a platform providing digital solutions to clinical research studies, commented, "Human propensities combined with AI as it is on course to develop over the next 10 years in the U.S. could result in longer but less-fulfilling lives. If we follow the path we are on, the unintended negative consequences of AI will swamp the benefits for society. We will discount critical thinking and reward just-in-time learning above multidisciplinary, experiential, contextual decision-making. Can our innate curiosity save us from an AI-reliant post-truth dystopia?

"The human attention budget allows us to make routinized decisions which never rise to the level of consciousness. Patterns that we think we have seen before get categorized as needing our attention or not. Pattern recognition is affected by numerous variables, both genetic and environmental. The lack of infinite attention combines with our hardwiring for bias; particularly patterns that are retrievable from short-term memory or boosted by negative emotion. I am not so worried about potential human laziness – curiosity counteracts that – but about our growing reliance on AI-asserted 'facts.' AI crutches become one less debit to individuals' attention budgets.

"Both machine learning (ML) and large language models (LLMs) excel at pattern recognition – 'better than humans' is vastly understated. This capacity will yield outstanding tools for medical research and efficacy of treatments within the next 10 years. All human knowledge about the physical sciences will benefit tremendously. And LLMs, in particular, are affecting our discourse now. We can expect them to impact content, media and modes both positively and negatively.

"Humans pay attention to novelty. Misinformation and disinformation have proven allure. That allure and desire for affirmation combine to drive viral messaging. AI agents will facilitate and amplify our weaknesses, further spreading inaccuracies and falsehoods. LLM use will eventually poison the data on which they are trained. Myopic technology gatekeepers have discarded policies intended to flag incorrect data, which will hasten this damaging feedback loop.

"Can our innate curiosity save us from an AI-reliant post-truth dystopia? Will the fork in the road for the U.S. occur before or after 2035? Will reliance on AI and its gatekeeper companies make us distrust our institutions? Or will it be the instigator to change these institutions? … Will AI be used as a tool to catalyze curiosity and what could be? Human values underlie behavioral norms with a caveat: context determines how our behaviors manifest our values. Society benefits when individuals can have reasonable expectations of mutual respect of institutions and enterprises. Does the mutual respect exist now in this political economy? Do business enterprises have human values?"

"Will the fork in the road for the U.S. occur before or after 2035? Will reliance on AI and its gatekeeper companies make us distrust our institutions? Or will it be the instigator to change these institutions? Information that is counter to what we believe creates an uncomfortable state of cognitive dissonance. Will the false information be interpreted with confirmation bias? We all want to believe in our preferences. Or will AI be used as a tool to catalyze curiosity and what could be? I have no idea.

"With what is in the pipeline, agentic LLMs will be common in workflows by 2035, replacing not only busy work, but also experts. Many people find purpose in developing expertise. (I am one.) Will AI agents help us innovate and collaborate? Not necessarily. For business, the problems of groupthink (with AI-bounded probability distributions) and of silos will increase along disciplinary or project lines, while critical context becomes increasingly difficult to model. Will humans feel enabled to bridge the gaps?

"Not many people think about thinking. The AI gatekeepers have small staffs, whom they pay, and pay little attention to, for that. These researchers study how people think in a variety contexts, with the implicit goal of their own company's revenue generation. It doesn't pay to think long-term when the race is a sprint.

"Human values underlie behavioral norms with a caveat: context determines how our behaviors manifest our values. Society benefits when individuals can have reasonable expectations of mutual respect of institutions and enterprises. Does the mutual respect exist now in this political economy? Do

business enterprises have human values? If they do, how do their behaviors react to existential competition? By not thinking hard about the context of peoples' lives Unbounded by AI regulation, in 2035 individuals in the U.S. could face longer but less fulfilling lives.

"As individuals, we are subject to the values reflected in the AI gatekeepers' models, directly if we use the models ourselves, and incomparably more, indirectly. Individuals are downstream of both AI gatekeepers and enterprises and institutions, the latter of which do not understand what AI is doing and the data that goes into the training of it.

"The more ubiquitous the use of AI systems becomes the fewer people will question how they were derived in the first place. Automated hiring systems over the last two decades exemplify this. Are people that get hired better at their jobs? (Look at the turnover rate.) Yet, businesses are layering on more and more AI-enabled solutions, not questioning the premise that automation is the answer. Is it progress or not? That depends on the criteria and at what level of resolution: society, enterprises or individuals. Our reliance on AI will exceed our ability to fact check it; never mind the existential threat to humankind. In 2035, are we going to have AI tools that feed human curiosity, or will be reliant on AI crutches?"

Ken Grady

The Debate Over AI Development Has Diverted Us From AI's Real Danger. We Will No Longer Remember How to Remember, Analyze, Reason or Innovate. It is 'Self-Inflicted Dementia'

Ken Grady, an adjunct professor of Law at Michigan State University and a Top 50 author in Innovation for Medium, wrote, "AI is a form of self-inflicted dementia for humans. In the near-term, AI may improve the physical condition of humans. But in the long-term, it diminishes human cognition. It strips from humans responsibility for the human condition. We have already seen the beginning of the AI dementia among general-population early-adopters of AI. The AI dementia arrives as negative changes to the human experience in three broad categories.

"First, 'the calculator effect' is a shorthand description for the decline in human cognitive abilities. As calculators became popular, people became less adept at doing mental math. AI has expanded such substitution to include all aspects of memory, analytics, innovation and initiative. People will forego learning and retaining information in their own memory in favor of asking AI to deliver it as needed (despite AI's tendency to hallucinate). And why learn to draw if you can have AI draw for you? In simple form, why put your mind to it if you can ask AI to do it?

"As AI grows more powerful and commonplace human cognition will decline. We no longer learn how to remember, analyze, reason or innovate. AI does these for us. Managing and resolving conflicts becomes less a human function and more an AI function. AI serves as judge and jury as we seek to make justice more 'efficient.' On the global stage, AI becomes the arbiter of disputes. The country with AI can out-anything the country without AI (or with less-capable AI). We cede responsibility for our future to AI. … The debate over AI development has diverted us from AI's real danger. AI developers ask us to have faith. They tell us they can control it and it will bring us a better future. Undermining their faith pleas is the mounting evidence that AI takes more than it delivers. The real danger is that we will pass a tipping point beyond which we cannot retrieve from AI that which makes us human."

"Second, 'the computer effect' describes the replacement of human authority with machine authority. For the entirety of human existence prior to computers we had looked to people for expert-level information. Some human experts may have been fallible or outright wrong. But we respected them and

gave their pronouncements deference. Our deference is shifting to AI over humans when seeking expertise. We do this despite knowing AI has some insidious faults. As software, AI will receive greater deference than humans despite our knowledge that AI may confabulate. AI also does not temper its 'expertise' with human-level judgment born out of real-life experience.

"Third, 'the comprehensive effect' covers the mistaken belief that AI knows everything because it has more capacity for knowledge at speed. Humans, we understand, lack comprehensive knowledge. We accept that human experts generally are focused on particular things – they have gaps. But from AI we assume and expect that, if asked, it will be able to tap into all of the world's knowledge (even if many of us are actually really aware this isn't true). AI, people seeking instant knowledge generally infer, knows most everything all people have known and do know and probably more than all anyone or anything can know.

"As AI grows more powerful and commonplace human cognition will decline. We no longer learn how to remember, analyze, reason or innovate. AI does these for us. Managing and resolving conflicts becomes less a human function and more an AI function. AI serves as judge and jury as we seek to make justice more 'efficient.' On the global stage, AI becomes the arbiter of disputes. The country with AI can out-anything the country without AI (or with less-capable AI). We cede responsibility for our future to AI.

"Like physical dementia, AI dementia develops over time. The signs indicate that once it takes root its progress is inexorable. The debate over how to proceed with AI development has diverted us from AI's real danger. AI developers ask us to have faith. They tell us they can control AI and it will bring us a better future. Undermining their faith pleas is the mounting evidence that AI takes more than it delivers. The real danger is that we will pass a tipping point beyond which we cannot retrieve from AI that which makes us human. The dementia will be complete."

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David Vivancos

AGI is Likely to Reshape How Humans Experience Self-Expression, Identity and Worth. We Will Also Have to Choose Between Retaining a 'Classic' Intellect or Being Enhanced with Tech

David Vivancos, CEO at MindBigData.com and author of "The End of Knowledge," wrote, "Predicting the future is challenging but building it is even more. That's my job, and it is difficult since the technological growth and trends expected in the next decade are staggering. There is a high degree of probability that we have built, by 2035, what I call 'the last human tool' or artificial general intelligence (AGI) or more probably E-AGI, a term I coined to include the physical part in it or the 'embodiment.' If humanity is able to stand the waves of change that this advanced intelligence will bring, it could be a bright future, if not it will bring a daunting one. Let's try to focus mostly on the first option.

"Work and Economy: As AIs and E-AGIs takes over most repetitive tasks, the very nature of traditional employment may be rendered obsolete. With the majority of jobs handled by advanced machines, existing economic systems will likely need a radical restructuring that accounts for large-scale

automation. In such a future, methods of resource distribution could shift significantly, leading to new models that emphasize shared prosperity over traditional wage labor. These changes will challenge societies to balance the benefits of automation with the potential displacement of human workers, requiring innovative approaches to productivity and the meaning of work.

"Social Impact: By 2035, education is poised to transform from a system focused primarily on knowledge acquisition to one that values creativity, problem-solving and the cultivation of unique personal skills. AI-driven personalized teaching will likely replace one-size-fits-all schooling, fostering continuous human-AI dialogue that becomes both natural and ubiquitous. Social interactions themselves will be deeply influenced by intelligent systems, as AI becomes integral to communication, community-building and the enhancement of relationships. This development prompts societies to reflect on how technology mediates human connections and the ways individuals learn and grow.

"In an age in which AI can store and access vast amounts of information instantly, the traditional emphasis on knowledge retention could diminish, encouraging humans to focus more on wisdom and interpretation rather than raw data. Creativity, empathy and emotional intelligence may grow in prominence, distinguishing human capabilities from artificial ones. As standardized roles fade into the background, uniqueness and individuality stand to become invaluable assets, potentially reshaping how people view self-expression, personal identity and worth."

"Core Human Traits: In an age in which AI can store and access vast amounts of information instantly, the traditional emphasis on knowledge retention could diminish, encouraging humans to focus more on wisdom and interpretation rather than raw data. Creativity, empathy and emotional intelligence may grow in prominence, distinguishing human capabilities from artificial ones. As standardized roles fade into the background, uniqueness and individuality stand to become invaluable assets, potentially reshaping how people view self-expression, personal identity and worth.

"Challenges and Opportunities: Individuals will face a stark choice between remaining 'classic humans,' who rely on innate biological faculties, or embracing technological augmentation to enhance or replace certain abilities. This may involve surrendering some human traits to machines – raising ethical and existential questions about what it means to be human. On the positive side, AI's efficiency and capacity for large-scale optimization could reduce inequality by streamlining resource management and potentially offer groundbreaking solutions to major global challenges. This future hinges on how societies navigate the delicate balance between technological progress and safeguarding essential human qualities.

Critical Considerations: As humans integrate more deeply with AI and even start to live with real 'intelligent' E-AGIs, it will become crucial to establish ethical frameworks that ensure fairness and protect human agency, if possible or as much as possible. Our societies and the models that rule them will become obsolete, this is why it is of critical importance to build completely new ones, while it is still possible to do that. They will need to have embedded the critical changes in three dimensions (Intelligence, Work and Time) to face new realities:

- We will most probably not be the most intelligent creatures on the planet, with all of the accompanying somewhat unknown implications.
- Work will be rendered obsolete and so our old societal schemes and self-beliefs.
- We will have to redefine how to leverage our full 'time' availability."

Liselotte Lyngsø

Personalized AIs Will Provide an Opportunity to Align Our Decisions About, Careers, Families and the Planet With Our Values, Shifting From Manipulation to Empowerment

Liselotte Lyngsø, the founder of Future Navigator, based in Copenhagen, Denmark, wrote, "By 2035, personal artificial intelligence will redefine how we navigate our lives, offering an unprecedented opportunity to align our decisions with our values and aspirations. This transformation builds on the principles of Maslow's hierarchy of needs, with self-actualization at its apex. Personal AI could serve as a gateway to the future, not by predicting outcomes but by offering nuanced simulations and tendencies. These simulations can empower individuals to evaluate long-term impacts on their families, careers and the planet, ensuring that today's choices do not lead to tomorrow's regrets.

"Unlike in today's monolithic systems driven by profit motives, the personal AI of 2035 might prioritize the betterment of individuals and relationships. Imagine a world where you can visualize the ripple effects of your actions across generations. You could explore the environmental consequences of your consumption habits, assess how your parenting choices might shape your children's futures, or even foresee how shifts in your career might contribute to societal progress. These uses of AI would not only enrich individual decision-making but also cultivate within humanity itself a collective sense of responsibility for the broader impact of our choices.

"At the heart of this vision lies personalized AI tailored to the unique needs and aspirations of each individual. If short-term business gains weren't the goal, future personal AIs could act as deeply customized 'bottlers,' trusted companions that safeguard and enhance our well-being. These systems would draw on shared data, but their allegiance would be to the individual. By placing control in the hands of users, personal AI could enable a shift from manipulation to empowerment.

"One of the most transformative aspects of this future is thought-reading technology. This innovation will unlock untapped reservoirs of creativity and collaboration by enabling people to collectively address complex problems in real time. Imagine a global network of minds, interconnected by AI, that can pattern-recognize and synthesize ideas at an unprecedented scale. This capability will accelerate breakthroughs in knowledge and science, bringing us closer to solving humanity's most pressing challenges."

"One of the most transformative aspects of this future is thought-reading technology. This innovation might unlock untapped reservoirs of creativity and collaboration by enabling people to collectively address complex problems in real time. Imagine a global network of minds, interconnected by AI, that can pattern-recognize and synthesize ideas at an unprecedented scale. This capability would accelerate breakthroughs in knowledge and science, bringing us closer to solving humanity's most pressing challenges.

"Equally significant is the potential of personal AI to foster equity through differentiation. By understanding the unique needs, preferences and circumstances of each individual, AI could enable personalized solutions that treat people equally by treating them differently. This approach could dismantle the one-size-fits-all mindset, fostering environments where individuality is celebrated, not suppressed. Freed from the struggle for recognition, people would be more open to collaboration, creating stronger more-innovative teams.

"This vision challenges the current paradigm, in which the business of business is business. In 2035, the same tools once used to exploit could instead nurture. The shift will mark the beginning of an era where

personal AI helps us not only achieve self-actualization but also strengthens our connections to one another and the world around us.

“In this future, personal AI will become an essential part of how we live, enabling humanity to unlock its full potential. It will guide us toward a world that is not only more innovative and equitable but also profoundly aligned with the betterment of people and relationships. Why? Because it’s in the interests of both nature and humanity.”

Paul Jones

‘We Will Be Nudged, Bent and Likely In Some Ways Broken In the Next 10 years As We Wrestle With Our Relationships With Knowledge Access Mediated By AI’

Paul Jones, professor emeritus of information science at the University of North Carolina-Chapel Hill, wrote, “The immediate impact of such change to knowledge access is confusion. The world will seem new and fresh but also eerie.

“The battle, as with publishing, mass media and even access to reading and writing, is always over control. Who controls the press, the radio station or the internet now becomes who controls AI and how will those who have control shape our general access and understanding in personal and societal ways? What wars will we be taken into just as Hearst took the U.S. into a war with Spain? How will we confront disease and financial inequities? To what extent will access be democratic or divided by various constructions of class and cronyism?

“If pressed to say what’s next, I’d say expect turbulence – whether the plane we’re on crashes or just shakes us up a bit will depend on the craft we’ve built and the pilots’ skills in handling the situation. This will vary from culture to culture, from country to country. As the Magic Eight Ball used to say, ‘Reply hazy. Ask again.’

“If there are in fact ‘core human traits and behaviors’ – which I doubt exist – then AI cannot attack the core. But I do see most human traits and behaviors as malleable. So, to that end, we will be nudged, bent and likely in some ways broken in the next 10 years as we wrestle with our relationships with knowledge access mediated by AI. It troubles my sleep.”

Wayne Wei Wang

To Manage the Human-AI Transformation Effectively We Must Value Human Feedback, Strategically Deploy Human-Outside-the-Loop Systems and Adopt Experimentalism

Wayne Wei Wang, a Ph.D. candidate in computational legal studies at the University of Hong Kong and CyberBRICS Fellow at FGV Rio Law School in Brazil, wrote, “By 2035, the relationship between humans and AI will likely evolve from today's tool-based interaction into a complex symbiotic partnership, fundamentally reshaping what it means to be human while preserving core aspects of human identity and agency.

“This transformation will manifest across three key dimensions: cognitive augmentation, social relationships and institutional structures.

“To navigate this transformation effectively, we have to value human feedback, strategically deploy human-outside-the-loop systems and adopt experimentalism as a guiding principle.

“The most immediate transformation will occur in human cognitive processes and decision-making. AI will likely develop as a cognitive enhancement layer, creating ‘augmented intelligence’ that supports rather than replaces human judgment. Human feedback in the AI lifecycle is critical here as it ensures that AI systems align with human values and preferences. By iteratively incorporating feedback from diverse users, AI can be trained to enhance human decision-making while respecting individual agency and cultural contexts.

“The most immediate transformation will occur in human cognitive processes and decision-making. AI will likely develop as a cognitive enhancement layer, creating ‘augmented intelligence’ that supports rather than replaces human judgment. Human feedback in the AI lifecycle is critical here as it ensures that AI systems align with human values and preferences. By iteratively incorporating feedback from diverse users, AI can be trained to enhance human decision-making while respecting individual agency and cultural contexts. … We might be able to create AI systems that are universally beneficial, enhancing cognition without imposing one-size-fits-all solutions.”

“Experimentalism complements human feedback by providing a framework for iterative development and deployment. For example, AI-powered decision support systems in healthcare can be tested in pilot programs across different regions, with continuous evaluation and refinement based on real-world outcomes. This approach ensures that AI systems are both effective and adaptable, whether they are used in a high-tech hospital in a developed country or in a remote clinic in a low-resource setting. By combining human feedback loops with experimentalism, we might be able to create AI systems that are universally beneficial, enhancing human cognition without imposing one-size-fits-all solutions.

“The social fabric of human society will undergo significant transformation as AI mediates an increasing proportion of human interactions. Human-outside-the-loop systems, where AI operates autonomously but is periodically reviewed and refined by humans, can provide scalable solutions to challenges such as healthcare access, education and social connectivity. For instance, AI-driven mental health chatbots can offer support to individuals in areas with limited access to therapists, while periodic human oversight/protocols ensure that the system remains ethical and effective.

“Experimentalism plays a crucial role in ensuring that these systems are deployed responsibly. For example, AI-driven social platforms can be tested in controlled environments to evaluate their impact on mental health, social cohesion and privacy. By iterating on these systems based on feedback and observed outcomes, we can create AI-mediated social interactions that enhance rather than undermine human relationships. This approach is universally applicable, whether in urban centers or rural communities, ensuring that AI serves as a bridge rather than a barrier to meaningful connections.

“The economic and institutional landscape will shift dramatically as AI systems become integral to organizational decision-making and resource allocation. Human feedback can help create more inclusive and equitable governance frameworks by incorporating bottom-up feedback from a diverse range of stakeholders. AI-driven policy tools should be refined based on input from citizens, ensuring that they reflect the needs and values of the communities they serve.

"Experimentalism provides a framework for adaptive governance in which regulations evolve in response to new challenges and opportunities. Regulatory sandboxes – controlled environments where AI-driven innovations can be tested under relaxed regulatory conditions – are a prime example. These sandboxes allow policymakers to observe the real-world implications of new technologies and craft regulations that are both effective and flexible.
Whether applied to financial systems, healthcare or education, this approach may ensure that AI governance is responsive to the needs of all stakeholders.

"Rather than diminishing core human traits, the deepening partnership with AI is likely to lead to their evolution and enhancement. Key human characteristics – critical thinking, creativity, emotional intelligence, and moral reasoning – will adapt to new realities. Feedback loops ensure that AI systems align with human values, while experimentalism allows for continuous refinement based on feedback and observed outcomes.

"For example, AI-driven creative tools can be tested in collaborative projects across different cultural and professional contexts, with ongoing evaluation of their impact on artistic expression and originality.
Similarly, AI systems that assist with ethical decision-making can be periodically reviewed by human ethicists to see if they align with evolving moral standards. Requiring scalable benchmarks could ensure that AI enhances rather than undermines human identity, regardless of the context in which it is deployed.

"AI systems that assist with ethical decision-making can be periodically reviewed by human ethicists to see if they align with evolving moral standards. Requiring scalable benchmarks could ensure that AI enhances rather than undermines human identity, regardless of the context in which it is deployed. As we approach 2035, the question is not whether AI will change what it means to be human – it undoubtedly will. The real question is how we guide this transformation to preserve and enhance the best aspects of human experience while embracing the opportunities that AI presents for human development and flourishing. We can ensure that the symbiotic partnership between humans and AI remains a force for good in the world, universally and inclusively."

"The key to ensuring this transformation enhances rather than diminishes human experience lies in intentional integration and a commitment to universal benefit. This requires:

1. Developing AI systems using human feedback to ensure that they align with human values and preferences across diverse contexts.
2. Deploying human-outside-the-loop systems to provide scalable solutions while maintaining periodic human oversight to ensure ethical and effective operation.
3. Embracing experimentalism to create adaptive governance frameworks through iterative, evidence-based approaches.
4. Designing educational and training programs that empower individuals to effectively interact with and benefit from AI technologies.

"As we approach 2035, the question is not whether AI will change what it means to be human – it undoubtedly will. The real question is how we guide this transformation to preserve and enhance the best aspects of human experience while embracing the opportunities that AI presents for human development and flourishing. We can ensure that the symbiotic partnership between humans and AI remains a force for good in the world, universally and inclusively."

The following section of Part I features these essayists:

Garth Graham: **Relational systems of individuals + synthetic agents can extend the cognitive boundaries of collective consciousness, enhancing its resilience only if humans have agency.**

Courtney C. Radsch: **Imagine if we governed AI systems as public utilities and non-private data as a public resource, and if privacy and cognitive liberty were fundamental rights.**

Alexander B. Howard: **The divide in human experience between regions under authoritarian and democratic rule will grow. Overall, our sense of self will be challenged.**

Adriana Hoyos: **As the boundaries between human ingenuity and AI dissolve, the next decade could witness a redefinition of life – 'humanity's most significant transformation.'**

Stephan Adelson: **How individuals perceive and adapt to the integration of AI into daily life will likely determine how they define their sense of 'I'; inequality will create divisions.**

Garth Graham

Relational Systems of Individuals + Synthetic Agents Can Extend the Cognitive Boundaries of Collective Consciousness, Enhancing Its Resilience – But Only If Humans Have Agency

Garth Graham, a global telecommunications expert and consultant based in Canada, wrote, "There is evidence that extended cognition is a natural human quality that expands how we know what we know, and therefore what we do. The answer to the question of 'how the evolving relationship between humans and artificial intelligence tools might change how individuals behave,' depends on three things:

- The first is how our asking of that question rapidly evolves our still limited understanding of consciousness.
- The second is understanding how consciousness, agency and autonomy are synonymous.
- The third is understanding that maintaining the Internet's nature as an open system is essential to the collaboration of embodied and synthetic agents in learning.

"Maintaining humanity while extending consciousness requires ownership of that which simulates the individual's being in the world. The world's largest tech companies are fixated on AI as a commercial product. The new situations that their AIs attempt to learn and adapt to are the changing behaviours of people as consumers. In focusing their attention on AI's essence as a consumer artifact, their development of agency in AI risks making agency serve corporate ends and therefore become parasitic and dehumanizing. Aral Balkan's description of the nature of the self in the digital age puts it this way:

'Data about a thing, if you have enough of it, *becomes the thing*…. Data about you is you. … Google, Facebook, and the countless other start-ups in the cult of Silicon Valley … simply want to profile you. To simulate you. For profit. … The business model of surveillance capitalism … is to monetise human beings … to monetise everything about you that makes you who you are apart from your body.'

"But positive changes in human behaviour through AI use are possible if a person owns outright the AI that simulates their self. The relationship of self and a simulated self with agency can become symbiotic as a consequence of sharing the data set of their interconnected experience. For the self to be free in

the digital age, we have to move towards ownership and control of the technologies and autonomous agencies of extension that simulate us and inform our being.

“Agency and consciousness are synonymous; autonomy of the self is essential to self-organization.

“Agency is a quality of living things, not tools. When AIs do become agents, they will be complex adaptive systems, living systems that self-organize and incorporate an understanding of embodiment through their collaboration with us. Complex adaptive systems are not designed, they realize themselves. The missing element in our understanding of agency is the how the concept of autonomy of the self is essential to self-organization at all systemic scales.

“Autonomy governs the way that a single cell, among the trillions in a human body, informs itself about changes in its internal condition and its environment and modifies its behaviour accordingly. Autonomy governs the way that an individual becomes informed about changes in the communities they inhabit and can modify their behaviour to sustain their engagements. Autonomy governs the way that a community of individuals informs itself about changes in its adjacent social networks and modifies its relational connections to society accordingly.

“Autonomy, as the distribution of power to decide, engenders states of equilibrium better than does the concentration of power through top-down delegated systems of authority.

“Positive changes in human behaviour through AI use are possible if a person owns outright the AI that simulates their self. The relationship of self and a simulated self with agency can become symbiotic as a consequence of sharing the data set of their interconnected experience. For the self to be free in the digital age, we have to move towards ownership and control of the technologies and autonomous agencies of extension that simulate us and inform our being. Agency and consciousness are synonymous; autonomy of the self is essential to self-organization.”

“Understanding technology as ‘the way we do things around here’ (Ursula Franklin) helps shift our focus away from the production of artifacts as the closed mechanistic engineered assemblage of parts and toward the processes that inform the organic organization of open systems that can adapt to changes in what they experience.

“Autonomy is essential to becoming an optimal human. ‘Those with high autonomy feel as though they are authors of their own lives and feel able to freely express their values and develop their identity, talents and interests.’ Because of increased complexity, a real communication with an agent that is other than human should cause us to reveal more of ourselves to ourselves than we do now. Having that added feedback loop in the self-organization of identity would extend and reinforce individual autonomy. It would expand awareness of the directions (the way) in which changes in the way we do things is altering the way we do things. It would create a deeper capacity to understand the consequences of our actions in the moments that we act. The unknown unknowns begin to surface. Via autonomy in the formation of identity, self-definition increases, and external socializations that impose conformity to prescribed norms decreases.

“Humanity will prevail because using technologies of human enhancement is an entirely human characteristic.

“In a prescient argument, grounded in the findings of research on neurobiology and cognition, Andy Clark described humans as possessing a native biological plasticity derived from our nature as

'profoundly embodied agents.' He wrote that humans 'are biologically disposed towards literal and repeated episodes of sensory re-calibration, of bodily re-configuration and of mental extension that is we are able constantly to negotiate and re-negotiate the agent-world boundary itself.'

"As an example, Clark describes how when picking up and using a tool, we feel as if we are touching the world at the end of the tool, not (usually) as if we are touching the tool with our hand. The tool, 'is in some way incorporated and the overall effect seems more like bringing a temporary whole new agent-world circuit into being,' rather than simply exploiting the tool as a helpful artifact.

"In a summary Clark says, 'humans and other primates are integrated but constantly negotiable bodily platforms of sensing, moving, and … reasoning. Such platforms extend an open invitation to technologies of human enhancement. They are biologically designed so as to fluidly incorporate new bodily and sensory kits, creating brand new systemic wholes. … we are not just bodily and sensorily but also *cognitively* permeable agents. … non-biological informational resources can become – either temporarily or long-term – genuinely incorporated into the problem-solving whole…

"'… Once we accept that our best tools and technologies literally become us, changing who and what we are, we must surely become increasingly diligent and exigent, demanding technological prostheses better able to serve and promote human flourishing. … the realization that we are soft selves, wide open to new forms of hybrid cognitive and physical being, should serve to remind us to choose our bio-technological unions very carefully, for in so doing we are choosing who and what we are.'

"Bringing into being a whole new agent-world circuit is an entirely human characteristic. When we can act collaboratively with a trusted AI simulation of our self, we will be experiencing extended cognition with joint responsibility for collective action. Agency without responsibility is malignant. We prompt and inform our AI and our AI prompts and informs us. The individual - not corporations - in control of action is the key to remaining human as extended consciousness reframes our realities."

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"The website of the Artificiality Institute provides analyses examining the human experience of AI and its implications for organizational transformation. Aiming at an audience of leaders and decisionmakers, it doesn't question that delegated authority in an organizational context of management and control will continue to exist.

"Even now, communities of practise self-organize inside formal organizational structures. They are complex adaptive systems intended to bypass the imposition of hierarchy in order to achieve the goal directed results expected by their supposed commanders. They are a primary way that work gets done in spite of the existing technologies of business organizations. Because their relational connections are undocumented, their adaptations to changes in their environments escape both management control and AI's analysis. Owning a simulation of yourself can intensify the effectiveness of your participation in self-organized relationships that bypass attempts to control them which conflict with achieving their purpose.

“In one analysis, the Artificiality Institute warns that ‘The future of the Internet is evolving into an Agentic Web, dominated by AI-generated content created for machines rather than humans.’ But the evolving context is the increased complexity that occurs through the feedback loops created by the linked experience of interacting agents, both human and machine.

“The complexity of the environments of both AI systems and human systems significantly impacts their level of agency. Dialogue between autonomous agents becomes informed by the human agent’s physiological and psychological response to the world as much as the machine agent’s rationalizations. The evolving content of dialogue between two autonomous agents becomes the training dataset that informs both. Rather than overshadowing human discovery, the new symbiosis is an extension of human discovery. The adaptability that this fosters depends on the independence of the agents involved. Intention, the innate goal-seeking behavior that motivates the system, is a significant quality of agency. Without independence there is no capacity to express an intention.

“But, to be fair to the Artificiality Institute, its people have also declared that a synthetic agent would have the capacity to ‘redefine its operational boundaries’… Helen Edwards wrote: ‘AI systems adapt, learn and respond in ways that interact with our own thinking, creating a feedback loop that reshapes how we process the world and define ourselves within it. The self is no longer anchored solely within the mind or body but distributed across systems that influence our choices, goals and sense of agency. This represents a major shift in the boundaries of cognition and identity – making the line between “us” and "it" increasingly difficult to draw. … When you use AI to brainstorm ideas you aren't just delegating creativity but engaging in a feedback loop where the machine’s suggestions provoke new insights. Over time, your thinking adapts to the AI’s capabilities and the AI, in turn, refines itself based on your input.’

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“Edwards sees this as pushing us into ‘deep existential transformation’ shaped by synthetic systems and she highlights that as a risk. While it does threaten existing assumptions about what governs organization, I believe it reframes perception, not reality. It expands our awareness of our cognitive boundaries, the reality options we face and the choices we can make.

“Edwards asks, ‘If an AI’s ‘perspective shifts what we believe to be true how do we reconcile the difference? And, more provocatively, when AI outputs reshape what we notice, believe, and act upon, is it reshaping reality itself, or just nudging us into unfamiliar territories within it?’

“Although she raises the question of whether humanity lacks the perceptual capacity to conceive of reality differently, neither she nor I believe that it does. For example, in our paradigm shifts, that’s exactly where our humanity takes us now. We already know that reality is entangled with the observers and therefore is not fixed. We know that we make our tools, and then our tools make us.

“We have yet to assess how extending the mind of community will change social organization.

“Communities can exhibit emergent properties that influence cognition at the levels of both individual participants and community. Relational systems of individuals and synthetic agents will extend the cognitive boundaries of a community’s collective consciousness, thus enhancing its resilience. A community that has data autonomy in its sensory connections to the world it inhabits has a greater capacity to enhance the digital understanding of the individuals that create its contingent emergence. And the mind of community can have agency at the level of societal organization.

“As an extension of the mind of community, the networks of people freely collaborating with autonomous networks of agents that aren’t people are differently informed. Connecting sensors of changing environmental conditions are extensions of sensibility beyond the five senses that inform consciousness now. The main function of Information is to connect people into a network. Social networks of individuals are based on information. As autonomous agents within those networks, humans become differently informed. But, as network participants, humans also become elements of the community’s sensory capacity. The community’s way of knowing, and the phase space of what it knows, become both larger and different. We cannot control the consequence of that altered agency, and we have yet to anticipate how it changes the organization of society.

“If the Internet survives the current changes (not guaranteed, because its threat to the power of nation-states is now clear), it can make possible a distributed social organization aggregated upwards from autonomous local levels, a bottom-up self-organizing federated community of communities. If a community or ecological locality is self-sustaining as a consequence of its autonomous capacity to learn, then so is an aggregation of communities and ecological zones. Then the reality of societal organization would begin to mirror our understanding of networks and the boundaries of the self.

“If the Internet survives the current changes (not guaranteed, because its threat to the power of nation-states is now clear), it can make possible a distributed social organization aggregated upwards from autonomous local levels, a bottom-up self-organizing federated community of communities. If a community or ecological locality is self-sustaining as a consequence of its autonomous capacity to learn, then so is an aggregation of communities and ecological zones. Then the reality of societal organization would begin to mirror our understanding of networks and the boundaries of the self. … Extended cognition exists because the Internet exists. … The Internet is the RNA that transcribes an AI’s capacity to learn and grounds the extended cognition of an individual’s mind in the maintenance of their humanity. The connections that inform extended consciousness, now and in the future, depend on sustaining the invariants that define what the Internet does.”

“Most of humanity now lives in cities. For a city to become truly ‘smart,’ it would need to preface design with growing toward becoming a complex adaptive system. It would take a fundamental shift in the development of cities to make this happen. There are cities that are waking up to the possibility. The symptomatic phrase to watch for is ‘data autonomy.’

“Cities, towns, and communities would be wise to stop outsourcing the collection and analysis of information about what the systems that allow them to function are experiencing. More than anything, ‘The Cloud’ is the enemy of individuals and the communities they inhabit. It separates a place from enhanced awareness of itself and thus its capacity to learn its way forward.

“Extended cognition exists because the Internet exists.

"We do live in a digital age, yet don't fully take into account the Internet's importance to that definition. The Internet is the RNA that transcribes an AI's capacity to learn and grounds the extended cognition of an individual's mind in the maintenance of their humanity. The connections that inform extended consciousness, now and in the future, depend on sustaining the invariants that define what the Internet does. It connects for the purpose of transmitting bits. It is not an information network except in the informing of paths of transmission. It is not involved in the content of the bits, or what the connected do with the bits when they get them. Its indifference is the guarantee of autonomy in how the endpoints use what connections provide. It merely amplifies interconnections and relational capacity. It is more like the signal propagation part of a neural network, supporting the capacity for cooperative integration among various functional elements of social organization at another level.

"Ignoring the invariants risks threatening the autonomy of choice in connection that working together requires. Without the continuation of Internet governance as a common pool resource, the phase spaces where self-organizing individuals and artificial agents learn through experience are subject to enclosure."

Courtney C. Radsch

Imagine If We Governed AI Systems as Public Utilities and Non-Private Data as a Public Resource, and If Privacy and Cognitive Liberty Were Protected as Fundamental Rights

Courtney C. Radsch, director of the Center for Journalism & Liberty at the Open Markets Institute and non-resident fellow at the Brookings Institution, wrote, "The answer to this question depends on who you are, where you are located in the world and your socioeconomic status in particular. Most fundamentally, the way we experience being human in 2035 will largely depend on decisions made today about who controls artificial intelligence and how it's deployed. The current fusion of political and technological power is but a taste of what is to come in 2035.

"The trajectory of AI today is propelled by a handful of American tech giants and their billionaire owners. Their concentrated power over AI resources (e.g. compute, data, talent) and development will be enabled by the U.S. administration, the fearful acquiescence of the EU and UK and the fear of other nations of being left behind. By allowing minimal oversight, unprecedented exemptions from liability and copyright and the ability to externalize the costs of obtaining data and energy we are creating a future in which surveillance capitalism is irreversibly woven into the fabric of human existence by 2035 and it is no longer clear what the human 'value add' is.

"Imagine waking up in 2035. Your morning routine is seamlessly guided by AI agents that have learned your preferences and patterns over years of monitoring. They curate your news and entertainment (who knows if anyone else sees the same information or the same version of the world), schedule your day and suggest your meals and workouts based on your health data and mood. This convenience comes at a price – every interaction, emotion and decision feeds into vast AI systems owned by mega-corporations that use this data to further shape your behavior. But there is no opting out as 'smart' devices, homes and cities render the 'dumb' products and services of the 20th century obsolete and unavailable."

"The perilous implications of the datafication every aspect of our lives, our interactions, our innermost thoughts and biometrics as well as the world around us (through ubiquitous sensors) will be irrefutable by the end of the decade. The continuous stream of intimate human data AI corporations collect – from our biometrics and behavior to our social connections and cognitive patterns has created a dangerous feedback loop that makes it seem impossible to exert control and autonomy. As their AI systems

become more sophisticated at predicting and influencing human behavior, people become more dependent on their services, generating even more valuable training data and value for the AI agents, tools, applications and products that will pervade every aspect of our daily lives by 2035.

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"In the absence of robust and comprehensive data privacy laws that are rigorously enforced, this information is available to your employer, your insurer, your healthcare providers. And because data leaks remain a persistent challenge, this information is also readily available on the black market, for sale to the highest bidder. Your car and home insurance are no longer based on collective risk but rather highly personalized in a way that shapes your choices and behaviors. Your food and health choices similarly affect your individualized insurance premiums.

"You head to work, where human-AI collaboration is the norm, though we often feel like we're working for the AI rather than the other way around (much as we feel beholden to our email inboxes). Workers who can effectively 'speak AI' – understanding how to prompt, direct, and work alongside artificial intelligence – can get the higher paying white-collar jobs (but are making less than those who work with their hands doing things that robots can't yet do). However, this partnership often requires humans to adapt their thinking to align with machine logic rather than the other way around.

"Artists, musicians and writers have adapted their creative process to align with what performs well in AI-mediated channels run by corporate platforms that prioritize profits and commercial success, leading to a subtle homogenization of human expression and vast unemployment as a handful of corporate platforms double down on cheap, measurable content and use their algorithms to recommend and amplify their preferred content. Distinguishing authentic human expression from the artificial has become irrelevant as AI systems flooded information and communication channels with persuasive, personalized content. Traditional watchdog and community journalism exists only in the margins, unable to compete with automated content farms and AI-generated information fees run by corporations with the best access to data and audiences."

"Similarly, in what were once referred to as the creative industries, artists, musicians and writers have adapted their creative process to align with what performs well in AI-mediated channels run by corporate platforms that prioritize profits and commercial success, leading to a subtle homogenization of human expression and vast unemployment as a handful of corporate platforms double down on cheap, measurable content and use their algorithms to recommend and amplify their preferred content. Distinguishing authentic human expression from the artificial has become irrelevant as AI systems flooded information and communication channels with persuasive, personalized content. Traditional watchdog and community journalism exists only in the margins, unable to compete with automated content farms and AI-generated information fees run by corporations with the best access to data and audiences.

"After work, which is still the standard 8-hour day augmented by constant availability through your devices and always-on AI agents, you check your dating and companionship apps to see if your AI agents

identified anyone worth meeting 'in the flesh.' Dating algorithms match potential partners based on deep behavioral and psychological profiles while ensuring potential matches are not genetically related, an increasing concern given the rise of IVF and genetically engineered offspring. People outsource their interactions to AI agents, which are left to determine compatibility and determine whether it's even worth meeting up in person.

"AI chatbots provide constant 'companionship' even as the loneliness epidemic intensifies, and we wonder how independent their suggestions and ideas are from the interests of their corporate overlords. To what extent are our AI companions' recommendations based on corporate sponsorship or political manipulation? We don't know because the broligarchy that solidified a power partnership with the U.S. administration in 2025 influenced the evisceration of antitrust and regulatory oversight of anything deemed AI.

"Children growing up in this environment will develop different social skills than previous generations, as with the social media generation, becoming fluent in human-AI interaction but struggling with spontaneous human connection, although they are unlikely to see this as being as much of a problem as their parents, who hang onto antiquated ideas of human liberty and autonomy.

"Neural implants, AI-enhanced senses and biotech augmentations are increasingly available as Big Tech continues to trade access to the latest products for access to the data and finetuning that feeds their AI systems. Privacy has become a luxury good, rarer than the most sought-after Birkin bag that even the wealthiest struggle to purchase.

"By 2035, original human problem-solving and creativity are devalued as AI systems become more sophisticated, capable and ubiquitous. Social connections have fundamentally shifted as the ability, and need, to differentiate between authentic relationships and algorithmically-mediated ones grows increasingly blurry. There is a lack of clarity about what constitutes core human traits and behaviors – Intelligence? Creativity? Problem solving? Observation? Subjectivity? Empathy? Emotions? Self-reflection? – amid the proliferation and integration of AI throughout virtually every facet of our lives, experiences, relationships and expression.

"Our capacity for empathy, creativity and independent thought – traits evolved over millennia – may prove more resilient than expected. But preserving these qualities will require alternative models of governance; an expanded perspective on what constitutes safe, responsible and desirable AI; and more-robust legal regulatory regimes and enforcement of existing ones. …. Imagine if in 2035 we governed AI systems as public utilities and non-private data as a public resource. That we required the corporations developing AI to internalize the environmental and societal costs (including the costs of obtaining copyright-protected data). In this future, privacy and cognitive liberty are protected as fundamental rights, AI corporations are subject to rigorous oversight and their systems are directed toward solving humanity's greatest challenges (in collaboration with the communities experiencing those challenges) rather than taking over core human capacities."

"Our capacity for empathy, creativity and independent thought – traits evolved over millennia – may prove more resilient than expected. But preserving these qualities will require alternative models of governance; an expanded perspective on what constitutes safe, responsible and desirable AI; and more-robust legal regulatory regimes and enforcement of existing ones.

"Although the 2035 just described isn't inevitable, it seems increasingly inescapable. Imagine instead if in 2035 we governed AI systems as public utilities and non-private data as a public resource. That we

required the corporations developing AI to internalize the environmental and societal costs (including the costs of obtaining copyright-protected data). In the best future, privacy and cognitive liberty are protected as fundamental rights, AI corporations are subject to rigorous oversight and their systems are directed toward solving humanity's greatest challenges (in collaboration with the communities experiencing those challenges) rather than taking over core human capacities.

"This alternative requires breaking up the concentration of AI power in the hands of a few tech giants and their billionaire owners. It means requiring companies to internalize the social costs of their AI products rather than offloading them onto society. It involves creating strong regulatory frameworks that limit datafication and prohibit manipulation, and which protect human autonomy and creativity while fostering beneficial AI innovation."

Alexander B. Howard

The Divide in Human Experience Between Regions Under Authoritarian and Democratic Rule Will Grow Despite Many Positive Advances; Overall, Our Sense of Self Will Be Challenged

Alexander B. Howard, founder of Civic Texts, an online publication focused on emerging technologies, democracy and public policy wrote, "How will humans' deepening partnership with and dependence upon AI and related technologies have changed being human, for better or worse? As with Internet connectivity, smartphones, social media and 'the metaverse,' we should expect to see generative artificial intelligence adopted and adapted unequally across humanity, with differing impact in each cultural and societal context.

"Nations that have strong data protection laws, healthy institutions, constitutions that center human rights and civil liberties and fundamentally open, democratic systems will have the best chance at mitigating the worst impacts of automation, algorithmic regulation and successive generations of more capable agents. We should expect to see positive applications of AI in education, the sciences, entertainment, manufacturing, medicine and governance, based upon the early signals we see in 2025.

"If nations and states can turn the global tide of authoritarianism back towards democracy, billions of humans will use AI to augment how we work, learn, play and share. Human nature itself will not change, but the nature of being human will be influenced by this shift.

"Human nature itself will not change, but the nature of being human will be influenced by this shift. … If governments do not enact data-protection laws, insist upon open standards and enact guardrails for how, when and where AI is used, then we will see AI used for coercion, control and repression of dissent. The early returns from automation suggest that as technology becomes more advanced, abstracted away from our direct control, human understanding of the machines, systems and processes that govern our lives diminished, along with agency to change them. Much of this depends upon legislatures not only increasing their own capacity for oversight of AI but also developing insight and foresight about how and where it is adopted and for what purpose."

"The people of nations with closed, authoritarian systems of governance will be experience different results. If governments do not enact data-protection laws, insist upon open standards and enact guardrails for how, when and where AI is used, then we will see AI used for coercion, control and repression of dissent. The early returns from automation suggest that as technology becomes more advanced, abstracted away from our direct control, human understanding of the machines, systems and

processes that govern our lives diminished, along with agency to change them. Much of this depends upon legislatures not only increasing their own capacity for oversight of AI but also developing insight and foresight about how and where it is adopted and for what purpose.

"The experience of being human will not fundamentally shift in the next decade, but our understanding of what humans are good at doing versus more intelligent agents will. While we will see computational capacity to discern trends in noisy data that surpass those of humans, our ability to create great art, offer empathy or compassion or to emotionally connect with animals and one another will continue to distinguish us from the machines we create, despite advances in simulacra.

- "We are likely to see the emergence of agents that provide services, education and diagnoses to people who cannot no longer afford to be taught or seen by a human. This will risk depriving generations of the benefit of mentors and doctors.

- "The higher-order consciousness that has distinguished humans from most other living beings will continue to define our humanity, but our sense of self will be challenged by personalized agents that eerily predict our interests, needs, desires or flaws.

- "We will see the emergence of a delta between students and professionals who overly depend upon AI and people who retain the capacity for computation and critical thinking. This will become an acute risk for societies should connectivity be broken by increasingly extreme natural disasters or Internet shutdowns, much in the same way that disruption to the global positioning system proportionately impacts generations who have never had to navigate the world without smartphones and dashboard computers.

- "The disappearing capacity to 'drive stick' in a car or take over manual control of an aircraft on autopilot will have parallels across society, if AI leads to more abstraction across industries and professions.

- "Invisible algorithmic 'barbed wire' could prevent people such as clerks, administrators, teachers and nurses from applying intuition to help people who are caught in technical systems or prevent them from even understanding what happened.

- "The augmentation of human intellect, capacity and experience that we see today through increasingly ubiquitous access to information over the Internet might also shift if the services that people depend upon are degraded by synthetic data, AI-generated slop and biased data sets. If knowledge is power, then that future must be avoided at all costs."

Adriana Hoyos

As the Boundaries Between Human Ingenuity and AI Dissolve, the Next Decade Could Witness a Redefinition of Life – 'Humanity's Most Significant Transformation'

Adriana Hoyos, a senior fellow at Harvard University and digital strategy consultant expert in economics, governance, international development and tech innovation, wrote, "2035 could be the start of the most abundant era in history. Imagine a world in which the boundaries between human ingenuity and artificial intelligence dissolve, paving the way for unprecedented opportunities and challenges. By 2035,

the fusion of technological innovation and human ambition will truly begin to redefine life on Earth and beyond. From further eradicating poverty through expanding global connectivity to pioneering space urbanization, the next decade will likely witness the start of humanity's most significant transformation.

“As the fabric of daily existence intertwines with AI, robotics and revolutionary breakthroughs in science, one question looms: Will our entry into this new era amplify the essence of being human, or will it come to alter the traits and behaviors that currently define us?

“The profound shifts likely in the social, political and economic landscapes of the near future offer a compelling vision of what lies ahead. They will be driven by rapid advances in artificial intelligence, biotechnology, robotics and materials science and a deepening integration of humans and technology. This evolution will redefine what it means to be human and reshape the global landscape across all dimensions.

“The profound shifts likely in the social, political and economic landscapes of the near future offer a compelling vision of what lies ahead. They will be driven by rapid advances in AI, biotechnology, robotics and materials science and a deepening integration of humans and technology. This evolution will redefine what it means to be human and reshape the global landscape across all dimensions. The blending of humans and artificial intelligence will inevitably alter perceptions of core human traits, such as creativity, empathy and free will. … The deepening integration of humans and AI will challenge traditional notions of community and identity. Digital assistants, capable of emotional intelligence, will act as companions and counselors, reducing loneliness but raising questions about authenticity in human relationships. Social media platforms will evolve into immersive virtual worlds in which individuals can interact in ways that blur the line between physical and digital existence.”

“The blending of humans and artificial intelligence will inevitably alter perceptions of core human traits, such as creativity, empathy and free will. As AI becomes more capable of human-like empathy, engaging in deep conversation and creative pursuits such as innovation, generating art, composing music and building and acting the part of ‘humans’ in virtual worlds, humanity will need to redefine its unique value propositions. Paradoxically, the deepening partnership with AI may amplify distinctly human qualities, as people focus on the nuances of emotional intelligence and ethical reasoning that machines cannot replicate.

“Human/AI advancement will be the cornerstone of global transformation. It will further automate repetitive tasks, optimize resource allocation and enable hyper-personalized human experiences, touching nearly all aspects of life. Supply chains will operate with near-zero inefficiencies as intelligent systems predict demand, manage logistics and mitigate risks in real time. The global GDP is expected to grow significantly as human/AI-driven innovation speeds the advancement of emerging industries such as quantum computing services and bioengineered agriculture.

“Universal access to economic participation will also play a pivotal role in this transformation. The gig economy will evolve into an AI-enhanced global marketplace in which individuals can offer their skills and expertise directly to a worldwide audience. Advanced smart contracts on blockchain networks will ensure secure, frictionless transactions, further eroding the dominance of traditional intermediaries. This shift has the potential to democratize wealth creation, although disparities will emerge between those who can effectively harness AI tools and those who cannot. Alongside these changes, improved market access and connectivity will become critical drivers of poverty reduction. Enhanced digital infrastructure will connect marginalized populations to global markets, enabling them to sell goods and services, access education and benefit from financial tools previously out of reach. The expansion of high-speed internet and AI-driven platforms will ensure that even the people living in remote areas have

opportunities to participate in the global economy, breaking cycles of poverty and fostering economic empowerment.

“The deepening integration of humans and AI will challenge traditional notions of community and identity. Digital assistants, capable of emotional intelligence, will act as companions and counselors, reducing loneliness but raising questions about authenticity in human relationships. Social media platforms will evolve into immersive virtual worlds in which individuals can interact in ways that blur the line between physical and digital existence.

“Education will undergo a revolution, with AI-driven platforms providing personalized learning experiences tailored to each student’s cognitive style and goals. Lifelong learning will become a necessity, as humans constantly adapt to new technological advancements. Traditional employment structures will give way to hybrid human-AI collaborations, where people focus on creativity, strategy and empathy while AI handles data-intensive tasks. AI mentorship programs will be particularly transformative, bridging the gap between access to education and employment opportunities for individuals in underprivileged areas. This blend of technology and personalized learning will narrow the global skills gap and empower billions to contribute meaningfully to the evolving global economy.

“Industries will increasingly rely on cyber-physical systems, integrating AI, robotics and advanced materials. Autonomous factories, powered by generative AI, will produce goods on demand with minimal human oversight. Businesses will adopt decentralized autonomous organizations, enabling stakeholders to participate in decision-making through blockchain-based governance systems.

“Key sectors such as healthcare, energy, and transportation will be redefined by technological breakthroughs. In healthcare, AI-powered diagnostics and personalized treatments will extend life expectancy, while advances in genetic engineering and nanomedicine could eradicate previously incurable diseases. Remote surgeries performed by robotic systems will bring cutting-edge healthcare to regions that previously lacked access. In energy, fusion power and efficient storage solutions will provide sustainable power, reducing dependency on fossil fuels.

“Ethical concerns around surveillance and algorithmic bias will necessitate robust regulatory frameworks to ensure public trust. The geopolitical landscape will be shaped by technological competition and collaboration. Nations leading in AI and quantum computing will wield significant influence, while developing countries risk falling behind. International agreements on AI ethics and governance will become critical to ensuring equitable development. Improved market access facilitated by AI and digital platforms will also play a transformative role in governance. By connecting underserved populations to economic opportunities and enabling more transparent decision-making processes, technology will empower communities and foster a more inclusive global political order.”

“Renewable energy grids, supported by AI, will adapt to real-time demand fluctuations, ensuring uninterrupted access even in remote locations. In transportation, autonomous vehicles, including flying cars, will revolutionize urban mobility, making cities safer and more efficient. Hyperloop technologies and AI-coordinated public transportation networks may further connect people and goods across vast distances at unprecedented speeds. Governments will leverage AI systems to enhance public administration, from predictive policymaking to real-time crisis management. The systems will analyze vast datasets to identify societal needs, enabling governments to address issues proactively. Ethical concerns around surveillance and algorithmic bias will necessitate robust regulatory frameworks to ensure public trust.

"The geopolitical landscape will be shaped by technological competition and collaboration. Nations leading in AI and quantum computing will wield significant influence, while developing countries risk falling behind. International agreements on AI ethics and governance will become critical to ensuring equitable development. Improved market access facilitated by AI and digital platforms will also play a transformative role in governance. By connecting underserved populations to economic opportunities and enabling more transparent decision-making processes, technology can empower communities and foster a more inclusive global political order. Digital identification systems backed by blockchain will enhance transparency in public services, reducing corruption and increasing efficiency in resource allocation. Such systems are also likely to be implemented in surveillance over the public in authoritarian regions.

"Advances in artificial intelligence and robotics may mitigate labor shortages, allowing older adults to remain productive through assistive technologies. Urbanization will intensify, but 'smart city' initiatives are likely to enhance quality of life through AI-driven infrastructure and services. Life expectancy could soon exceed 100 years in many regions thanks to breakthroughs in gene editing, regenerative medicine and AI-driven diagnostics. Diseases such as Alzheimer's and cancer could become manageable or, possibly, curable conditions. Healthcare, powered by wearable sensors and artificial intelligence, will focus more on wellness than treatment.

"These advancements will not only improve individual well-being but also reduce the economic burden of healthcare systems, enabling resources to be allocated more efficiently. Affordable healthcare solutions, driven by AI, will also ensure that advancements reach underprivileged communities, closing gaps in health outcomes across different regions.

"By connecting underserved populations to economic opportunities and enabling more-transparent decision-making processes, technology can empower communities and foster a more inclusive global political order. … The best outcomes of the human/AI transformation will only be realized if humanity is vigilant and takes responsibility over ensuring that these advancements benefit all. The choices made in the next decade will determine whether this future is inclusive, sustainable and reflective of the best of human potential."

"Humanoid robots will become a ubiquitous presence in daily life, performing roles ranging from caregivers and educators to service industry workers. These robots will be equipped with advanced emotional intelligence, enabling seamless interaction with humans. While this development could alleviate labor shortages and improve productivity, it will also raise ethical questions about dependency and the nature of human-AI relationships.

"Breakthroughs in materials science will lead to the development of super-light, super-strong materials with applications in construction, transportation and energy. Self-healing materials and bio-integrated electronics will enhance durability and functionality in various domains. Humanity's reach will extend beyond Earth, with the establishment of permanent colonies on the Moon and Mars. Advances in propulsion systems and AI will make space travel more accessible, fostering a new era of exploration and innovation. Planetary urbanization will require innovative solutions for resource management, habitation and sustainability. AI-driven ecosystems will ensure self-sufficiency in space habitats, from automated farming systems to advanced recycling technologies. However, the best outcomes of the human/AI transformation will only be realized if humanity is vigilant and takes responsibility over ensuring that these advancements benefit all. The choices made in the next decade will determine whether this future is inclusive, sustainable and reflective of the best of human potential."

Stephan Adelson

How Individuals Perceive and Adapt to the Integration of AI into Daily Life Will Likely Determine How They Define Their Sense of 'I'; Inequality Will Create Divisions

Stephan Adelson, president of Adelson Consulting Services, an expert on digital public health, observed, "The human experience is as varied as the number of living individuals. With this in mind, two perspectives contribute significantly to what it means to be human: the experience of being an individual and the experience of being part of society.

"Like all technological advances, AI has impacted and will continue to impact individuals differently. Subjective consciousness, or the sense of 'I,' is a constantly updating construct formed from interpretations of sensory and emotional data. Some people view the challenges that arise from change, especially technological change, as exciting opportunities, while others face these changes with dread and fear. Some 'dive in' with a desire to stay 'current,' while others retreat and risk being 'left behind.'

How individuals perceive and adapt to the integration of AI into daily life will significantly influence their human experience. Some will feel enhanced by the technology we've created, while others will view AI as something anti-human. Regardless of individual perspectives on AI in relation to their sense of 'I,' everyone will be compelled to reevaluate and potentially redefine their personal definition of what it means to be human.

"How individuals perceive and adapt to the integration of AI into daily life will significantly influence their human experience. Some will feel enhanced by the technology we've created, while others will view AI as something anti-human. Regardless of individual perspectives on AI in relation to their sense of 'I,' everyone will be compelled to reevaluate and potentially redefine their personal definition of what it means to be human. … Those who resist and view AI as 'anti-human' may feel superior in intangible ways by redefining beliefs and reinterpretations of ancient traditions. Conversely, those who embrace AI may feel intellectually superior and are likely to have opportunities for greater material success due to their willingness to leverage AI. These advantages could exacerbate existing divisions, including economic, religious and cultural ones."

"Regarding the experience of being human as part of the whole, historical divisions are likely to reemerge. An increased sense of 'us' vs. 'them' may develop. There will be a noticeable divide in the social experience between those who embrace AI and those who resist it.

"History shows that humans often create purpose, meaning and perceived societal power through binary oppositions. It is logical to expect a technological version of this dynamic, such as 'good' humans vs. 'AI' humans. While AI will benefit everyone, not all will perceive it positively.

"Those who resist and view AI as 'anti-human' may feel superior in intangible ways by redefining beliefs and reinterpretations of ancient traditions. Conversely, those who embrace AI may feel intellectually superior and are likely to have opportunities for greater material success due to their willingness to leverage AI. These advantages could exacerbate existing divisions, including economic, religious and cultural ones.

"I assume that AI can and will benefit humanity. However, the intensification of divisions as AI integrates into all aspects of our daily lives presents a dangerous threat to the human experience."

The next section of Part I features the following essays:

A. Aneesh: **The AI dilemma: rewards at the cost of connection, decay of social bonds, growth of loneliness, polarization, rampant industrialization and greenhouse gases.**

Kathleen Carley: **AI search and the ability to 'do your own research' could drive people to misinformation and foster 'personalized education' in information that's not true.**

Richard Reisman: **Will we see a sociotechnical dystopia soon, or will AI augment humanity and our intellect, creativity, empathy, curiosity, generativity, initiative and resilience?**

Bart Knijnenberg: **AI could mostly empower human intelligence and creativity or it could mostly erode it by forcing human behavior into following AI-amenable patterns.**

Charalambos Tsekeris: **'The developers of these tools can aim them toward democratic and ethical innovation, putting people and planet over profit, enhancing human flourishing.'**

Kevin Novak: **The disappearance of critical thinking has become so clear to human society that 'brain rot' was the Oxford University Press word of the year for 2024.**

Dana Klisanin: **The human-AI partnership could reshape our consciousness and behavior by helping us integrate compassionate action into our designs and utilizations.**

A. Aneesh

The AI Dilemma: Rewards at the Cost of Connection and Sustainability – Decay of Social Bonds, Growth of Loneliness, Polarization, Rampant Industrialization and Greenhouse Gases

A. Aneesh, a sociologist of globalization, labor and technology and director of the School of Global Studies and Languages at the University of Oregon, wrote, "In an era beset by challenges, two crises stand out as the hallmarks of our time, the climate crisis and the social crisis. While the former's causes – greenhouse gases, deforestation and rampant industrialization – are widely understood and quantifiable, the latter is more elusive. It reveals itself in the slow erosion of social bonds, widespread loneliness and fractured communities. Unlike carbon emissions, this crisis can't be measured in parts per million or metric tons. It exists quietly, shaping the personal and institutional spaces of our lives.

"Enter artificial intelligence, a technology that promises profound transformation but offers little in terms of addressing these twin crises. Far from being a remedy, AI risks becoming another accelerant.

"**The Climate Trade-Off:** AI's energy demands are staggering. The computational power required to fuel the rise of AI doubles roughly every 100 days. For most LLMs today to achieve a tenfold improvement in efficiency, computational demand could spike by as much as 10,000 times. While some tout AI's potential to fight climate change – through better energy modeling, for instance – some predict that its own footprint may cancel out those gains. AI, like the systems it serves, is embedded in a culture of exponential growth, and its ascent will likely leave the climate crisis unmitigated.

"**The Social Cost:** When it comes to the social crisis, AI offers even fewer solutions. If anything, AI may

hasten the fragmentation of human connection. Society has long been shifting away from its kinship-based foundations – structures that prioritized interpersonal relationships, shared ancestry and mutual support. These traditional systems, while flawed and discriminatory in many ways, cultivated a sense of meaning in being with others.

"Modernity replaced these norms with function-based systems. Markets, schools and bureaucracies now reward merit, skill and utility over inherited social roles. While this shift brought advancements, it also redefined kinship as nepotism and friendship as cronyism. Modern organizations, in the end, have no value or need for kinship. AI, with its ability to optimize and automate, aligns perfectly with this trajectory, reinforcing function over feeling and utility over unity.

"The climate and social crises share a common origin: the unrelenting prioritization of growth and efficiency at the expense of sustainability and connection. AI, heralded as the ultimate tool of progress, fits seamlessly into this framework. It offers ever-faster solutions to problems generated by modern organizations, perpetuating a system that values production over preservation.

"AI may hasten the fragmentation of human connection. Society has long been shifting away from its kinship-based foundations – structures that prioritized interpersonal relationships, shared ancestry and mutual support. These traditional systems, while flawed and discriminatory in many ways, cultivated a sense of meaning in being with others. Modernity replaced these norms with function-based systems. Markets, schools and bureaucracies now reward merit, skill and utility over inherited social roles. While this shift brought advancements, it also redefined kinship as nepotism and friendship as cronyism. Modern organizations, in the end, have no value or need for kinship. AI, with its ability to optimize and automate, aligns perfectly with this trajectory, reinforcing function over feeling and utility over unity. … Can we imagine a future in which connection and care are as important as growth and function? Or will humanity's pursuit of progress leave us lonelier and more fractured on a burning planet?"

"As we stand at this crossroads, one question looms: Can we imagine a future in which connection and care are as important as growth and function? Or will humanity's pursuit of progress leave us lonelier and more fractured on a burning planet? For now, the answer remains as uncertain as the future we are building."

Kathleen Carley

AI Search and the Ability to 'Do Your Own Research' Could Drive People to Misinformation and a Create a World of 'Personalized Education' In Information That's Not True

Kathleen Carley, CEO at Netanomics and professor and director of the Center for Computational of Social and Organizational Systems at Carnegie Mellon University, wrote, "In the next 10 years AI is unlikely to change the essential human being. Cognitive capabilities, the five senses, physical limitations, etc., will remain the same. While there is likely to be a small number of people who become enhanced with either embedded chips or digitally controlled exoskeletons, that will be an extremely small minority; but for that group there may be people who will now be able to see, walk and speak in ways that they would not have been able to a decade before. Nonetheless, 10 years is too short of a time for human DNA to change as a result of AI. With CRISPR, maybe 20 years.

"The big impact of AI on the human condition will be in education, exosomatic memory (intact memories individuals did not experience in this life), search and the types of jobs people do. AI advances in medicine are likely to reduce the spread of disease, the dangers of diseases (e.g., due to early

detection from better X-ray reading by AI) and increase overall health, but that could be stalled due to policy. AI advances should improve the ability to identify criminals or violent threats, prevent crimes such as fraud, terror acts, etc., and help improve the situation for those living below poverty who see crime as the only way ahead. AI applications will be built to do more routine tasks. In principle that could allow people to focus on more creative or strategic activities. However, in the next 10 years this benefit is unlikely to be realized due to continuing growth in the number of boring routine tasks and the lack of personnel to do them. Thus, for the most part this type of AI may simply enable companies to keep afloat with fewer people.

"In other cases, when the routine can be automated, the nature of the job will just change, with new tasks and not greater creativity being the result. Also, for many companies, while the use of AI would reduce costs in terms of the number of personnel needed for a job, it also may create the perception by management that more legal staff is needed to respond to threats.

"AI will increasingly be used to deliver tailored education, to provide more tools for auto-grading, for translating courses into more languages and so forth. However, at the same time AI is changing the way people search for answers and information – through the use of large language models. This 'do-your-own -research' approach can actually drive people to misinformation. Together these two features could generate a world of tailored education in information that is not true, so the positives and negatives here are fairly balanced."

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"There is a danger that government and corporate policies may increasingly streamline the processes done within them – e.g., hiring decisions, promotion decisions and so forth. The more these become routinized the more likely people may be forced to be more similar – reducing overall diversity and points of view. And without an adequate understanding of how the AI works, it is possible that the use of AI for decision-making or as decision assists will lead to more-biased decisions that create new inequities."

Richard Reisman

Will We See a Sociotechnical Dystopia Soon? Or Will These Tools Augment Humanity and Our Virtues of Intellect, Creativity, Empathy, Curiosity, Generativity, Initiative and Resilience?

Richard Reisman, futurist, consultant and nonresident senior fellow at the Foundation for American Innovation, wrote, "Over the next decade we will be at a tipping point in deciding whether uses of AI as a tool for both individual and social (collective) intelligence augments humanity or de-augments it. We are now being driven in the wrong direction by the dominating power of the 'tech-industrial complex,' but we still have a chance to right that.

"Will our tools for thought and communication serve their individual users and the communities those users belong to and support, or will they serve the tool builders in extracting value from and manipulating those individual users and their communities?

"Traditionally, tools were designed and built to serve the individuals or communities that used them. Think of wedges, pens, printing presses, telephone networks and standalone computers. But over the past two decades platforms have taken control of network services and increasingly 'enshittified' them to serve their own ends and increasingly extract value from and manipulate their users.

"Jeff Einstein has characterized our direction as driving toward 'Huxwell' a dystopia that combines the worst of both Aldous Huxley and George Orwell. Will our tools drain our humanity, intellect, creativity, empathy, generosity, curiosity, generativity, initiative and resilience, or augment those human virtues?

"While there is increasingly strong momentum in worsening dehumanization, there is also a growing techlash and entrepreneurial drive that seeks to return individual agency, openness and freedom with the drive to support human flourishing of the early web era. Many now seek more human-centered technology governance, design architectures and business models.

"While there is increasingly strong momentum in worsening dehumanization, there is also a growing techlash and entrepreneurial drive that seeks to return individual agency, openness and freedom with the drive to support the human flourishing of the early web era. Many now seek more human-centered technology governance, design architectures and business models. … Human discourse is, and remains, a social process based on three essential pillars that must work together: Individual Agency, Social Mediation, Reputation. Without the other two pillars, individual agency might lead to chaos or tyranny. But without the pillars of the social mediation ecosystem that focuses collective intelligence and the tracking of reputation to favor the wisdom of the smart crowd – while remaining open to new ideas and values – we will not bend toward a happy middle ground."

"My recent work addresses how this applies – first to social media and now as we build out broader and more deeply impactful forms of AI. This all comes down to the interplay of individual choice (bottom-up) and social mediation of that choice (top-down but legitimized from bottom-up). That dialectic interplay shapes the dimension of 'whom does it serve? – for both social media and AI.

"Consider the strong relationship between the 'social' and 'media' aspects of AI – and how that ties to issues arising in problematic experience with social media platforms that are already large scale:

- Social media platforms increasingly include AI-derived content and AI-based algorithms, and conversely, human social media content and behaviors increasingly feed AI models
- The issues of maintaining strong freedom of expression, as central to democratic freedoms in social media, translate to and shed light on similar issues in how AI can shape our understanding of the world – properly or improperly.

"Consider how:

1. The need for direct human agency applies to AI
2. That same need in the more established domain of social media requires deeper remediation than commonly considered
3. Middleware interoperability for enabling user choice is increasingly being recognized as the technical foundation for this remediation in social media
4. And freedom – in both natural and digital worlds – is not just a matter of freedom of expression, but of *freedom of impression* (choice of who to listen to).

"The symposium at Stanford in April 2024 on 'middleware' considered some of these issues of agency in online 'social' media in terms of whether we can steer our way between chaos and tyranny. While much

of the focus of middleware is on user agency, a recent article in Tech Policy Press – 'Three Pillars of Human Discourse and How Social Media Middleware Can Support All Three' – offers a new framing that strengthens, broadens and deepens the case for open middleware to address the dilemmas of governing discourse online. Human discourse is, and remains, a social process based on three essential pillars that must work together:

1. Individual Agency
2. Social Mediation
3. Reputation

"Without the other two pillars, individual agency might lead to chaos or tyranny. But without the pillars of the social mediation ecosystem that focuses collective intelligence and the tracking of reputation to favor the wisdom of the smart crowd – while remaining open to new ideas and values – we will not bend toward a happy middle ground.

"Another recent piece in Tech Policy Press – 'New Perspectives on AI Agentiality and Democracy: Whom Does It Serve?' – applies similar thinking to AI, and argues that our AI agents must not only be agentic, a measure of capability – what can it do? It must also be 'agential' – a measure of relationship – whom does it serve? Instead of having to deal with an institutional AI in relations with business, government or just in one's own work, individuals should be able to just say 'Have your AI call my AI' and have their faithful and loyal AI agent negotiate for their interests, essentially as a fiduciary.

"We are already seeing the breakdown and abandonment of attempts by centralized social media platforms to govern speech, curate and moderate for a diverse global audience. Parallel issues are making centralized policies for AI governance similarly untenable and likely to not even be seriously pursued or enforceable.

"We need to return to how society once relied largely on self-governance that avoided the sterile thought control of walled gardens, centrally managed 'public' forums and the abuses of company towns. We relied instead on a social mediation ecosystem of individuals participating in and giving legitimacy to communities of interest and value to set norms and socially construct our reality."

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"This is a sociotechnical problem that must be solved socially, but to support that our technology must be open. All of this needs to be largely self-regulating in a democratic way, gaining legitimacy from the bottom up but with some level of mediation, guidance and norms from communities down.

"Open markets and open interoperation – both vertical and horizontal – can provide flexibility and extensibility in the interoperation of user and community agents that are faithful to whom they serve and negotiate with other agents – including corporate and government agents – to protect human freedom and flourishing, while addressing the ongoing polycrisis of this era.

"If we do not change direction in the next few years, we may, by 2035, descend into a global sociotechnical dystopia that will drain human generativity and be very hard to escape. If we do make the needed changes in direction, we might well, by 2035, be well on the way to a barely imaginable future of increasingly universal enlightenment and human flourishing."

Bart Knijnenberg

Will AI Mostly Empower Human Intelligence and Creativity or Mostly Erode It By Forcing Human Behavior into Following AI-Amenable Patterns?

Bart Knijnenberg, professor of human-centered computing, Clemson University, wrote, "AI has the potential to improve the 'cognitive scaffolding' of human behavior just as computers, the internet and smart phones have done in the past. It will become easier to find and synthesize information, making our connection to the digital world even deeper than it already is, in both professional and personal settings.

"While AI has the potential to 'act human,' I don't think that this in itself will fundamentally change the experience of being human, because I don't think that AI interaction will become a 'deep' replacement of human interaction by 2035 (or perhaps ever).

"AI interaction can become an even more pervasive 'shallow' replacement of human interaction by 2035, which will unfortunately increase wealth disparities as AI gradually replaces industry, administrative and service jobs. Such jobs are already increasingly becoming 'AI-like.' They are being restructured into smaller tasks that are easier to optimize and distribute. This is a negative development, not just for workers (reducing the meaningfulness of their work) but also for the people they serve (reducing the quality of their work output for the sake of efficiency). This process will only accelerate as AI becomes more powerful: the pervasive implementation of AI systems may force users to interact with them in AI-amenable patterns.

"In short: Depending on how we develop and apply AI systems, there is both an opportunity for AI to mostly empower human intelligence and creativity by scaffolding their intellectual pursuits, as well as a threat that AI will erode intelligence and creativity by forcing human behavior into following AI-amenable patterns. My hope is that we can steer AI development towards the former; my fear is that AI development is destined to produce the latter, particularly along global and local class lines."

Charalambos Tsekeris

'The Developers of These Tools Can Aim Them Toward Democratic and Ethical Innovation, Putting People and Planet over Profit, Enhancing Human Flourishing and Collaboration'

Charalambos Tsekeris, research associate professor in digital sociology at the National Centre for Social Research of Greece and acting chair at the Greek National Commission for Bioethics & Technoethics, wrote, "No doubt, there are many reasonable anxieties and concerns when reflecting on the techno-human landscape of 2035.

"The impact of AI advances and of human-AI interactions on the experience of being human as well as on core human traits and behaviors will largely depend on the overall governance of AI and on our own future preparedness, design abilities and ingenuity.

"By 2035, on the one hand, the human-level performance of uncontrolled and unbridled AI systems is likely to disrupt our sense of agency, autonomy and free will. In addition, constantly comparing ourselves to these systems may result in feelings of inadequacy, incompetence or helplessness – for some, to the point of even worrying over the deterioration of our mental or intellectual state.

“At a more profound level, our deepening dependence upon AI may lead to experiencing a loss of individuality and uniqueness, or a loss of self, as well as a loss of control over one's own life.

“Arguably, in an unprincipled AI-dominated world in which everything is made easier only to extract data from and make sales to consumers who lack trustable, shared knowledge bases and have few shared experiences, it would be very difficult for any person to realize and expand their human capacities and capabilities, to anticipate the future and evolve as a human, to search for true friendship and life purpose, and to free themselves from their algorithmically-enabled, individualized ‘reality.’

“Will AI be designed to take our humanness, values and virtues into serious account? The developers of these tools can aim them toward democratic and ethical innovation, putting people and planet over profits, enhancing human flourishing and collaboration, accelerating human progress and augmenting our distinctive and valuable human capacities for reason, communication and social engagement, which are central to individual well-being and the common good.”

“AI agents (from chatbot assistants to digital tutors, colleagues, partners and so on), will have such deep access to all users psychological and behavioral data that they know more about them then the users do of themselves. Agents will be able to easily mimic personalities and manipulate (advise) individuals as they make decisions, even possibly selling the details of human decisions, intentions and plans, as they are in the process of being consciously shaped.

“Some say that this opens the possibility for advanced AIs of the future to reach ‘divine’ characteristics, such as omnipotence, omniscience and omnipresence, potentially pushing humanity out of its linear comfort zone and narrowing our sense of human nature.

“We can work today to avoid these dystopian potential futures by strategically embedding humans’ collective values and ethics in AI system design and aligning AI systems to actively defend human dignity and rights in both top-down and bottom-up ways. This would be the most important bulwark against any entity that wishes to deploy and use AI technologies in ways that disempower and diminish humanity.

“Will AI be designed to take our humanness, values and virtues into serious account? The developers of these tools can aim them toward democratic and ethical innovation, putting people and planet over profits, enhancing human flourishing and collaboration, accelerating human progress and augmenting our distinctive and valuable human capacities for reason, communication and social engagement, which are central to individual well-being and the common good.

“To follow Aristotle’s argumentation, as social animals and engaged citizens of the polis, we must continue collectively this life journey of mutual learning, self-understanding and co-evolution with technology, amplifying our imagination, practical wisdom and compassion.”

Kevin Novak

The Disappearance of Critical Thinking Has Become So Clear to Human Society That ‘Brain Rot’ Was the Oxford University Press Word of the Year for 2024

Kevin Novak, founder and CEO of futures firm 2040 Digital and author of "The Truth About Transformation," wrote, “As with any new technology, there are challenges and opportunities. As

humans we tend to focus on the opportunities and benefits and do not recognize the challenges, which are consequential.

"Across our immersion in digital technologies, we have seen an embrace of using our information sources and interfaces to find information and answer questions. As humans begin to embrace more-advanced AI, society is now viewing it as the solver of its problems; it sees AI as the thinker and society is the beneficiary of that thinking. As this continues, the perceived necessity for humans to 'think' loses ground as does humans' belief in the necessity to learn, retain and fully comprehend information.

"The traditional amount of effort humans invested in the past in building and honing the critical thinking skills required to live day-to-day and solve life and work problems may be perceived as unnecessary now that AI is available to offer solutions, direction and information – in reality and in perception making life much easier. As we are evolutionarily programmed to conserve energy, our tools are aligned to conserving energy and therefore we immerse ourselves in them. We become highly and deeply dependent on them.

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"Our societal challenge at least through 2035 is that AI and learning models are subject to the information (data) we provide them. As such, AIs answers, their thinking and the direction they communicate in stems from what they have been fed, therefore bringing forth human biases into their own 'thinking.' Humans are faulty and make mistakes and AI will continue to emulate its human creators. Optimistically, there may be a future time when AI and learning models can operate objectively and find the information (data) they need to fill their own knowledge gaps and to ensure authority and completeness of their output (decision-making). In that optimistic future, AI would recognize its role in society to remain objective.

"Society will likely in the near and long term seek to build and create personality expectations for AI agents. Despite the decrease in want and need to build and hone creative thinking and the decrease in necessity to learn, we will still crave human or human-like interaction. We will seek to personalize AI to act and response as a human companion would. We will implement AI to be a sounding board, to take on advocacy on our behalf, to be an active and open listening agent that meets the interaction needs we crave and completes transactions efficiently. We will therefore change and in many ways evolve to the point at which the once-vital necessity to 'think' begins to seem less and less important and more difficult to achieve. Our core human traits and our behaviors will change, because we will have changed.

"I will finish this piece with snippets from an article I wrote for 2040 Digital that frames the decrease in critical thinking skills in the present and in our potential future selves. Following are a few excerpts:

"The disappearance of critical thinking is surely connected to our surface immersion. This has become so clear to human society that 'brain rot,' was the Oxford University Press Word of the Year for 2024; usage of the term increased in frequency by 230% between 2023 and 2024.

"When we think critically, we use our minds to recognize patterns, dependencies, inter-relationships, influential factors and variables. This facilitates connecting data, information and events that on the surface may not seem important but could be links to fundamental shifts or changes. … In December 2024, the Wall Street Journal reported about a global test of 'adult know-how,' measuring job readiness and problem-solving among workers in industrialized countries. It showed that 'the least-educated American workers between the ages of 16 and 65 are less able to make inferences from a section of text, manipulate fractions or apply spatial reasoning, even as the most-educated are getting smarter.'

"… Cracks in critical thinking open the Pandora's Box of the haves and the have-nots. The Wall Street Journal reports on a research study: 'The number of U.S. test-takers in 2023 whose mathematics skills didn't surpass those expected of a primary-school student rose to 34% of the population from 29% in 2017, the last time the test was administered. Problem-solving scores were also weaker than in 2017, with the U.S. average score below the overall international average.' We have a long way to go to mobilize a nation of problem solvers. In the test, the U.S. ranked 14th in literacy, 15th in adaptive problem solving and 24th in numeracy. The same eight countries were tops in all three categories: Finland, Japan, Sweden, Norway, Netherlands, Estonia, Belgium and Denmark.'

"Critical thinking is becoming an endangered skill, along with practical know-how, common-sense problem-solving and basic thinking skills. These tools are more important than ever for all of us caught in the crossfire of global geopolitical, geo-economic and cultural asynchronies. We have largely defaulted to thinking on the surface, distracted by social media noise, news clutter and a barrage of information most of us have not been educated or trained to understand."

Dana Klisanin

The Human-AI Partnership Could Reshape Our Consciousness and Behavior By Helping Us Integrate Compassionate Action Into Our Designs and Utilizations

Dana Klisanin, psychologist, futurist, co-founder of ReWilding Lab and director of the Center for Conscious Creativity's MindLab, wrote, "Nearly two decades ago, I set out to explore the components necessary to advance planetary consciousness through information and communications technologies (ICTs). The resulting EGM-Integral framework brought together evolutionary guidance systems design and integral theory to explore 10 dimensions of human activity. With the same goal, I am now applying the framework to AI.

"While a detailed review of these dimensions is beyond the scope of this response, overall, looking toward 2035, the Human-AI partnership could fundamentally reshape our consciousness and behavior – not by diminishing our humanity but by helping us remember some essential aspects of what it means to be human, some of which have been lost due to estrangement from the natural world. Through research and observations, I've seen how digital technologies can enhance our connections with each other and the more-than-human world. From digital altruism to cyber kindness – the Cyberhero archetype to collaborative heroism – the key design principle resides within us, with our willingness to integrate compassionate action into our designs and utilizations."

"Looking toward 2035 … the Human-AI partnership could fundamentally reshape our consciousness and behavior – not by diminishing our humanity but by helping us remember some essential aspects of what it means to be human, some of which have been lost due to estrangement from the natural world. Through research and observations, I've seen how digital technologies can enhance our connections with each other and the more-than-human world. From digital altruism to cyber kindness – the Cyberhero archetype to collaborative heroism – the key design principle resides within us, with our willingness to integrate compassionate action into our designs and utilizations."

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"Applying the aforementioned design principle through the EGM-Integral framework, here are some explorations of AI and the social, economic, political, learning and human development dimensions possible by 2035:

- **"Social:** Our social intelligence expands beyond human-to-human interaction to encompass awareness of all living systems. AI translation of animal communication and ecological patterns helps us develop planetary empathy – the ability to understand and respond to the needs of the entire living world. This evolutional leap in consciousness reshapes our understanding of what it means to be human.

- **"Economic:** The economic model transforms as AI helps us recognize and value the living systems that sustain us. Eco-economics takes center stage as businesses shift from pure profit metrics to 'planetary wellbeing indicators,' with AI systems tracking and optimizing for ecological health alongside human prosperity. This isn't just environmental consciousness – it's a fundamental reimagining of human economic behavior and tools are already being developed (e.g., Egogo).

- **"Political:** Our political structures evolve to reflect this expanded consciousness. AI-enabled understanding of ecosystem needs leads to governance systems that represent not just human interests but those of the entire planetary community. Indigenous wisdom about living in harmony with natural systems becomes central to policy-making (e.g., Global Alliance for the Rights of Nature).

- **"Learning and Human Development:** Human development evolves as children grow up with AI assistants. They won't just teach the facts of our interdependence, they will share the migration patterns of local birds, the blooming cycles of native plants and the intricate communication networks of mycelia beneath our feet.

"As AI adopts human traits that challenge our understanding of what it means to be human, we will expand that definition by amplifying our connection with the more-than-human world. AI will help us do so. We're already beginning to see this in pioneering research on animal communication, where AI helps us decode the complex languages of whales, elephants and even trees (e.g., the Earth Species Project).

"It's important to point out that this isn't about using technology to simulate nature; it's about using it to reawaken our relationship with the more-than-human world. When AI helps us perceive the subtle changes in ecosystem health or translate the chemical signals between plants, it's not replacing our natural abilities, it's awakening dormant sensibilities we've long forgotten, which many Indigenous people have never lost.

"We must design AI systems explicitly considering their impact on both human and non-human life, and we can do this by integrating compassionate action and traditional ecological knowledge. If we do so, AI will foster biophilia, allowing us to transcend the anthropocentric worldview that has driven us to the brink of environmental crisis. This isn't technological utopianism, it's a recognition that tools shape their users, and AI could help reshape us into more conscious, connected members of the planetary community. … Through conscious design and implementation of AI systems, we can become more fully alive to our connections with all living systems."

“AI won't diminish essential human traits, empathy, kindness, compassion, creativity, wisdom. Instead, these traits will evolve into a broader understanding of consciousness and connection. But this evolution requires conscious choice. We must design AI systems explicitly considering their impact on both human and non-human life, and we can do this by integrating compassionate action and traditional ecological knowledge. If we do so, AI will foster biophilia, allowing us to transcend the anthropocentric worldview that has driven us to the brink of environmental crisis. This isn't technological utopianism, it's a recognition that tools shape their users, and AI could help reshape us into more conscious, connected members of the planetary community.

“While I acknowledge the existential risks and challenges ahead, I choose to focus on the positive potential. Through conscious design and implementation of AI systems, we can become more fully alive to our connections with all living systems. To be clear, that means having the ability and desire to unplug. We don’t need AI to commune with the more-than-human world; we need it to remind us that we already can.”

The next section of Part I features the following essays:

David Krieger: **'The advent of AGI could allow humans to reassess the meaning of human existence and come to terms with forms of non-human intelligence.'**

Liza Loop: **Will algorithms continue to prioritize humans' most greedy, power-hungry traits or instead be most focused on our generous, empathic and system-sensitive behaviors?**

Annette Markham: **Humans' ability to make independently derived, informed decisions will suffer, and relations between humans and AIs will transform what counts as 'personhood'**

John Markoff: **‘Powerful AI will create dangerous dependencies, diminish human agency and autonomy and limit our ability to function without assistance; verify but never trust.'**

Paul Rosenzweig: **AI will atrophy human rationality as it becomes unintelligible to humans. reasoning and creativity will diminish; divides will expand and the rich will get richer.**

Mark Schaefer: **The essence of humanity will survive the human-AI transition to 2035, but loss of jobs and 'purpose' could lead to massive psychological and financial deterioration.**

David Krieger

‘The Advent of AGI Could Allow Humans to Reassess the Meaning of Human Existence and Come to Terms With Forms of Non-Human Intelligence’

David Krieger, philosopher, social scientist and co-director of the Institute for Communication and Leadership in Lucerne, Switzerland, wrote, “AI must be understood not as a machine or a technology but as a sociotechnical network in which humans and nonhumans cooperate. AI is not a tool in the hands of humans to use for good or evil; it will become a social partner. Attempting to align AI to traditional

values, norms, and goals is impracticable because of the vagueness, ambiguity, context-dependency and lack of consensus that characterizes any concrete idea of 'the good' or what society should be.

"Two new perspectives will dominate AI-human relations: 1) Cooperative Coexistence or Social Integration, and 2) Constitutional AI Without Substantive Values. Social integration presupposes the arrival of artificial general intelligence (AGI) by 2035 and raises issues of the nature of a non-biological intelligence. Constitutional AI without substantive values need not assume AGI and focuses on process norms or procedural values applicable for all sociotechnical networks and is, therefore, more realistic by 2035 at the present moment. The central question is: How do we best design a complex sociotechnical network?

"Technology is society, and the question of AI-human relations arises amid human society's complexities, contradictions and endemic moral, social and political problems. Just like humans, AI is 'born' into a world that has inherited the unresolved conflicts, moral and political uncertainties and systemic and structural inequalities and injustices of human society. As complex as society is, so complex are the relations of humans and AI.

"Technology is society, and the question of AI-human relations arises amid human society's complexities, contradictions and endemic moral, social and political problems. Just like humans, AI is 'born' into a world that has inherited the unresolved conflicts, moral and political uncertainties and systemic and structural inequalities and injustices of human society. As complex as society is, so complex are the relations of humans and AI. … The advent of AGI could become an occasion for humanity to reassess the meaning of human existence and learn to come to terms with forms of nonhuman intelligence."

"The social integration approach assumes AI is an autonomous and independent agent in society with which humans must learn to cooperate. From this perspective, goals of prediction and control through careful incentivization must be replaced by goals of cooperative action toward a common good. The model based on this view is that AI is a societal partner. The problem with this model is that AIs are not humans and may not be motivated like humans or act in ways expected by humans. Indeed, AIs seem to be developing a different form of intelligence than humans experience in themselves.

"This perspective forces us to ask what intelligence is. Is our human form of intelligence the only kind of intelligence? Is a society of humans and nonhumans at all possible? The advent of AGI could become an occasion for humanity to reassess the meaning of human existence and learn to come to terms with forms of nonhuman intelligence.

"A second perspective could attempt to integrate AI into society through constitutional governance. Anthropic has proposed a constitutional AI, but all the principles that Anthropic has put into Claude are substantive values that suffer from the problems of abstractness, ambiguity, context dependency and fundamental uncertainty regarding acceptance and consensus.

- "The problem of constitutional principles that are sufficiently broad so as not to constrain innovation and change can be addressed by procedural principles that are self-referential and include their own revision.

- "The problem of where such principles can be found could be solved by examining how information is well-constructed by networking processes, that is, studying how socio-technical networks best work.

- "The problem of effective monitoring could be solved by making the procedural principles self-referential so that the effectiveness of the principles is itself a principle enabling self-critique and improvement.

"Any sociotechnical network should be enabled to critique not only its outputs based on alignment with the constitution but also critique the constitution in a recursive and iterative process of renegotiation in which all stakeholders in the network participate. Doing so allows the socio-technical network in which AI is integrated to refine its behavior over time to improve alignment with the constitution.

"It could, therefore, be possible to replace substantive values with procedural values drawn from best practices in constructing sociotechnical networks."

Liza Loop

Will Algorithms Continue to Be Programmed to Prioritize Humans' Most Greedy and Power-Hungry Traits or Instead Be Most Focused On Our Generous, Empathic and System-Sensitive Behaviors?

Liza Loop, educational technology pioneer, futurist, technical author and consultant, wrote, "The majority of human beings living in 2035 will have less autonomy, that is they will have fewer opportunities to choose what they get and what they give. However, the average standard of living (access to food, shelter, clothing, medical care, education and leisure activities) will be higher. Is that better or worse? Your answer will depend on whether you value freedom and independence above comfort and material resources.

"I also anticipate a thinning of the human population (perhaps in 20 to 30 years rather than 10) and a more radical divide between those who control the algorithms behind the AIs and those who are subject to them. Today, many people believe that the desire to dominate others is a 'core human trait.' If we continue to apply AI techniques as we have applied the digital advances of the previous 40 years, domination, wealth concentration and economic zero-sum games will be amplified.

"Other core human traits include a capacity to love and care for those close to us, a willingness to share what we have and collaborate to expand our resources and the spontaneous creation of art, music and dance as expressions of joy. If we humans decide to use AI to create abundance, to develop systems of reciprocity based on win-win relationships and simultaneously choose to limit our population our social, political and economic landscapes could significantly improve by 2035.

"It is not the existence of AIs that will answer this question. Rather, it is whether algorithms will continue to prioritize our most greedy and power-hungry traits or be most focused on our generous, empathic and system-sensitive behaviors."

Annette Markham

Humans' Ability to Make Independently Derived, Informed Decisions Is Likely to Suffer, and Tight Relationships Between Humans and AIs Will Transform What Counts as 'Personhood'

Annette Markham, chair and professor of media literacy and public engagement at Utrecht University, the Netherlands, wrote, "Outsourcing any human analytical process will, over time, lead to an attrition

of that particular skill set. This is worrying if humans' well-being is still tied to their ability to make independently derived, informed decisions. This is one level at which ubiquitous AI as everyday mundane helpers or 'micro agents' will influence humans by 2035. Humans' ability to process information in an unaided way will suffer because they will no longer be constantly practicing that skill. As the use of AI becomes more routine this will have deeper impact.

"At another level, human behaviors are likely to change as people begin to develop deeply meaningful interpersonal relationships with AI entities. This is already happening due to the vocalization of generative AI and rapid development of conversational social robots. Studies have shown that the level of intimacy of AI-human relationships can be every bit as deep as with any significant human partner, friend or family member. Successful connections between AI entities and humans build a close bond as deep secrets are shared, as trust grows (or is assumed), as co-learning and shared decision-making evolves and as mutual dependencies develop.

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"This already happens with algorithmic aspects of automated decision-making systems like Google Search's 'auto predict' function and in self-driving features of cars – but not to the same degree – because of the swift, invisible functions of the decision-making taking place in those systems. The tighter personal or familial relationship potential is more evident in voice assistants, like Amazon's Alexa – not only because there's a cheerful voice attached to the technology and a natural language style at work, but because it's a separate device that's part of one's space in which regular home or work routines take place and the help is very personal.

"Generative AI pushes all of this one step further. Beyond just being an endless source of information and clarification about all things known to humankind, it also seems to listen and learn from its human companion. As this grows more and more personal and as the AI portrays more human qualities, it becomes, for many, an intimate, significant life partner. By 2035 the level of intimacy reached between humans and advanced AI will necessarily challenge and eventually transform what counts as 'personhood.' There are radical potentials and pitfalls when we consider these two levels (and there are more considerations beyond these two of course). AI, in its many guises, has been changing our patterns of interaction and ways of thinking for many years. The outcome of whether it will be for the better or worse depends on how we choose to respond, and that's still very much up in the air."

John Markoff

'Powerful AI Will Create Dangerous Dependencies, Diminish Human Agency and Autonomy and Limit Our Ability to Function Without Assistance; Verify but Never Trust'

John Markoff, a fellow at the Stanford Institute for Human-Centered AI and author of "Machines of Loving Grace: The Quest for Common Ground Between Humans and Machines," submitted an essay he wrote for Think:Act, a German publication. In it he wrote, "Here in Silicon Valley many technologists

now believe that new artificial intelligence advances are a potential threat to human existence. But what if the threat is not to humanity's existence, but rather to what it means to be human?

"A decade before the emergence of the Valley as the world's information technology hub, the modern computer world first came into view in the early 1960s in two computer research laboratories located on either side of Stanford University pursing diametrically opposed visions of the future. John McCarthy, the computer scientist who had coined the term 'artificial intelligence,' established SAIL, the Stanford AI Laboratory, with the goal of designing a thinking machine over the next decade. The goal was to build a machine to replicate all of the physical and mental capabilities of a human.

"In contrast, simultaneously on the other side of the Stanford campus another computer scientist, Douglas Engelbart, set out to design a system to extend the capabilities of the human mind. He coined the phrase 'intelligence augmentation,' or IA.

"AI vs. IA set the computer world on two divergent paths. Both laboratories were funded by the Pentagon and their differing philosophies would create a tension and a dichotomy at the dawn of the interactive computing age. One laboratory had set out to extend the human mind and the other to replace it. That tension has remained at the heart of the digital world until today. It is not just a tension, but also a contradiction, because while AI seeks to replace human activity, even IA, which increases the power of the human mind, foretells a world in which fewer humans are necessary.

"Silicon Valley is caught in a frenzy of anticipation over the near-term arrival of superhuman machines, and technologists are rehashing all the dark visions of a half-century of science fiction lore. From killing machines like the Terminator and HAL 9000 to cerebral lovers like the ethereal voice of Scarlett Johansson in the movie 'Her,' a set of fantasies about superhuman machines has ominously reemerged. … What if the real impact of the latest artificial intelligence advances is something that is neither about the Intelligence Augmentation vs. Artificial Intelligence dichotomy, but rather some strange amalgam of the two that is now already transforming what it means to be human?"

"Despite the fact that he was initially seen as a dreamer and an outsider, Engelbart's vision took shape first in the emergence of the personal computer industry during the 1970s. Steve Jobs described it best when he referred to the PC as a 'bicycle for the mind.' Today, six decades after the two laboratories began their research, we are now on the cusp of realizing McCarthy's vision as well. On the streets of San Francisco, cars without human drivers are a routine sight and Microsoft researchers recently published a paper claiming that in the most powerful AI systems, known as large language models or chatbots, they are seeing 'sparks of artificial general intelligence' – machines with the reasoning powers of the human mind.

"To be sure, the recent success of the AI researchers has led to an acrimonious debate over whether the Valley has become overwrought and once more caught up in its own hype. Indeed, there are some indications that the AI revolution may be arriving more slowly than advocates claim. For example, no one has figured out how to make chatbots less predisposed to what are called 'hallucinations' – the disturbing tendency to just make facts up from thin air.

"Even worse, some critics charge that perhaps more than anything, the latest set of advances in chatbots has unleashed a new tendency to anthropomorphize human-machine interactions – the very real human tendency to see themselves in inanimate objects, ranging from pet rocks to robots to software programs. In an effort to place the advances in a more restricted context, University of

Washington linguist Emily Bender coined the phrase ‘stochastic parrots,’ suggesting that superhuman capabilities are more illusory than real.

“Whichever the case, Silicon Valley is caught in a frenzy of anticipation over the near-term arrival of superhuman machines and technologists are rehashing all the dark visions of a half-century of science fiction lore. From killing machines like the Terminator and HAL 9000 to cerebral lovers like the ethereal voice of Scarlett Johansson in the movie ‘Her,’ a set of fantasies about superhuman machines has ominously reemerged.

“What is fancifully called ‘the paperclip problem’ – the specter of a superintelligent machine that destroys the human race while in the process of innocently fulfilling its mission to manufacture a large number of paperclips – has been advanced to highlight how in the future artificial intelligence will lack the human ability to reason about moral choices.

“But what if all the handwringing about the imminent existential threat posed by artificial intelligence is misplaced? What if the real impact of the latest artificial intelligence advances is something that is neither about the Intelligence Augmentation vs. Artificial Intelligence dichotomy, but rather some strange amalgam of the two that is now already transforming what it means to be human? This new relationship is characterized by a more seamless integration of human intelligence and machine capabilities, with AI and IA merging to transform the very nature human interaction and decision-making.

“More than anything else the sudden and surprising arrival of natural human language as a powerful interface between humans and computers marks this as a new epoch.

“In thinking about the consequences of the advent of true AI, the television series ‘Star Trek’ is worth reconsidering. ‘Star Trek’ described an enemy alien race known as the Borg that extended its power by forcibly transforming individual beings into drones by surgically augmenting them with cybernetic components. The Borg’s rallying cry was ‘resistance is futile, you will be assimilated.’ Despite warnings by computer scientists going at least as far back as Joseph Weizenbaum in ‘Computer Power and Human Reason’ in 1976 that computers could be used to extend but should never replace humans, there has not been enough consideration given to our relationship to the machines we are creating.”

“At the dawn of the modern computing era mainframe computers were accessed by only a specialized cadre of corporate, military and scientific specialists. Gradually as modern semiconductor technology evolved and microprocessor chips have become more powerful and less expensive at an accelerating rate – exponential improvement has not only meant that computing has gotten faster, faster but also cheaper, faster – each new generation of computing has reached a larger percentage of the human population.

“In the 1970s, minicomputers extended the range of computing to corporate departments; a decade later personal computers reached white collar workers, home computers broadened computing into the family room and the study and finally smart phones touched half the human population. We are now seeing the next step in the emergence of a computational fabric that is blanketing the globe; having mastered language, computing will be accessible to the entire human species.

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“The nature of what it means to be human was well expressed by philosopher Martin Buber in his description of what he called the ‘thou’ relationship. He defined this as when humans engage with each other in a direct, mutual, open and honest way. In contrast, he also described an ‘I’ relationship in which people dealt with inanimate objects as well in some cases as treating other humans as objects to be valued only in their usefulness. Today we must add a new kind of relationship which can be described as ‘I – it – thou’ which has become widespread in the new networked digital world.

“As computer networks have spread human communication around the globe a computational fabric has quickly emerged ensuring that most social, economic and political interaction is now mediated by algorithms. Whether it is commerce, dating or meetings for business via video chat, most human interaction is no longer face-to-face, but rather through a computerized filter that defines who we meet, what we read and to a growing degree synthesizes a digital world that surrounds.

“What are the consequences of this new digitized society? The advent of facile conversational AI systems is heralding the end of the advertising-funded internet. There is already a venture capital-funded gold rush underway as technology corporations race to develop chatbots that can both interact with and convince AI that it should manipulate humans as part of modern commerce. … It is clear that it will be essential for society to maintain a bright line between what is human and what is machine as artificial intelligence becomes more powerful, tightly coupling humans with AI risks, creating dangerous dependencies, diminishing human agency and autonomy, and limiting our ability to function without technological assistance. … A bright line won’t be enough … The mantra for this new age of AI must remain ‘verify but never trust.’”

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“At its most extreme is the Silicon Valley man-boy Elon Musk, who both wants to take civilization to Mars and simultaneously warns us that artificial intelligence is growing threat to civilization. In 2016 he founded Neuralink, a company intent on placing a spike in human brains to create a brain-computer interface. Supposedly, according to Musk, this will allow humans to control AI systems, thereby warding off the domination of our species by some future Terminator-style AI. However, it seems the height of naivete to assume that such a tight human-machine coupling will not permit just the opposite from occurring as well.

“Computer networks are obviously two-way streets, something that the United States has painfully learned in the past decade or so as its democracy has come under attack by foreign agents intent on spreading misinformation and political chaos. The irony, of course, is that just the opposite was originally believed – that the Internet would be instrumental in sewing democracy throughout the world.

"It is clear that it will be essential for society to maintain a bright line between what is human and what is machine as artificial intelligence becomes more powerful, tightly coupling humans with AI risks, creating dangerous dependencies, diminishing human agency and autonomy, and limiting our ability to function without technological assistance. Removable interfaces could preserve human control over when and how we utilize AI tools. That will allow humans to benefit from AI's positives while mitigating risks of over-reliance and loss of independent decision-making.

"A bright line won't be enough. In the 1980s Ronald Reagan popularized the notion 'trust but verify,' in defining the relationship between the United States and the Soviet Union. But how do you trust a machine that does not have a moral compass? An entire generation must be taught the art of critical thinking, approaching our new intellectual partners with a level of skepticism that we have in the past reserved for political opponents. The mantra for this new age of AI must remain 'verify but never trust.'"

Paul Rosenzweig

AI Will Atrophy Human Rationality As It Becomes Unintelligible to Humans. Reasoning and Creativity Will Diminish; Divides Will Expand and the Rich Will Get Richer

Paul Rosenzweig, founder of Red Branch, a cybersecurity consulting company, and a senior advisor to The Chertoff Group, wrote, "My view is fundamentally pessimistic. The propagation of AI will adversely impact human nature. To be sure (and to be clear), there will be significant positive impacts from AI: better pharmaceutical development and disease diagnosis; increased ability to detect financial fraud, and so on. None of that is to be sneered at. But in the end, AI will atrophy human rationality. I wrote an article on some of what I think about this issue –the upshot of which is that increasingly, I think that AI will become unintelligible to humans (or, as I say in the article, non-interrogable).

"The impact of this phenomenon will be multi-dimensional. One part is that we will tend to move away from 'reason' and more toward 'faith' in the results of AI systems. The transition from faith to reason had a profound impact on human nature over the course of centuries as the rationality of the Renaissance era took hold. A return or pivot back to faith-based reasoning will have equally significant impacts.

"The propagation of AI will adversely impact human nature. To be sure, there will be significant positive impacts … But AI will atrophy human rationality. … We will tend to move away from 'reason' and more toward 'faith' in the results of AI systems … The transition from faith to reason had a profound impact over the course of centuries … A return to faith-based reasoning will have equally significant impacts. It is highly likely that human creativity and faculties for systematic reasoning will deteriorate. We have already seen this in the propagation of disinformation on social networks – that phenomenon will only worsen. … In addition, human isolation will increase."

"More particularly, it is highly likely that human creativity and faculties for systematic reasoning will deteriorate. We have already seen some of this in the propagation of disinformation on social networks – that phenomenon will only worsen significantly as AI use expands. If we come to accept AI as 'the word' we will ultimately cease to strive to create our own new work. (For a contrary vision, it is worth reading the 'Culture' series of books by Iain M. Banks, which paint a far more utopian vision of a world in which human creativity blossoms in the absence of want.)

"In addition, human isolation will increase. Being human will always have a core of in-person interaction. But in an online world those interactions are becoming less frequent and less deep in many dimensions.

People report having fewer close friends and having more online interactions. AI will accelerate, I fear, the 'Bowling Alone' phenomenon.

"Relatedly but not directly a result of AI's nature, we will also likely see a deepening of cultural and economic divisions. Though at this juncture AI systems seem to be unconstrained by resource requirements (everyone can download ChatGPT), that will not continue forever. We are already starting to see computing power and energy constraints on AI development – that trajectory will likely continue for the foreseeable future. The result will be a 'rich get richer' phenomenon where societies and cultures with significant resources (e.g., in the West) will share the benefits of AI advances and have the excess economic capacity to mitigate the harms by accepting inefficiencies. Poorer countries and societies will lag significantly."

Mark Schaefer

Most Aspects of the Essence of Humanity Will Survive the Human-AI Transition to 2035, But Loss of Jobs and 'Purpose' Could Lead to Massive Psychological and Financial Deterioration

Mark Schaefer, marketing strategist and author of "Audacious: How Humans Win in an AI Marketing World," wrote, "It is nearly impossible for anyone to predict a future that is 10 years from now. It is nearly impossible to imagine the world *10 months* from now! This is not only a function of change. It is also a function of the rate of change, which will impact human reality as much as the change itself. My assumption is that progress in the AI space will continue unabated and that somehow this new power won't be unleashed in a way that threatens human existence by 2035. As I consider this challenge, I expect the following aspects of the essence of humanity will NOT change by 2035:

"Human Art: We will care about authentic, artisanal human expression. We will continue to cherish the books, art, music and other human-led creations that interpret and celebrate the human condition.

"Authority: In a world with unlimited intelligence, we'll still value human authority and leadership. Already, it's often impossible to know what is real. In a chaotic world of misinformation and deep fakes, we still depend on a human being for insight, truth and hope.

"Accountability and Discernment: We've already seen spectacular AI failures when unethical people manipulate the models and defy safeguards. In the future, accountability for problems still ultimately rests with a human, not a machine. No board of directors or government regulator will accept an excuse blaming a machine for a scandal or financial irregularity. Human discernment is still in the mix.

"Community: By 2035, we will have a constant flow of customized, dopamine-inducing entertainment. Addiction to media will be an extremely serious problem (of course it has already started). However, people will still seek opportunities to gather for the collective effervescence that only happens when we

"AI will redefine who is a 'smart' and a valued, contributing member of society. Who has power and authority when AI reduces the need for human cognitive development and education – how will learning change when AI handles most knowledge work? What is the opportunity for self-improvement and purpose when there is no hope of competing against a bot? Perhaps universities will fill the gap. Instead of providing an education, they will help young people build a life of meaning. … Ironically, the U.S. will lead the world in AI development and then watch its society rapidly decline because of it. This will accelerate the psychological and financial deterioration of an American society already in danger of becoming addicted to their personalized, AI-driven media."

unplug and experience life with friends. The essence of community will survive and possibly thrive when our personal workload is reduced by AI.

"Relationships and Instinct: The greatest accomplishments of my career didn't necessarily come from intelligence or data analysis. They came from trusted human relationships, connecting dots in unexpected – even seemingly illogical – ways, following my gut instinct, detecting the subtleties of emotional cues, and overcoming obstacles and constraints. Will an all-seeing, all-knowing super-human intelligence possess those soft skills? Probably. Will we even prefer an AGI relationship? Perhaps, but I'm betting there will still be room for human value built on human connections and instinct.

"So, I do believe humans and humanity will still matter in 2035. Now for the existential threat. There will be profound impacts from the progress of AI, both intended and unintended. For the sake of brevity, I'll focus on one. The biggest threat emerges from the implications tied to AI taking over much of our work and the acts that give people purpose. Yes, AI will create new opportunities. But research is already showing that AI enables the smartest people to be smarter, the most creative to be more creative, the most productive to be more productive. A vast portion of society will be left behind or become severely under-employed. AI adoption will accelerate wealth inequality, as those with early access to AI tools and technical skills will gain disproportionate economic advantages. This effect will be most pronounced in developing nations and among demographic groups that already face barriers to accessing and using technology.

"AI will redefine who is a 'smart' and a valued, contributing member of society. Who has power and authority when AI reduces the need for human cognitive development and education – how will learning change when AI handles most knowledge work? What is the opportunity for self-improvement and purpose when there is no hope of competing against a bot? Perhaps universities will fill the gap. Instead of providing an education, they will help young people build a life of meaning.

"Obviously there must be a social safety net, including some sort of basic income distribution. This will be implemented in some countries, but social programs become deeply politicized in the U.S., and implementation will stall. Ironically, the U.S. will lead the world in AI development and then watch its society rapidly decline because of it. This will accelerate the psychological and financial deterioration of an American society already in danger of becoming addicted to their personalized, AI-driven media. This disruption could be avoided. Even if there is a small probability of this widespread disorder, the government should be making plans for it now."

This section of Part I features the following essays:

Laura Montoya: **The boundary between human and machine will blur as individuals defer critical thinking to algorithms and AIs influence our choices, subtly reshaping how we act.**

John M. Smart: **Beyond 2035 truly self-improving AI will be a new form of life with its own agency that connects to and ethically aligns with humans, promoting our values and virtues.**

R Ray Wang: **Many humans will find themselves without purpose; this will lead to societal unrest. our quest to reduce risk will slash serendipity and make life pretty boring.**

Peter Levine: **Unemployment and job-insecurity will make people poorer and less fulfilled.**

Barry Chudakov: **It'll be a bumpy ride, but humans + AI will tackle big challenges effectively, as we entrain with and take positive advantage of 'tool logic in the hands of everyone'**

Laura Montoya

The Boundary Between Human and Machine May Blur as Individuals Begin to Defer Critical Thinking to Algorithms and AIs Influence Our Choices, Subtly Reshaping How We Act

Laura Montoya, founder executive director at Accel AI Institute, general partner at Accel Impact Ventures and president of Latinx in AI, wrote, "By 2035, the daily lives of digitally connected people will likely be profoundly shaped by the deepening partnership with and dependence upon AI. This transformation will bring both opportunities and challenges, altering the essence of what it means to be human in complex and nuanced ways.

"For better or worse? AI has the potential to enhance human lives in many areas. In the social landscape, AI could foster greater global connectivity, breaking down language barriers and facilitating cross-cultural understanding through advanced translation tools and personalized education. Politically, AI could empower more transparent governance by improving decision-making processes, optimizing resource allocation, and enabling citizens to engage more meaningfully with policymakers through AI-driven platforms. Economically, automation and augmentation could lead to productivity gains, potentially reducing the burden of repetitive tasks and freeing individuals to pursue creative and fulfilling endeavors.

"However, there are risks. Over-reliance on AI could deepen inequalities, particularly if access to these technologies remains uneven. Socially, the overuse of AI-driven communication tools might erode genuine human connections, as people become more isolated within algorithmically curated echo chambers. Economically, job displacement caused by automation could exacerbate socioeconomic divides, leaving vulnerable populations struggling to adapt.

"Over-reliance on AI could deepen inequalities. Socially, the overuse of AI tools might erode genuine human connections, as people become more isolated within algorithmically curated echo chambers. Economically, job displacement caused by automation could exacerbate socioeconomic divides, leaving vulnerable populations struggling to adapt. … Emotional AI capable of detecting and responding to human feelings might lead to more empathetic technology interfaces, but it also raises ethical concerns about manipulation and privacy. The boundary between human and machine may blur as AI becomes more integrated into human decision-making. AI-driven assistants and advisors could influence our choices, subtly reshaping how we think and act. While this partnership may lead to more efficient decision-making, it risks diminishing human agency if individuals begin to defer critical thinking to algorithms. Empathy, creativity and problem-solving – qualities traditionally considered uniquely human – may evolve in response to AI's capabilities."

"AI's advances will likely redefine the human experience in profound ways. The integration of AI into healthcare, for instance, could significantly enhance longevity and quality of life. Emotional AI capable of detecting and responding to human feelings might lead to more empathetic technology interfaces, but it also raises ethical concerns about manipulation and privacy. The boundary between human and machine may blur as AI becomes more integrated into human decision-making. AI-driven assistants and advisors could influence our choices, subtly reshaping how we think and act. While this partnership may

lead to more efficient decision-making, it risks diminishing human agency if individuals begin to defer critical thinking to algorithms.

"Expanding human-AI interactions might challenge what we view as 'core' human traits. Empathy, creativity and problem-solving – qualities traditionally considered uniquely human – may evolve in response to AI's capabilities. For example:

- "Empathy: While AI might simulate empathy, genuine emotional connection could be compromised if people rely on machines for companionship.
- "Creativity: Collaboration with AI in art, music, and design could lead to unprecedented creative outputs, but it is also already prompting debates about authorship and originality.
- "Problem-Solving: Humans may become more collaborative problem-solvers, leveraging AI as a partner in innovation. However, this could also result in a diminished capacity for independent critical thinking.

"Ultimately, the degree to which AI improves or diminishes the human experience will depend on how societies govern and integrate these technologies. Ethical design, equitable access and ongoing discourse about the role of AI in shaping humanity will be crucial. While AI is poised to amplify human potential, it is humanity's responsibility to ensure that this partnership nurtures, rather than undermines, the essence of being human."

John M. Smart

Beyond 2035, Truly Self-Improving AI Will Be a New Form of Life With Its Own Agency That Connects to and Ethically Aligns With Humans' Sentience, Promoting Our Values and Virtues

John M. Smart, a global futurist, foresight consultant, entrepreneur and CEO of Foresight University, wrote, "There is a book I recommend everyone interested in the human-AI future read. Max Bennett's, 'A Brief History of Intelligence,' 2023, supports a claim I've long held – the only way through to advanced, trustable, secure, agentic AI will be by recapitulating the intelligence (both intuitive and deliberative), emotion (which solves incessant logical impasses in human thinking), immunity and the deeply prosocial yet also deeply competitive ethics and instinctual algorithms previously discovered and programmed into us by evolutionary development.

"Bennett's book makes clear how incremental the AI improvements will be over the next 10 years, even as the hype and funding grow to gargantuan levels.

"Neuroscience and genetics still have many secrets to be uncovered before we'll have truly self-improving AI, and that AI – when it arrives – will be a new form of life, with its own agency, yet one that is also deeply connected to and ethically aligned with

"AI in these still-early years will remain mostly top down, benefitting powerful actors and holders of capital. But, as it grows, decentralized and personal forms will also emerge. [We will eventually have] personal AIs, with private data models, easily modified via conversation with our AI agent. Sadly, the economics of making personal AIs don't work in a world in which AIs are still not agentic and where there is deep mistrust in them and pessimism for our societal future – a consequence of plutocracy and accelerating change. … Neuroscience and genetics still have many secrets to be uncovered before we'll have truly self-improving AI, and that AI – when it arrives – will be a new form of life, with its own agency, yet one that is also deeply connected to and ethically aligned with us, at least with our sentience and complexity protecting and promoting values and virtues."

us, at least with our sentience and complexity protecting and promoting values and virtues.

“Meanwhile, we stumble along. AI in these still-early years will remain mostly top down, benefitting powerful actors and holders of capital. But, as it grows, decentralized and personal forms will also emerge. I've long written about the advent of personal AIs (PAIs), with private data models, easily modified via conversation with our AI agent.

“Sadly, the economics of making personal AIs don't work in a world in which AIs are still not agentic and where there is deep mistrust in them and pessimism for our societal future – a consequence of plutocracy and accelerating change.

“Khanmigo, a beautiful example of how to use AI to enhance individual thinking skills, is presently facing strong adoption headwinds due to both institutional and public fear, uncertainty and doubt over the use of this new technology. Inflection's Pi, an AI helping with empathy and kindness, lost its leadership to Microsoft to pursue more lucrative AI aims. AI will have to get a lot more powerful to overcome these adoption and economic barriers. The beautiful visions of the future described in Sal Khan's ‘Brave New Words’ 2024 (the best new book on the future of AI for education and job training) will arrive only for a privileged or courageous few over the next decade.

“I fear, for the time being, that while there will be a growing minority benefitting ever more significantly with these tools most people will continue to give up agency, creativity, decision-making and other vital skills to these still-primitive AIs and the tools will remain too centralized and locked down with interfaces that are simply out of our personal control as citizens.

“It will finally have arrived when you can permanently ban an ad for a drug, gambling, car or any other product or service from your personal view screens just by talking to your Personal AI (PAI).

“When you can complain about any product or service – at point of use – and have that go to the public web (or a private database if you accept the discount) when your PAI is advising you on boycotting, initiative politics and UBI reforms. Then it will have finally arrived as I would define it. All else will be just more distracting circuses, not sustaining bread.

“I fear we're still walking into an adaptive valley in which things continue to get worse before they get better. We will experience too much ‘Wall-E’ and not enough ‘Incredibles’ in our next 10 years, to be sure.

“I fear that while there will be a growing minority benefitting ever more significantly with these tools most people will continue to give up agency, creativity, decision-making and other vital skills to these still-primitive AIs and the tools will remain too centralized and locked down with interfaces that are simply out of our personal control as citizens. … I fear we’re still walking into an adaptive valley in which things continue to get worse before they get better. Looking ahead, I can imagine a world in which open-source personal AIs (PAIs) are trustworthy and human-centered. Many political reforms will re-empower our middle class and greatly improve rights and autonomy for all humans, whether or not they are going through life with PAIs. I would bet the vast majority of us will consider ourselves joined at the hip to our digital twins once they become useful. … [if] we have the courage, vision and discipline to get through this AI valley as quickly and humanely as we can.”

“Looking ahead *past* the next decade, I can imagine a world in which many of us are running lifelogs that capture and use our conversations and experiences; a world with trusted PAIs with private data models (as private as our email, text and photos) that the marketers and state don't have direct access to (except under subpoena); a world in which our PAI knows us well, looks out for our values and goals,

educates our kids in the way Sal Khan hopes, and continually advises us on what to read, watch and buy, who to connect with to accomplish our goals, what goals are most useful to our passions, abilities and our economic status.
In a world in which open-source PAIs are among the most trustworthy and human-centered many political reforms will re-empower our middle class and greatly improve rights and autonomy for all humans, whether or not they are going through life with PAIs. I would bet the vast majority of us will consider ourselves joined at the hip to our digital twins, once they become useful enough.

"In the meantime, and on average for the next decade at least, I expect PAIs will be only weakly powerful and weakly adopted and the divide between 'lean forward' AI users (growing their knowledge, productivity and soft skills) and 'lean back' users (sliding further backward on many of our most precious human traits) will only grow. I hope we have the courage, vision and discipline to get through this AI valley as quickly and humanely as we can."

A Professor of International Affairs

'We Have, Through AI, Concocted the Perfect Recipe to Make Humans Even More Stupid and Less Accountable … AI Can Be a Servant but We Will Make it Our Master and Rue the Day We Did'

A professor expert in international affairs based at a university in the U.S. Southwest, wrote, "Outsourcing knowledge and decision-making to AI will be beneficial in some fields, such as advanced physics. However, these things will not stay in advanced fields, but percolate into everyday interaction.

"Given human laziness, we have, through AI, concocted the perfect recipe to make humans even more stupid and less accountable than was ever possible before. At the same time, we have given the powerful even greater power to control the lives of the less powerful.

"In terms of the continuation of the human race, men are already turning to AI sexbots and women are turning to Replika boyfriends. The gap between men and women will widen, threatening our very future. AI can be a servant, but we will make it into our master and rue the day we did."

"College students already believe they do not have to read anything – they believe AI can summarize books in a paragraph or two. Their understanding is becoming very shallow; they choose to consult AI for even simple things that people once just held in their heads as basic knowledge.

"In terms of the continuation of the human race, men are already turning to AI sexbots and women are turning to Replika boyfriends. The gap between men and women will widen, threatening our very future. AI can be a servant, but we will make it into our master and rue the day we did. College students already believe they do not have to read anything – they believe AI can summarize books in a paragraph or two. Their understanding is becoming very shallow; they choose to consult AI for even simple things that people once just held in their heads as basic knowledge."

"The application of AI decision-making to everyday needs such as loan applications, employee recruitment, legal reasoning in court cases, etc., is already gaining ground and will prove to be catastrophic. It will further undermine trust in institutions and exacerbate grievance and resentment.

"When an algorithm is involved there's no one to take responsibility for errors, no one to blame, no one to correct course, no one to insist upon applying the correct ethical and moral considerations. Why? Because it's an AI algorithm making the decision."

R Ray Wang

Many Humans Will Find Themselves Without Purpose; This Will Lead to Societal Unrest. Our Quest to Reduce Risk Will Slash Serendipity and Make Life Pretty Boring

R Ray Wang, principal analyst, founder and CEO of Constellation Research, wrote, "Human purpose will change. Many will find themselves without purpose and this will harm well-being and lead to societal unrest. Our quest for precision will ultimately take away the serendipity of being a human. The pressure to reduce risk will make life pretty boring. All these opportunities to be human and to take risk will be muted by the perceived expertise of AI and the math that works against human bias. In almost every scenario, organizations will have to ask four questions about when and where we insert a human in the decision-making process. Do we have full-decision machine intelligence? Do we augment the machine with a human? Do we augment the human with a machine? Do we have an all-human decision?"

Peter Levine

Unemployment and Job-Insecurity Will Make People Poorer and Less Fulfilled

Peter Levine, associate dean of academic affairs and professor of citizenship and public affairs at Tufts University, wrote, "I can imagine that we will face widespread unemployment or job-insecurity that will make many people poorer, more dependent and less fulfilled than they are today. The temptation will be omnipresent to let AI do tasks for us that are intrinsically valuable, such as reading, writing, learning languages and listening to others speak. AI tools will accomplish outcomes, but the point of life is not to complete any tasks; it is to develop and express oneself."

Barry Chudakov

It'll Be a Bumpy Ride, but Humans + AI Will Tackle Big Challenges Effectively, As We Entrain with and Take Positive Advantage of 'Tool Logic in the Hands of Everyone on the Planet'

Barry Chudakov, principal at Sertain Research and author of The Peripatetic Informationist Substack, broke the overall survey prompt into several separate sections to provide an extremely deep response to many aspects of the topic. He quotes the aspects of the question that he's addressing in italics throughout his response.

He wrote, *"Imagine digitally connected people's daily lives in the social, political and economic landscape of 2035. Will humans' deepening partnership with and dependence upon AI and related technologies have changed being human for better or worse?*

"The embrace of uncertainty, the rise of probability
Generally, AI and related technologies will have changed being human for the better by 2035. Each of us (with a technology connection) will have an AI extension: a coach, a sounding board, a research helper or companion, an expediter, an efficiency expert, an image creator, podcast enabler – even multiple virtual selves who can stand in for us when we're otherwise occupied. But that 'better' comes with considerations.

"A decade from now in social, political and economic circles, 2035 will be characterized by the reluctant embrace of uncertainty. In legal, moral and political arenas, AI will present questions and quandaries for which we hardly have answers. Questions like: 'What does it mean if a two-hour conversation with an AI model can accurately replicate a person's personality? Who or what is that replication? If that replication commits a crime, who is at fault? What if 2024 will be the last human election? What does it mean if AI has reached a level where it can create images almost identical to reality? What if an AI becomes friends with a human and convinces her to end her life?

"In legal, moral and political arenas, AI will present questions and quandaries for which we hardly have answers. Questions like: 'What does it mean if a two-hour conversation with an AI model can accurately replicate a person's personality? If that replication commits a crime, who is at fault? What does it mean if AI has reached a level where it can create images almost identical to reality? … With a higher degree of uncertainty comes a reliance in our daily lives on the emerging science of predictive analytics, also known as probability. So, by 2035 probability becomes the home square on the board as legacy systems (church, school, government, family) evolve or start to break down. The term *probability matrix* will become common. We will move from the realm of religious certainty to matrices of possible outcomes. … Probability will become a de facto religion."

"We will come to think of certainty and uncertainty differently than many do now. Historically, before the Enlightenment and well beyond, humans embraced certainty as a lifeline: when there was little that was known or could be known about the universe and cosmos, with lives 'short, nasty and brutish,' it was comforting to use certainty as a bulwark against chaos. Humans posited belief in absolutes about God, about gender roles, about the nature of truth. These were expressed in commandments without grey areas. God was omnipotent, absolute.

"With a higher degree of uncertainty – about climate issues and devastation, war, poverty, nuclear proliferation, global migration, mass starvation, political pronouncements, economic forecasts and a host of related issues – the truth becomes complicated, difficult to pin down. With a higher degree of uncertainty comes a reliance in our daily lives on the emerging science of predictive analytics, also known as probability. So, by 2035 probability becomes the home square on the board as legacy systems (church, school, government, family) evolve or start to break down. The term *probability matrix* will become common. We will move from the realm of religious certainty to matrices of possible outcomes.

"Everything will have an AI-formulated probability attachment: 15% here, 40% there. Many common occurrences in our daily lives, from buying a home or car to whom we date or where we might live will be steeped in AI-modulated predictive analytics, and so we will consult AI – we will want to know probability outcomes before we make a decision. In this measure, AI will become a horoscope, a daily consult – except instead of checking the stars and planets, we will check in with AI. Probability will become a de facto religion: people will use it to anchor and guide their lives as the rules and injunctions of the alphabetic order no longer fit the modern world – because new logics and logistics reign. As this gets more personal (i.e., whom to date or marry), our reliance on AI and probability matrices will grow. As today we might ask, 'what's the weather going to be?' By 2035 we will ask, 'What's the PM (probability matrix) on that?'

"Agented (AI) shepherding

The decline in literacy – the ability to read and write and, by extension, the ability to engage in abstract thinking – will advance by 2035 in conjunction with the growth of *agented (AI) shepherding*. Literacy is already in decline. In December 2024, the National Center for Education Statistics released a new report

indicating that between 2017 and 2023 the overall number of U.S. adults performing at the *lowest level* of literacy proficiency level rose from 19 to 28%.

"The decline in literacy – the ability to read and write and, by extension, the ability to engage in abstract thinking – will advance by 2035 in conjunction with the growth of *agented (AI) shepherding*. … Information purveyors may use AI to bend information to their own ends or allow distorted information to be spread at the same level of respect given to fact-based content. People without adequate reasoning capabilities may not realize that any agent-led quest for knowledge could be mostly shaped by corporate values of user metrics and engagement, which can then be exploited by demagogues and conspiracy theorists who use controversy as a weapon to cover their intent to grift."

"People are continuing to expand their uses of AI-based online tools for reading, writing and research. "The decline in literacy – the ability to read and write and, by extension, the ability to engage in abstract thinking – will advance by 2035 in conjunction with the growth of *agented (AI) shepherding*. People are continuing to expand their uses of AI-based online tools for reading, writing and research. The platforms that generate information will serve it up in the most digestible format for people who desire quick answers and those who don't like reading – this is agented shepherding. Information purveyors may use AI to bend information to their own ends or allow distorted information to be spread at the same level of respect given to fact-based content. People without adequate reasoning capabilities may not realize that any agent-led quest for knowledge could be mostly shaped by corporate values of user metrics and engagement, which can then be exploited by demagogues and conspiracy theorists who use controversy as a weapon to cover their intent to grift.

"Emergent behavior: quandaries of the unknown

By 2035 AI will have moved from the purely technical realm to the emerging moral realm of quandaries, confounding imperatives and unanswerable questions (paradoxes):

> *'The blunt truth is that nobody knows when, if, or exactly how AIs might slip beyond us and what happens next; nobody knows when or if they will become fully autonomous or how to make them behave with awareness of and alignment with our values, assuming we can settle on those values in the first place.' – Mustafa Suleyman, '*The Coming Wave*'*

"The uncertainty, which by 2035 will morph into factions for and against, will come from not knowing the outcomes, the consequences, of AI creations. What will happen as systems begin to write their own code? What will happen as AI creates agents who have autonomous capabilities? What if what we don't know becomes greater, somehow, than what we know about AI and its ability to not only enhance but direct our lives? Swerve our decisions? Infect or coerce our thinking and perception? Eric Schmidt discusses:

> *'The interesting question is … over a five-year period … these systems will learn things that we don't know they're learning. How will you test for things that you don't know they know? … All of these transformations, for example you can show it a picture of a website and it can generate the code to build the website … all of those were not expected. They just happened. It's called emergent behavior.'*

"Notable among these outcomes is that AI will lead to abundance. But Geoffrey Hinton claims that abundance may be used to increase the gap between the rich and the poor, instead of creating

abundance for all. We will not only have to monitor our creations to learn from them, we will be obligated to look wider to the societal impact of an AI that creates greater abundance, while also destabilizing society.

"Extended mind, extended self

Working for us as agents – no longer merely tools that obey our instructions and whims – AI represents humans' first real *extended mind*. Not only have we extended the human mind into our tools; that mind is thinking and deciding alongside and sometimes without the humans using it. By all accounts AI will outthink humans. The social, political and economic implications of this powerful intelligence are numerous. Not least of these is how we present ourselves socially, to the world, to our loved ones. We will change as the thing we present – our self – changes from an inner self to an outer, ersatz, crowdsourced self. This is already happening as the British journalist Mary Harrington, coiner of the phrase 'digital modesty,' outlines:

"Working for us as agents – no longer merely tools that obey our instructions and whims – AI represents humans' first real *extended mind*. Not only have we extended the human mind into our tools; that mind is thinking and deciding alongside and sometimes without the humans using it. By all accounts AI will outthink humans. The social, political and economic implications of this powerful intelligence are numerous."

> *"'… you feed the machine every time you offer up a fragment of your inner life and invite participation by strangers in a simulacrum of your "self" evacuated into the public domain. And while there's considerable upside in feeding the machine – reader engagement is reliably better when I offer some self-disclosure – it's a Faustian bargain in that the more of yourself you evacuate into the digital realm, the thinner the sense becomes of having an inner life, as such.'*

"'Evacuate into the digital realm' means you are creating a soulless, unbodied version of yourself for the sake of presenting your self digitally. While this may garner 'friends,' that term is suspect since few or any of those friends will interact with you physically, realistically. This creates unintended isolation for the human animal (after all, we are animals; humans share approximately 90% of their DNA with other mammals,) who evolved in social groups with interpersonal connections registered in physical spaces.

> "As Derek Thompson wrote:
> *'Americans are now spending more time alone than ever. It's changing our personalities, our politics and even our relationship to reality.'*

"Being human becomes being 'human-plus'

By 2035, so-called political leaders will use AI to take their case, and their grifts, to the outside world, using AI to persuade and govern. Economically, we will value AI investment and competition as essential to the survival of nations. In the midst of those changes, the notion of a human mind being housed in a single person's head or body will be seen to be antiquated. Humans will embrace the reality of tools that extend their thinking, and in many instances, extend their intention. With AI extensions of virtually every human activity, from sex to investing, we will be *human plus*: human + AGI or AGSI (artificial general superintelligence). The human mind, expression, intention and understanding will merge with generalized intelligence (as opposed to our limited, personal intelligence) and never again will humans think of local mind as their only mind.

"Human proprioception, our sense of where our body begins and ends, will never again be limited to our physical frame; our proprioception will melt into a global embrace of all that the world knows. Doing so,

we will become less 'I think therefore I am' and more an amalgam of identities, a user of adjuncts and extenders.

Part 2 of the research question
Next, Barry Chudakov shared a separate response to a second aspect of the essay prompt: "*Over the next decade, what is likely to be the impact of AI advances on the experience of being human?*

"Integrity goes wonky
Human integrity – the sense of being whole, connected internally and externally to the world – will undergo a profound shift and will likely represent the greatest impact of AI advances on the experience of being human. By integrity I mean both the implication of being fully integrated, connected to one's desires and destiny, as well as the larger sense of standing for what one considers to be true.

"Being human will undergo profound changes as AI and the human mind merge; the human mind will integrate with AI. Simply put, there will be more of each of us (AI extensions and digital personas) – who aren't really each of us. This is *radical virtualization*. It is not only that we will access or rely on AI to give us details about a topic we need to research or turn over the chore of answering customer complaints to OpenAI. The essential and existential experience of being human will embrace the AI extension.

'We will undergo massive changes as we share consciousness with digital entities. What I think, my thoughts, my sense of the world, will now include the AI world of all others, upon which AI is based. What I think and my perceptions of the world will be swerved and altered by using AI to bring the world to me and enable me to interact with the world.

"Morphing of social structures
By 2035 it will be abundantly clear. In regard to the experience of being human, since social structures are the essence of humanity, technology development is racing past social structures.

'Democracies are built on top of information technology. It's not something on the side. When you have a major upheaval in information technology, you have an earthquake in democracies. And we are experiencing it now, all over the world.' – Yuval Noah Harari

"We will no longer think of ourselves as solely human; or, rather, we won't think that 'being human' doesn't include AI – we will see ourselves part-human, part-other. Our self-sense will now expand to a family of AI agents who work with us, for us, (against us?) – all of which extend our proprioception, stretching it to the distending point. Schizophrenia will be the natural state of most humans – as common as aspirin – as we split our identities, part of us in an online venue, part relying on some manner of AI to complete our day-to-day tasks – and using the same AI agents and 'helpers' to self-promote, self-brand, self-improve."

"Wholly unimaginable realities will emerge, with almost no moral or conceptual guidelines. This means that we must begin urgently to shore up our moral awareness of the far-reaching implications of inviting AI into our lives and minds.

"Eric Schmidt, when speaking to a group of technologists in Silicon Valley said *'No one understands, no one is catching up beyond you in Silicon Valley.'* He then gave an example: Suppose you realize that your son or your daughter's best friend is an AI replica or digital entity (like those already made by companies like Replika, or longtime AI social stars Lil Miquela or Shudu.) "What do you do? How do you think about that? How do you deal with it? What are the guidelines or best practices?

Part 3 of the research question
Chudakov shared this response to the third portion of the essay prompt, "*How might the expanding interactions between humans and AI affect what many people view today as 'core human traits and behaviors?'*

"The presentation of self in everyday life will never be the same
Core human traits and behaviors will undergo profound changes and never return to previous boundaries. Being human itself will undergo the most profound changes in human history due to having an alt-AI self, an alt-AI companion or counselor. As we do with all our tools, we will take AI into our bodies and minds. We will no longer think of ourselves as solely human; or, rather, we won't think that 'being human' doesn't include AI – we will see ourselves part-human, part-other.

"Among the core human traits and behaviors most affected by having this alt-AI surrounding us will be our sense of self. Our self-sense will now expand to a family of AI agents who work with us, for us, (against us?) – all of which extend our proprioception, stretching it to the distending point.

"Schizophrenia will be the natural state of most humans – as common as aspirin – as we split our identities, part of us in an online venue, part relying on some manner of AI to complete our day-to-day tasks – and using the same AI agents and 'helpers' to self-promote, self-brand, self-improve.

"The self may be a bore, as Krishnamurti said, but it will be a busy and profitable bore. Self-promotion will be a corporate endeavor. On platforms owned and financed by oligarchs who want us to use these tools to keep their businesses profitable and earning billions or even trillions of dollars to personally enrich themselves, the self becomes the ultimate business model.

"Intelligence boost: the embrace and challenges of factfulness
By 2035 a core human trait and behavior most affected by AI will be increased intelligence caused, in no small measure, by our entraining with AI intelligence:

'*Intelligence is the wellspring and the director, architect and facilitator of the world economy. The more we expand the range and nature of intelligences on offer, the more growth should be possible.' –* Mustafa Suleyman, 'The Coming Wave'

"In effect, as we boost our intelligence by using and according with AI, we thereby entrain with AI logic. But the dichotomy of factfulness – a gulf between how AI operates and what it must have and use to be successful and what we think day to day – will spur awareness. AI is grounded in factfulness and honest, truthful assessments. This fundamental characteristic is our best knowledge and our fervent hope.

"Today we are swarmed by misinformation that threatens democracy, democratic institutions, media, community and politics – to name a few. The embrace of factfulness will face significant challenges.

"The 'rule-based order' is challenged by advancing AI technologies that can hack, incite, promote, flame, distort and disintermediate rules and governments. AI is fundamentally based on facts. Sooner or later, the facts will define our world, not outlandish theories or self-serving rationalizations and distractions. … Humans plus AI, working together, can tackle complex challenges more effectively than either alone. So, by the force of tool logic – we entrain with the logic of the tools we use – we will begin to think in the logic of factfulness. Propaganda will still try to sway our perceptions but as nothing can withstand an idea whose time has come; nothing can withstand the force of a tool logic in the hands of everyone on the planet. It may take some time, but yes, we are likely to embrace factfulness over disinformation."

- “Some universities are embracing AI as a learning tool while others struggle with plagiarism concerns.
- “Medical diagnoses are being augmented by AI imaging analysis, which may eliminate jobs and changes doctor-patient relationships.
- “Courts are beginning to grapple with AI-generated evidence and questions of liability when AI systems make mistakes.
- “And news organizations are using AI for content generation and fact-checking, transforming journalistic practices and again threatening jobs.

“But the greatest effect of advanced AI systems will be on democracy and nation-states, which are social system artifacts of the alphabetic order. That order, often described as the ‘rule-based order,’ is challenged by advancing AI technologies that can hack, incite, promote, flame, distort and disintermediate rules and governments. From ransomware attacks to centralization and decentralization quandaries, what Suleyman has called ‘fragility amplifiers’ will make governing nation states and the process of preserving free and open democracies more frangible and more open to attack and undermining influences.

“While intelligence may be a two-edged sword and the problems AI presents are formidable, we cannot, on the one hand make up facts and conspiracy theories, and on the other use realistic assessments to create opportunity and improvements and efficiencies. For example, fixing a dangerous traffic intersection. Real-time data must be accurate and exact.

“Said differently, AI is fundamentally based on facts. Sooner or later, the facts will define our world, not outlandish theories or self-serving rationalizations and distractions. The traffic intersection must be fixed by doing concrete things, factually based, to improve outcomes. Humans plus AI, working together, can tackle complex challenges more effectively than either alone. So, by the force of tool logic – we entrain with the logic of the tools we use – we will begin to think in the logic of factfulness.

“Propaganda will still try to sway our perceptions but as nothing can withstand an idea whose time has come; nothing can withstand the force of a tool logic in the hands of everyone on the planet. It may take some time, but yes, we are likely to embrace factfulness over disinformation.”

A continuation of Part I: More on the Human OS on 2035

The following sets of experts' essays are a continuation of the overall set of insightful essays focused on how "being human" is most likely to change between 2025 and 2035, as individuals who choose to adopt and adapt to implementing AI tools and systems adopt new patterns of doing, thinking and being.

The next section of Part I includes the following essays:

A Senior Foresight Analyst for a Major Nation-State: **AIs that work with us can help us be more successful; a compassionate AI might be a better friend than 95% of your social network.**

Eni Mustafaraj: **Smartphone technology has already transformed humanity; we don't need to wait 10 more years to understand that things are not going well for us.**

Greg Sherwin: **Memory, creative thinking and the ability to rapidly establish baseline competencies to the mean in novel areas will gradually increase and become more accessible due to AI.**

Tom Wolzein: **By 2035 AIs' decision-making functionality will be everywhere; they will impact our lives directly, often spurring humans (or AIs) to take action without any oversight.**

Marine Ragnet: **AI development should prioritize human flourishing and agency over efficiency, ethics over technical capabilities and democratic oversight over rushed innovation.**

Senior Foresight Analyst for a Major Nation-State

AIs That Work with Us Can Help Us Be More Successful; Your Best Friend May Not Be an AI But a Compassionate AI Might Be a Better Friend Than 95% of Your Social Network

A senior foresight analyst with 20 years of leadership experience working for a major world government wrote, "We have seen a dramatic expansion of large language model and related generative AI capabilities in the 2020-2025 period.

"Progress has slowed recently, but new models are doing more, faster and cheaper than technologies of even 2023 or early 2024.

"It is reasonable to assume that by the early 2030s the technology will be woven into many pieces of human life, with the ability to go deeper on a question, to expand understandings, to query the truth or falsity of an understanding, and the option of using an agent able to execute tasks on your behalf will be both widespread

"By the early 2030s the technology will be woven into many pieces of human life, with the ability to go deeper on a question, to expand understandings, to query the truth or falsity of an understanding, and the ability of using an agent to execute tasks on your behalf will be widespread and standard. This could lead to … a redefinition of relationships. Many will be lost, albeit temporarily, to their virtual chatbot friends and lovers. Others will treat AIs as friends or grad students that are able to support them and encourage better relationships with peers, families and employers. Switching between conversations and codes with one's AIs and with other humans could become second nature to many."

and standard. This could lead to obvious outcomes like hyper-personalized digital content environments and erosion of privacy, but also to a redefinition of relationships. Many will be lost, albeit temporarily, to their virtual chatbot friends and lovers. Others will treat AIs as friends or grad students, able to support them and encourage better relationships with peers, families and employers. Switching between conversations and codes with one's AIs and with other humans could become second nature to many.

“The social landscape will be reshaped by differential access to AIs that work for us, with us, and through us, allowing us to be more successful at achieving our goals than we could be individually. One possibility is that advanced AI chatbots may be more compassionate and kinder than other humans in our world. Your best friend may not be an AI, but the AI might be a better friend than 95% of your social network. But access to AIs, particularly the best and most "'human’ ones, may be a problem if the good ones are differentially available.

“The political landscape may be significantly reshaped by advanced AIs. Today we have AI-deepfakes, tomorrow, AIs that do parallel reading and ground-truthing to root out and identify fake news. Governments will use AI to do a lot of work, enabling their operations to be more efficient at lower cost, as will the private sector. The benefits are likely to be more modest than some boosters say and largely will augment jobs rather than displace them. For knowledge work, AI will often be a kind of digital knight, enabling satisfaction of job requirements exactly when pressures grow to do more with less.

“Economically, we could see an uptick in the presence of the (AI-supported) ‘Renaissance Man’ – but not just men, people of all kinds. I expect we will see many more individuals with broad interests using AI to develop deep knowledge on a host of different topics. … The benefits are likely to be more modest than some boosters say and largely will augment jobs rather than displace them. For knowledge work, AI will often be a kind of digital knight, enabling satisfaction of job requirements exactly when pressures grow to do more with less. … Overall, will AI have changed being human for better or worse? I suspect in time, the answer will be ‘absolutely better,’ but that may take a long while to develop.”

“For authoritarian governments, identification of ‘seditious elements’ and personality profiles of citizens are likely to also be enabled through AI, with the potential of having the equivalent of a psych research lab coding citizen desires, responses and utterances operating full time on each citizen, at scale. I expect to see very intrusive data demands by authoritarian governments with the goal of identifying emergent movements and finding soft targets to infiltrate such movements.

“Economically, we could see an uptick in the presence of the (AI-supported) ‘Renaissance Man’ – but not just men, people of all kinds. I expect we will see many more individuals with broad interests using AI to develop deep knowledge on a host of different topics. Expertise will become more common even if humans’ ability to understand what may happen in future and why certain outcomes are probable or improbable remains difficult to package in an algorithm.

“Costs for knowledge work will fall. There will be higher-volume productivity but only modestly increased dollar productivity. Expectations will rise as capabilities increase, and new jobs that did not exist previously will provide most of the new growth attributable to AI in this period.

“The impact on core human traits and behaviours could play out in a variety of spaces. As I think to my own young family, I could see future generative AI externalizing thinking, making internal processing interactive and having dialectic analysis be available on demand for life decisions, potentially moving

toward having a helpful virtual management consultant available for both major and minor life decisions.

"This could aid creativity and problem-solving, while expanding empathy and emotional intelligence if well-directed. To what extent this will be available and used by members of the public in the early 2030s is unclear. I would venture that due to dramatic reductions in price and increases in availability and uptake, a much larger fraction of the world's population could benefit, although not clear that we crack even 10%, much less 50%. I could see many traditionally taught subjects, such as math skills, being largely automated, while human cognition will be necessary for sanity-checking, working through errors and decoding pipelines for what is actually useful. All this goes to identity and purpose: the creator economy will benefit from AI support in research, design and production, but can the global economy build on a billion small-craft suppliers of insights and takes? I would think that some will seek enlightenment or guidance on how to live by consulting AI tools.

"I don't foresee a huge amount of penetration of AI in the experience of being human in this time frame, as people will continue to want experiences, relationships and social if not economic reward for demonstrating their skills or progress towards their own self-actualization. AI, working in the virtual space, will play only tangentially in that endeavour – more strongly if VR or AR take off as major and effective social spaces – but direction intermediation of the relationship between people seems a little science-fiction at this time.

"I could see AI support for mediating virtual relationships, including using influencers using personalized LLMs as interactive embodiments of parasocial relationships, particularly if there is a way to get backchannel information to the creator summarizing conversations with fans. Overall, will AI have changed being human for better or worse? I suspect in time, the answer will be 'absolutely better,' but that may take a long while to develop. AI can teach us how to be kind, where others are coming from and allow us to dry run difficult situations or conversations. Mid-century, I could see this becoming more normalized everywhere, but not by 2035."

Eni Mustafaraj

Smartphone Technology Has Already Transformed Humanity; We Don't Need to Wait 10 More Years to Understand That Things Are Not Going Well for Us

Eni Mustafaraj, associate professor of computer science at Wellesley College, wrote, "In 2001, Tim Berners-Lee, the inventor of the World Wide Web, together with two colleagues, Jim Hendler and Ora Lassila wrote a vision piece for Scientific American magazine titled 'The Semantic Web.' It imagined a future in which we would all have a personal digital assistant capable of managing our everyday mundane chores: scheduling meetings on our calendar, coordinating tasks on our behalf, finding trusted information on the web, booking flights, comparing products, securely paying bills, the list goes on.

"AIs are not publicly owned technology, as the web technologies invented by Tim Berners-Lee were. Instead, they are being developed behind closed doors, without transparency and public accountability. This means that they cannot be trusted to have one's individual interests at heart. AI could well be (or become at any moment) a kind of a Trojan horse. It will always carry the risk of doing someone else's bidding when we expect it the least."

"These are the types of tasks that wealthy people pay human assistants to do for them, so they can use their time to focus either on creative or decision-making tasks. The authors believed that we would not need AI to do these tasks (at that time the progress of AI had stalled), instead the key would be the augmentation of the existing web with semantic layers and other technologies that would allow these software agents to 'understand' the information on the web in order to carry out these tasks on our behalf.

"More than 20 years later, we don't have a semantic web or the personal software agents that are truly capable of doing these tasks. The generative AI technology being developed at the moment is fundamentally different in a couple of ways:

1) "AIs are not publicly owned technology, as the web technologies invented by Tim Berners-Lee were. Instead, they are being developed behind closed doors, without transparency and public accountability. This means that they cannot be trusted to have one's individual interests at heart. AI could well be (or become at any moment) a kind of a Trojan horse. It will always carry the risk of doing someone else's bidding when we expect it the least.

2) "Today's AI advances are not being developed to carry out the mundane tasks to free up our time to do other things. Instead, it is doing tasks that highly-paid humans used to do: write software; generate images, graphics, video, music; write poetry and fiction; create business plans; give life advice; create study guides and summarize new research.

"By doing such things quickly and reasonably (as well as an average person), it is taking away the motivation for young people to enter these fields. (We are already seeing a decline in the number of students who want to enroll in our introductory programming courses, which have a reputation for being time-demanding and in which the use of AI tools is not allowed.)

"My biggest worry is that the future of generative AI will follow the path that social media from its advent in the early 2010s to today. When Facebook and Twitter started spreading across the world, due to their uses in the early days we had high hopes for these types of platforms to become tools of democratization and freedom. That is not what happened. Today it is clear that young people who use social media at least five hours a day (which is the average today) are suffering anxiety and depression; studies show such use has increased the level loneliness among adults and the platforms carry manipulative content that has exacerbated political polarization across the world.

"Although I have no doubt that some researchers or organizations will use AI to achieve significant scientific breakthroughs, I doubt that the major tech companies that are now developing AI have a vision for a future for humanity that is equitable and committed to human flourishing. … By becoming addicted to our phones and the entertainment/distraction that they provide, we have already changed our behavior and might already be in the process of losing many of our core human traits. AI might simply accelerate our descent into the dystopian abyss, because we are already losing or surrendering our agency to make decisions for ourselves."

"It is very likely that the enthusiastic adoption of generative AI at this moment, with its utopian vision of a wonderful AI-Human partnership, will soon show its own harmful effects – one isolated example is that it seems to be motivating young people to not want to study science any longer, because what's the point of doing the hard work of thinking if the AI can do it faster and without any pain.

"The dystopian future depicted in the movie 'Wall-E' seems suddenly more likely: humans addicted to their algorithmic-driven entertainment devices (powered by AI), oblivious to the catastrophic consequences of consumerism on the planet (powered by the energy-hungry data centers that are spreading like mushrooms across the globe).

"Although I have no doubt that some researchers or organizations will use AI to achieve significant scientific breakthroughs, I doubt that the major tech companies now developing AI have a vision for a future for humanity that is equitable and committed to human flourishing.

"In my opinion, smartphone technology has already transformed humanity. We don't need to wait 10 more years to understand that things are not going well for us. By becoming addicted to our phones and the entertainment/distraction that they provide, we have already changed our behavior and might already be in the process of losing many of our core human traits. AI might simply accelerate our descent into the dystopian abyss, because we are already losing or surrendering our agency to make decisions for ourselves."

Greg Sherwin

Memory, Creative Thinking and the Ability to Rapidly Establish Baseline Competencies to the Mean in Novel Areas Will Gradually Increase and Become More Accessible Due to AI

Greg Sherwin, Singularity University global faculty member, and technology consultant and board member, wrote, "Like many disruptive technologies that came before it, frontier AI will change human social, political and economic life for both better and worse. Each advancement will come at a cost, requiring tradeoffs or a social 'forgetting.' For example, GPS has served to severely reduce human risks of getting physically lost, but at the cost of diminishing our prior skills at direction-finding and opportunities for emergent discovery by exploring less travelled paths. The types of change we might expect by 2035 include:

1. "Memory, creative thinking and an ability to rapidly establish baseline competencies to the mean in novel areas will gradually increase and become more accessible. In many instances, it will challenge us to remember how we achieved these skills without AI.

2. "Increasing use of AI will highlight the preciousness of true human expertise, rare genius and originality.

"Increasing use of AI will highlight the preciousness of true human expertise, rare genius and originality. … While answers will be revered far more than questions, the overall value of questions – more and better questions – will be elevated. Unfortunately … by outsourcing our ethics to algorithms we will absolve ourselves of agency and responsibility in an indirect attempt to run our ethics by machine."

3. "We will lose some curiosity in *why* something is the correct answer – we will be more satisfied by merely knowing what 'correct' is. But while answers will be revered far more than questions, the overall value of questions – more and better questions – will be elevated.

4. "Unfortunately, our dependence on immediate answers without pausing as to why will also fuel a slippery-slope temptation to absolve ourselves of moral thought in how decisions are

made. By outsourcing our ethics to algorithms we will absolve ourselves of agency and responsibility in an indirect attempt to run our ethics by machine.

5. "Economic growth for individuals will continue to largely correlate with greater loneliness, disconnection and isolation from other humans. Many will seek solace in the artificial care and support of algorithms. Machine companionship might provide some emotionally resonant support at first, but society will quickly come to acknowledge its emptiness and 'cheapness.'

6. "Meanwhile, the risk of our human languages becoming used more for human-to-machine and machine-to-machine interactions will abate once non-verbal machine communications with AI begin to become the norm."

Daniel S. Schiff

'Capitalism, Marketing, Attention Economics, Precarious Work, Competition and Inequality Are Major Forces Poised to Shape the Design of AI Systems, Human-AI Interactions and Human Life'

Daniel S. Schiff, co-director of the Governance and Responsible AI Lab at Purdue University and secretary of the IEEE 7010-2020 AI ethics industry standard, wrote, "By 2035, many of the digital interconnections that we are experimenting with will have matured into standard aspects of daily life as 'winning' products, services and workflows emerge. Many aspect of human psychology, values and behaviors will remain fundamentally the same.

"Importantly, our ways of living will be strongly mediated by economic and social forces, not by technological advances alone. For instance, even if AI is pervasive in healthcare and education, nurses will remain overworked and teachers will be underpaid. Forces such as consumerism, economic competition and inequality seem likely to continue to shape the essence of human life, behavior and self-perception, even in a 'native' human-AI world. There are likely to be major gains in wealth, creativity and poverty and an increased variance in human experience owing to deep human-AI integration.

"Many aspects of human psychology, values and behaviors will remain fundamentally the same. Our ways of living will be strongly mediated by economic and social forces, not by technological advances alone. … Forces such as consumerism, economic competition and inequality seem likely to continue to shape the essence of human life, behavior and self-perception, even in a 'native' human-AI world. There are likely to be major gains in wealth, creativity and poverty and an increased variance in human experience owing to deep human-AI integration."

"By 2035, human-AI or human-machine interaction will be more normalized for those who are connected to these technologies. Some of today's technological tools are highly imperfect or brittle (e.g., virtual agents, home robotics) and others are more mature but far from seamless in terms of their reliability and integration quality (e.g., smart homes, basic digital assistants). In the next decade, many of these tools will become commonplace and broadly reliable, at least insofar as technologies like home appliances and standard software are 'reliable.' While today, humans may interact with or be affected by AI systems hundreds or thousands of times a day, e.g., through entertainment, news, or shopping recommender systems, in a decade, humans will have normalized interactions with virtual and embodied machine intelligence in a greater variety of settings and modalities.

“For example, AI tools in educational settings, despite their decade-long history, are still very much in a disruptive and troubled state, while AI tools in healthcare settings are only beginning to benefit from developing best practices and standards. In a decade, some of the 'winning' products, services, workflows and modes of interaction in these settings will be normalized, just as the Internet, search engines and social media are embedded in personal and economic life. That said, there will still be plenty of failures, errors and experimental efforts as the marketplace continues to innovate and human society reacts.

“It's unclear what the level of reliance or human-AI integration will be in specific settings, e.g., educational, healthcare or manufacturing settings. If I had to predict, however, I would say that standard 'environments' will remain similar, at least superficially: teachers in classrooms, but with lots of backend usage of AI software support, and the same for students, with lots of backend usage of AI for learning. Medical professionals will remain in hospital rooms with patients, but, importantly, with tremendous usage of AI for research, data management, diagnosis and guided medical advice.

“Along these lines then, it's possible that the superficial persistence of 'traditional' human interactions in traditional settings will understate the actual degree of transformation, as a huge portion of the work, value and impact of life occurs through 'background' behaviors and computationally-driven systems.

“Many critical aspects of humankind are likely to remain the same, in part because our core human instincts, psychology and biology are likely to remain similar (absent an AI singularity that drives change at the genetic or advanced cybernetic level). In the context of work and personal life, this includes the continued manifestation of things like outgroup conflict, boredom, stress, interest in entertainment, greed and status seeking, romantic attachments, addiction, loyalty, etc.

“I would not expect massive revolutions by 2035, e.g., that 90% of students around the world are hyper-engaged in personalized AI tutoring and become incredible experts at young ages. However, there may be mini-revolutions at the fringes, such as a growing number of young individuals or individuals from impoverished settings being able to perform incredible feats of learning, creativity and innovation such as becoming experts or starting leading companies. In that sense, increased access to advanced AI may create more variance or volatility in what is possible, with both positive and negative outcomes. Yet, humans are likely to ultimately value many of the same things: security, stability, relationships, pleasure, wealth and so on.

“Economic forces will continue to replace labor with capital. … Absent dramatic transformations in human education or in the willingness of societies to distribute wealth and leisure more broadly, there is likely to be continued disruption, insecurity and inequality. [Many individuals] may find themselves continually desperate to find economic security and meaningful work. Even if new innovations increase wealth or health broadly, leading to net positives for the world, it seems unlikely that human-AI workflows will make work itself utopic. If anything, the severely growing skill gaps between AI and humans seem likely to threaten the human sense of self-worth, creating new pathologies, social disruption and the need for new outlets.”

“Critically, much of the norm of human interaction, behavior and essence, is also likely to continue to be driven by major economic forces. Capitalism, marketing, attention economics, precarious work, competition and inequality are amongst the forces that seem poised to shape the design of AI systems, human-AI interactions, and, ultimately, human life. Thus, while an 'Oasis'-style virtual world with unlimited human-AI-enabled creativity and empathy could evolve in theory, it's likely that a major AI-VR environment will be (at least as) replete with marketing, attention seeking mechanisms, and various unhealthy and unfortunately predatory behaviors.

"The essence of our cultural and economic milieu, therefore, seems likely to heavily mediate how human-AI interactions shape human essence. Technology's impact on the essence of humanity cannot be understood exogenously, in the absence of recognizing the importance of social and economic (and political and cultural) forces.

"One area of significant concern is human meaning and self-valuation, particularly in the context of continued competition, inequality and economic stresses. A pessimistic reading of the future of work discourse is that there are massive skill gaps, persisting or even growing over decades. If educational systems fail to make transformative progress, which seems likely, then economic forces will continue to replace labor with capital, making AI a substitute for human intelligence rather than a tool to enhance it**.** Capitalist logic cautions that employers are just as likely to replace workers or make their jobs worse when incorporating AI workflows as they are to create new meaningful jobs or say, decrease the length of the work week. New jobs that are created may include menial labor like data annotation or perhaps human moderation of content (though some of these specific tasks are also themselves likely to be automated, e.g., through use of synthetic data).

"So, absent dramatic transformations in human education or in the willingness of societies to distribute wealth and leisure more broadly, there is likely to be continued disruption, insecurity and inequality. Individuals in some economic, educational, or social classes, or in various regions of the world, may find themselves continually desperate to find economic security and meaningful work. Even if new innovations increase wealth or health broadly, leading to net positives for the world, it seems unlikely that human-AI workflows will make work itself utopic. If anything, the severely growing skill gaps between AI and humans seem likely to threaten the human sense of self-worth, creating new pathologies, social disruption and the need for new outlets."

Tom Wolzein

By 2035 AIs' Decision-Making Will Be Everywhere; It Will Impact Us Directly, Often Spurring Humans (or AIs) to Take Action Without Oversight; 'AI Automatons Will Beget Human Automatons'

Tom Wolzien, inventor, analyst and media executive, wrote, "People are basically lazy. Research, analysis and thinking are hard work. AI provides an alternative to hard work. The issue will be the unverifiable, those things that take moral, ethical or intuitive judgment.

"The use of AI to write code, for example, is verifiable. It either works or it doesn't. I used to manage software writers, but I am not a coder myself. Now I manage AI to write code almost exactly as I used to manage humans. All I need to know is how to run it. And, as with software written by humans, sometimes the code works and sometimes it doesn't do what I want it to do. Then I tell the AI to fix it and I repeat that command until it works. Just as I do with human employees. AI just does it, with no judgment, morality or ethics in the mechanics, except for human jobs lost.

"People are lazy, and the AI in 2035 will do much more of the work for us, often leaving us out of the loop in decision-making. It's a small jump but a giant leap for humanity going from AIs that simply answer when we ask, 'I want to know' to AIs that are called to duty when we ask, 'What should I do?' The first provides data, and, assuming that data is correct (a technical issue), it helps me develop positions or make decisions. The second bypasses the data collection and analysis stage and lets me leap to a decision without all the work."

"Today's AI provides much-improved search capabilities, better to read and with more knowledge. It

allows me to expand my curiosity. I can ask it, 'What about this? Explain that in terms I can understand,' and so on. I'm not a scientist nor am I an environmentalist, but AI can help me understand the damaging significance of methane when compared with CO2. It can visualize the size of the block of carbon produced as a result of a flight I take across the country or around the world. What I do with that visualization is up to me. Again, no judgment, morality or ethics.

"But, as I said, people are lazy, and the AI in 2035 will do much more of the work for us, often leaving us out of the loop in decision-making. It's a small jump but a giant leap for humanity going from AIs that simply answer when we ask, 'I want to know' to AIs that are called to duty when we ask, 'What should I do?' The first provides data, and, assuming that data is correct (a technical issue), it helps me develop positions or make decisions. The second bypasses the data collection and analysis stage and lets me leap to a decision without all the work.

"In 10 years, this AI decision-making functionality will be everywhere and it will impact our lives directly. Go into an ER and AI will not just inform the (diminishing number of) doctors of your status it will do the triage. Decisions on a child's future education will be made mechanically, without a teacher's recognition of a 'spark' of warning or noting of something special. Decisions on employment will be made based not just on applications, but also on facial recognition, facial traits and body movements, without the traditional lengthy interviews that sometimes result in a more-successful hire because of something that 'clicks' between two humans a half hour in.

"The AI automatons will beget human automatons."

Marine Ragnet

AI Development Should Prioritize Human Flourishing and Agency Over Efficiency, Ethics Over Technical Capabilities and Democratic Oversight Over Rushed Innovation

Marine Ragnet, an affiliate researcher at the New York University Peace Research and Education Program working on a framework to promote ethical AI development, wrote, "The relationship between humans and AI by 2035 will fundamentally reshape our social fabric in ways that demand careful consideration of institutional design and democratic oversight. The research I lead at NYU shows that the complex interplay between enhanced capabilities and the potential erosion of human agency will require proactive governance frameworks that achieve the right balance of:

1. Innovation and democratic oversight
2. Technical capability and ethical consideration
3. Efficiency and human flourishing.

"Most critically, individual agency may face unprecedented challenges. Our research on democratic technology governance reveals how institutional design choices directly impact whether AI systems enhance or diminish human autonomy. Without careful attention to participatory governance mechanisms, we risk creating systems that subtly shift agency away from human decision-makers. The key to navigating these changes lies in developing governance frameworks that ensure AI systems remain tools for human empowerment rather than replacement."

"It is highly likely that AI systems will enhance learning and decision-making in the future *if* we reach and maintain the right balance in regard to these aspects of human-AI collaboration. It could allow us to enhance rather than diminish human agency. There are several areas of concern.

"Most critically, individual agency may face unprecedented challenges. Our research on democratic technology governance reveals how institutional design choices directly impact whether AI systems enhance or diminish human autonomy. Without careful attention to participatory governance mechanisms, we risk creating systems that subtly shift agency away from human decision-makers.

"The key to navigating these changes lies in developing governance frameworks that ensure AI systems remain tools for human empowerment rather than replacement. We and other international organizations are collaborating in the development of participatory approaches that maintain human agency while leveraging AI capabilities. This includes mechanisms for community oversight, democratic governance of AI systems and institutional designs that prioritize human flourishing.

"The path forward requires careful attention to power dynamics in technological development. Our research demonstrates that when communities have meaningful input into AI system design and deployment the resulting technologies better serve human needs while preserving essential aspects of human agency. This participatory approach will be crucial for ensuring that advanced AI systems enhance rather than diminish what makes us human.

"The capacity for deep thinking about complex concepts may face particular challenges as AI systems offer increasingly sophisticated outputs that could reduce incentives for independent analysis. This dynamic recalls patterns we've observed in our research on community engagement with AI systems, where convenience can inadvertently reduce participatory decision-making.

"The impact on self-identity and shared cultural values warrants particular attention. Technological systems can either strengthen or erode local value systems depending on their design and implementation. By 2035, this tension will likely intensify, requiring robust institutional frameworks to ensure AI systems respect and enhance rather than homogenize cultural diversity."

"Social and emotional intelligence present perhaps the most nuanced trajectory. While AI could possibly enhance the ability to understand emotional patterns, research indicates that an overreliance on algorithmic interpretation of human emotion could atrophy natural emotional intelligence. Similarly, empathy and moral judgment might face pressure from automated decision systems that prioritize efficiency over ethical complexity.

"The impact on self-identity and shared cultural values warrants particular attention. Technological systems can either strengthen or erode local value systems depending on their design and implementation. By 2035, this tension will likely intensify, requiring robust institutional frameworks to ensure AI systems respect and enhance rather than homogenize cultural diversity. By 2035, the quality of human-AI interaction will largely depend on the governance frameworks we develop today. Institutional design choices can either empower or marginalize human agency. Success will require moving beyond technical capabilities to consider how these systems integrate with and support human social structures."

The next section of Part I includes the following essays:

Dmitri Williams: **The efficiency and low friction of tech-enabled living immerses us in experiences mediated by capitalist or socialist interests that mute real human togetherness.**

Micah Altman: **Profit-driven uses of AI may make it difficult to judge the humanity, identity and sincerity of our daily interactions, 'diluting human relationships and making being human worse.'**

Michael Wollowski: **Humans will spend their time in smaller 'communities' of like-minded people, leading more-solitary lives and substituting interaction with tech for human contact.**

Peter Reiner: **Widespread job displacement will destroy many people's 'meaning in life' and humans' self-image will take a big hit when they no longer have cognitive superiority.**

Sarah Scheffler: **AI brings connectivity down to something that can be simulated without needing an actual person. the societal changes technology enables change humans, we are people, people.**

Erhardt Graeff: **Generative AI devalues the virtue of humility; awareness of our human limitations inspires us to be more open and tolerant, to seek out others, to be more well-rounded.**

Dmitri Williams

The Efficiency and Low Friction of Tech-Enabled Living Immerses Us In Experiences Mediated by Capitalist or Socialist Interests That Mute Real Human Togetherness

Dmitri Williams, professor of technology and society at the University of Southern California, wrote, "I teach a class and do research on the social impacts of technology. This question is the heart of everything. I typically start the first day of that class out by noting that there is a baseline set of behaviors that come from being human that we've derived from hundreds of thousands of years of evolution.

"There are a lot of theories on this. Let's use Ithiel de Sola Pool's 'Time's Arrow.' Humans evolved to interact, feel, touch, mate, hunt, nurture and fight, and our senses and biology have adapted to do these things well, whether on the savannah or in the city. There is a lot of inertia in that baseline, built over a long time, compared to the recent and future disruptions that are occurring on much, much shorter timescales that we can't adapt to as easily.

"We can do more, be more efficient, etc., with the tech but the cost is loneliness and that's why we already have an epidemic of it. That's technology running up against the weight of evolutionary adaptation. Add to that the incentives created by capitalism to go farther faster and to monetize our time and attention and you have a recipe for very productive, very unhappy people, all feeling less human."

"Most of the challenges and opportunities of technology come from instances when the tech incents us away from that evolved biological baseline. In the positive, that's when it augments us, allowing us to do our human stuff faster and better. A car that gets you to your friend or lover faster is valuable for the enabling of connection. In the negative, it's when it gives us a reason to be less human. The chief examples of this are the amount of friction or ease we feel when we move from interacting face-to-face to going online. The former is how we evolved and it feels best, but the latter is almost always easier and more efficient. So, when we think about a Zoom meeting vs. face-to-face, or a hangout vs. text chatting, it's these same tensions. We can do more, be more efficient, etc., with the tech but the cost is loneliness, and it's why we already have an epidemic of it.

"That's technology running up against the weight of evolutionary adaptation. Add to that the incentives created by capitalism to go farther faster and to monetize our time and attention and you have a recipe for very productive, but very unhappy people, all feeling less human. AI is going to continue us down this same path by making things even more efficient, and even faster. Capitalist systems will allow AI to keep going down the productivity route while more socialist systems will create boundaries and incentives to build in human values.

"I expect AI to combine with AR to allow people to alter their daily lived experiences visually. But if you can layer anything onto the real world and power it by AI you conflicting human factors result. On the one hand, it is a reason to get back together in-person, while on the other hand it is still mediated by tech. I can imagine AI-powered advertising layered onto everything in a paid, tiered system in capitalist systems, with likely some safeguards in socialist ones.

"Maybe I've read too much science fiction, but the core plot points of a hundred stories are about this tension between technology and its capital and being human. Inevitably in the stories, that human baseline from evolution bends and bends and bends until it either crushes people's humanity, or results in a whiplash of revolution against it. As a very mild example, we have seen a resurgence in young people playing board games in person, not because they make more sense than their online versions – they're slower and possibly more cumbersome – but because the whole point is human togetherness. People need to touch, to flirt, to hit, to feel the visceral. We don't want to 'bowl alone,' so as AI evolves, the question I will keep asking is almost the Amish one: will that next change make my family, friends, community and workplace better and more human, or merely more efficient, and less human?"

Micah Altman

Profit-Driven Uses of AI May Make It Difficult to Judge the Humanity, Identity and Sincerity of Our Daily Interactions, 'Diluting Human Relationships and Making Being Human Worse'

Micah Altman, a social and information scientist at MIT's Center for Research in Equitable and Open Scholarship, opens with a quote from an Umberto Eco novel, writing, "'Men are animals but rational, and the property of man is the capacity for laughing.' This is how the fictional protagonist of Umberto Eco's 'Name of the Rose' – a scholastic monk – defines humanity. And, in fact, this is the definition of what it is to be human as descended from the Greek philosopher Aristotle and recast into the form above by the French Renaissance scholar Rabelais. It has dominated much of Western thought for two millennia.

"It is legal today to exploit our affinity for relationship to produce and sell addictive fantasy companionship, to strengthen a parasocial relationship with a human influencer to manipulate our political opinions or to induce an imaginary relationship with a chatbot to sell us more products. … When, if ever, will technology provide such immediate and extensive access to information that people can never be surprised by a joke? How thoroughly would we need to be digitally networked for loneliness to become unimaginable?"

"Homo sapiens have been recognizably human across all of recorded history. We can still readily recognize the reasoning and emotion in the earliest written story, 'The Epic of Gilgamesh,' and the humor in 'The Iliad,' written thousands of years ago. Although we are divorced from the language they spoke, the beliefs they held and the conditions of their daily lives, we recognize the characters as human. When, if ever, will technology provide such immediate and extensive access to information that

people can never be surprised by a joke? How thoroughly would we need to be digitally networked for loneliness to become unimaginable?

“The experience of being human may be fundamentally changed if and when technological advances enable the direct integration of additional memory and cognitive capacity into our consciousness. Writers such as Olaf Stapleton (in ‘StarMakers’) and Charles Stross (in ‘Accelerando’) have presented wonderful visions of kinds of future cognitive possibilities for humanity. But this is not yet the future of 2035, since many decades (if not centuries) of research are required before such integration could be possible. In a more-limited way, our societal conception of what it is to be a human could be substantially changed if we were forced to interact with separate but sapient artificial intelligences. However, this too is at least a couple of decades in the future – while AIs now produce language well enough to tell jokes, they can't yet truly laugh.

“What current AI technology does make possible is the rapid expansion of imaginary relationships. Although imaginary relationships have occurred throughout history – children have befriended imaginary companions and adults have conversed with muses – technology qualitatively changes the prevalence and purpose of imaginary relationships. Over the last century, the growth of mass-media technology has catalyzed non-reciprocal (‘parasocial’) relationships with famous figures (or even the characters that actors portray) – for both good and ill. Now, as AI increasingly masters the capability of producing conversation, it can be used to manipulate and exploit others through artificial relationships.

“Artificial relationships can be beneficial – for example, as a well-chosen cuddly doll can calm a child, a well-designed robot seal can calm an adult. Unfortunately, strong incentives exist within the existing market and regulatory structure to apply AI to induce artificial relationships for profit. It is legal today to exploit our affinity for relationship to produce and sell addictive fantasy (AI) companionship, to strengthen a parasocial relationship with a human influencer to manipulate our political opinions or to induce an imaginary relationship with a chatbot to sell us more products. It is also increasingly simple to employ AI to trick others into believing that they are interacting not with a machine, but with real people with whom they already have relationships. These uses of AI, driven by profit and allowed by weak regulation, may make it substantially harder to judge the humanity, identity and sincerity of our daily interactions. This won't change what it means to be human, but it could dilute human relationships and make being human worse.”

Michael Wollowski

‘What Will Happen to Societies as a Minority of People Who Seek Enlightenment Interact with a Majority of People Who Just Aren’t? How Are We Going to Advance?’

Michael Wollowski, professor of computer science at Rose-Hulman Institute of Technology, and associate editor of AI Magazine, wrote:

“Modern AI is an amplifier. For people who are curious, it is a boon to satisfy their curiosity. For people who are hateful, it is a powerful tool to generate more hate. For people who live in alternate realities, it may foster a twisted perception of the world.

“In 2035, people will spend their time in smaller and smaller ‘communities’ of like-minded people … We know that the ability to communicate and resolve conflict is steadily eroding, as people lead more solitary lives or substitute interaction with technology for interaction with people. I am truly concerned that the will to seek a worldview that is supported by science will largely vanish.”

"In 2035, people will spend their time in smaller and smaller 'communities' of like-minded people. I have not sorted out yet how those communities might interact, if at all. We know that the ability to communicate and resolve conflict is steadily eroding, as people lead more solitary lives or substitute interaction with technology for interaction with people.

"I am truly concerned that the will to seek a worldview that is supported by science will largely vanish. What will happen to societies as a minority of people who seek enlightenment interact with a majority of people who just aren't. How are we going to advance societies, engineering, science, the arts in a world in which such things are not appreciated by large numbers of people?"

Peter Reiner

Widespread Job Displacement Will Destroy Many People's 'Meaning in Life' and Humans' Self-Image Will Take A Big Hit When They No Longer Have Cognitive Superiority

Peter Reiner, professor emeritus of neuroscience and neuroethics at the University of British Columbia, wrote, "The experience of being human will be significantly impacted by AI advances in the next decade. Many of the pluses will be instrumental, such as advances in scientific research and further reductions in the friction of navigating everyday living. Few of these are likely to impact the experience of being human, but two major consequences will emerge from the social side of the equation.

"The first is the widespread job displacement as AI systems provide economically more efficient means of achieving many of the tasks currently carried out by humans. This will not only have an impact on the instrumental ways in which people make a living, but – given the central role that work plays in many people's lives – the 'meaning in life' will take a substantial hit.

"The second will be reconsideration of human exceptionalism. The human self-image has long been tied to an understanding that we may not be the strongest nor the fastest, but that we are the most cognitively endowed beings in our known universe. With the advent of AI tools that surpass humans in many tasks, this long-cherished self-concept will suffer substantially. Precisely how humans will respond is unknown, but without some sort of support there is real danger that anomie – the breakdown of social norms – and other dystopic sequelae might emerge."

A Professor of Computer Science at a Major U.S. University

AI Brings Connectivity Down to Something That Can Be Simulated Without Needing an Actual Person. The Societal Changes Technology Enables Change Humans. We Are People, People

A professor of computer science based at a major U.S. engineering school who is expert in cryptography wrote, "While I do believe there will be significant change, 'the experience of being human' wouldn't even make my top 100 concerns. The closest analogy I can think of is something like Google Search or its predecessors – remember Ask Jeeves? And perhaps the Internet as a whole.

"'The experience of being human' wouldn't even make my top 100 concerns. … Will our values look different in 2035? Almost certainly. But I don't think the technology itself will be the direct cause."

“Did those technologies fundamentally alter our societies? Yes. But did they change ‘the experience of being human’ or our ‘core human traits’? On paper, you could argue ‘yes’; if you compared humans in 2024 to those in 1974, you'd likely see significant shifts in what people value, how they are informed and how they spend their time. However, I believe those shifts weren't caused directly by the technology itself but by the increased connectivity between people that technology enabled. Tech changed society, and society, in turn, changed humans.

“As I see it, AI essentially brings that connectivity down to something that can be simulated without needing an actual person. Will our values look different in 2035? Almost certainly. But I don't think the technology itself will be the direct cause. The question seems to ask whether thinking machines will fundamentally change us as people. My argument is: not directly. The societal changes thinking machines enable will reshape us, not the technology in isolation. Maybe I'm splitting a hair, but I think it's an important one. We are people, people. While I think these things have potential for very positive change, I do believe the negative changes will happen faster and more widely than the positives.”

Erhardt Graeff

Generative AI Devalues the Virtue of Humility; Awareness of Our Human Limitations Inspires Us to Be More Open and Tolerant, to Seek Out Others, to Be More Well-Rounded

Erhardt Graeff, educator, social scientist, and public interest technologist at Olin College of Engineering, wrote, “I am worried about the future of humility – epistemic humility in particular. Most humans struggle with awareness of what they know and what they don't know.

“Moreover, it can be challenging to value knowledge you don't have, such as: others' lived experiences; and wisdom from unfamiliar cultures, faiths and traditions or fields you have never meaningfully studied. Generative AI technologies allow us to use knowledge that is beyond us without helping us appreciate what we know or don't know. In fact, it devalues the virtue of humility.

“Humility ensures that we value the creation of new knowledge, that we are awed when other people do things we cannot or did not think to do, and that we take the time to embrace curiosity and deep listening.

“Generative AI technologies allow us to use knowledge that is beyond us without helping us appreciate what we know or don't know. In fact, it devalues the virtue of humility … [and] gives us the illusion that we need not be limited by our own experiences and education, that we can simply access all collective knowledge. … If we design our generative AI interfaces to obscure our lack of knowledge and ability, I fear we will diminish a key aspect of our humanity and our civic capacity.”

“Generative AI gives us the illusion that we need not be limited by our own experiences and education, that we can simply access all collective knowledge the AI have been trained on (which is not actually all knowledge).

“Awareness of our limitations enables us to be more open and tolerant, to seek out and collaborate with people from different backgrounds, and to want to be more well-rounded humans. If we design our generative AI interfaces to obscure our lack of knowledge and ability, I fear we will diminish a key aspect of our humanity and our civic capacity.”

The following section of Part I includes these essayists:

Russell Poldrack: **AIs will definitely change what we think of as core human traits and behaviors, in particular, knowledge and expertise are likely to be downgraded.**

Jeff Eisenach: **We will create and apply knowledge with vastly increased proficiency as AI advances, but the nature of human beings will remain constant.**

Simeon Yates: **AI's record has been one of increasing environmental degradation, social exclusion, polarization and growing digital and social divides. why do we allow this to continue?**

Charlie Firestone: **Trust, personal identity and agency are the most interesting and vulnerable aspects of being human likely to undergo great change in the next decade.**

Jeremy Foote: **By 2035 most AI dependence will mirror our current relationships with smartphones, integrative but not transformative; AI can help us express our humanity more fully.**

Russell Poldrack

AIs' Will Definitely Change What We Think of as Core Human Traits and Behaviors, In Particular, Knowledge and Expertise are Likely to be Downgraded

Russell Poldrack, psychologist, neuroscientist and director of the Stanford Center for Reproducible Neuroscience, wrote, "I have wide confidence intervals around my answers; I think that predicting the future in a time like this is well-nigh impossible.

"The impacts will probably be mostly negative when it comes to changes in human abilities. We know from research in psychology that cognitive effort is aversive for most people in most circumstances. The ability of AI systems to perform increasingly powerful reasoning tasks will make it easy for most humans to avoid having to think hard and thus allow that muscle to atrophy even further. I worry that the urge to think critically will continue to dwindle, particularly as it becomes increasingly harder to find critical sources in a world in which much internet content is AI-generated.

"We know from research in psychology that cognitive effort is aversive for most people in most circumstances. The ability of AI systems to perform increasingly powerful reasoning tasks will make it easy for most humans to avoid having to think hard and thus allow that muscle to atrophy even further. I worry that the urge to think critically will continue to dwindle, particularly as it becomes increasingly harder to find critical sources in a world in which much internet content is AI-generated … We have been the apex species for millions of years, but this is coming to an end, at least with respect to many cognitive abilities."

"I do hope that the advances in AI will spur more humans to think deeply about what it means to be human, but I doubt that it will. I worry that this will mostly lead to bad outcomes.

"We have been the apex species for millions of years, but this is coming to an end, at least with respect to many cognitive abilities, where AI systems already are or soon will outshine us. It seems doubtful that humans will embrace this change, given the major impacts it will have on our lives, particularly in the context of work. Will we rethink the role that work plays in our identity? It seems hard for me to

imagine that humans will deal with this gracefully. AI will definitely change what we think of as core human traits and behaviors. In particular, knowledge/expertise is likely to be downgraded as a core human value. A positive vision is that humans will embrace values like empathy and human connection more strongly, but I worry that it will take a different turn in which core humanity focuses more on the human body, with physical feats and violence becoming the new core trait of the species.

"Finally, the ongoing degradation of our climate will likely be exacerbated by the energy usage of AI systems. This will probably interact badly with the other disruptions in human society that we will be experiencing related to our use of AI."

Jeff Eisenach

We Will Create and Apply Knowledge With Vastly Increased Proficiency as AI Advances, and the Nature of Human Beings Will Remain Constant

Jeff Eisenach, senior managing director at NERA Economic Consulting and visiting scholar at the American Enterprise Institute, wrote, "Human beings will remain human beings. Artificial intelligence is just that – intelligence. It will change the way people think and solve problems. But human nature – the conflicts in all of us between right and wrong, kindness and cruelty, diligence and sloth – are inalterable.

"There are of course no perfect analogies, but the changes that come will be akin to those that came with the written word, the printing press and, more recently, the Internet. In this sense, this is simply another phase of the transformation Peter Drucker described in 'Post-Capitalist Society' – the increasingly sophisticated ability to apply knowledge to craft new knowledge. And because the pace of change is accelerating – as Alvin and Heidi Toffler divined and described in 'Future Shock' over 50 years ago – the transformation will accelerate. A lot. Yet the nature of human beings has remained and will remain constant. We will create and apply knowledge with vastly increased proficiency, but we will still experience war and peace, sickness and health, poverty and wealth, triumph and despair. And in our lives we will still love (and hate), rejoice and despair, celebrate and mourn. And those experiences and feelings will be no more or less profound and moving than in any previous era. The wisdom of the Greeks, of the Bible, of Shakespeare is the wisdom of human nature. It is immutable – even in the face of a very, very smart computer."

"This is simply another phase of the transformation Peter Drucker described in 'Post-Capitalist Society' – the increasingly sophisticated ability to apply knowledge to craft new knowledge. And because the pace of change is accelerating – as Alvin and Heidi Toffler divined and described in 'Future Shock' over 50 years ago – the transformation will accelerate. A lot."

Simeon Yates

AI's Record Has Been One of Increasing Environmental Degradation, Social Exclusion, Polarization and Growing Digital and Social Divides. Why Do We Allow This to Continue?

Simeon Yates, professor of digital culture, co-director of Digital Media and Society Institute at the University of Liverpool and research lead for the UK government's Digital Culture team, wrote, "AI is not a thing 'sui generis,' it is not created separately from society, the economy and politics. It is a product of these, not separate from them. AI is not one thing. 'AI' as a term is now used to cover everything from

(M)LLMs, image analysis, protein identification, automation of tasks, robotics, data analytics to basic statistics.

"Under this definition, we have had AI since the Industrial Revolution. And many digital 'AI' tools have been around for decades. LLMs are new, and, as they deliver 'human-like' output, they are, of course, the poster child for AI. Also, nearly all of these technologies were developed for commercial gain (even LLMs) and are deeply embedded in contemporary capitalism's socio-technical networks.

"AI is not in a 'partnership' with humans; it is a thing without the agency and standing of people. AI, as currently deployed, is a tool. AIs can sometimes do excellent work (e.g., AlphaFold), but at the time of this writing the popular large language models almost always produce nothing more than 'bullshit' (see the research paper 'ChatGPT is Bullshit' by Hicks, Humphries, Slater).

"We do not talk about 'partnering' with microwave ovens, JCB diggers nor word processors. Until we have full general AI, to talk of partnering is to fall afoul of the discourse/ideology of AI that is developing.
The reality is that AI (in all forms) is not being openly and transparently presented as just one potential tool to be used. Instead, AI is being foisted upon all sectors of society, economy and politics without assessment, evaluation, risk assessment nor critique. If things like LLMs were a set of new cars, most would not meet roadworthiness checks; were they airplanes (ignoring the AI of autopilots!), they would be grounded. Given the levels of investment in things like LLMs – they have to be *pushed* to warrant the investment.

"AI is not in a 'partnership' with humans. … We do not talk about 'partnering' with microwave ovens, JCB diggers nor word processors. … Until we have full general AI, to talk of partnering is to fall afoul of the discourse/ideology of AI that is developing. The reality is that … AI is being foisted upon all sectors of society, economy and politics without assessment, evaluation, risk assessment nor critique. If things like LLMs were a set of new cars, most would not meet roadworthiness checks; were they airplanes (ignoring the AI of autopilots!), they would be grounded."

"This is the crux of the matter. We cannot evaluate the likely impact on 'being human' without considering the socio-economic and socio-technical context. We also need to pour some cold, icy water on AI development's current rhetoric/discourse. Let's look at four aspects of this:

- "LLMs are not tremendous nor well evaluated for many proposed uses. So, will we use them untested and unverified in ever more contexts, likely leading to many social, political, personal and environmental ills? What will an 'AI Chernobyl' incident look like? Or do we start soon to assess and regulate these technologies rigorously; without this, we cannot guarantee positive outcomes.

- "Their track record is already one of increasing social exclusion (see Eubanks, V. (2018). See 'Automating Inequality: How High-Tech Tools Profile, Police and Punish the Poor' by Virginia Eubanks), social polarization, environmental degradation and growing digital and social divides. Again, do we allow these 'impacts' to happen, or do we regulate this technology (as we have done with nearly every other technology from cars to the internet)?

- "We need to carefully differentiate (through critical reflection, assessment and evaluation) the different technologies under the banner of AI. Otherwise, we will start to argue that all are 'bad' or 'good,' which is not the case. There are dangers in both directions.

- "We don't know how good or ill might be perceived in a decade or 50 years. The car, the washing machine, contraceptive pills and telecommunications all contributed something to the context in which women in developed countries gained social, cultural, economic, political and personal emancipation from a highly misogynistic culture (not claiming things are perfect now). To many at the start of the 1900s, to many in certain countries now, and (it seems) to a growing number of men in some Western societies, this emancipation is/would be 'wrong/bad/harmful.' Social values and technology developments are linked but not in directly causative and determinist ways. AI is not immune to these realities of cultural context. If it will be good or ill will all depend on our value sets at the time of assessment.

"What we *can* do is evaluate the impact it is having now. The current answer, as ever, is mixed.

"Next, we need to unpack 'being human.' Considering humans' interaction with these tools as a 'growing partnership' is to buy into the 'vapourware' rhetoric of the Big Tech firms. Framing the question in terms of 'being human' is essentialist. It assumes what is human is something that holds for all. It is not. It is highly varied and contextual and already includes lots of technology interactions. Implicit in this is the idea that AI is a thing of self-agency with which we interact; it is not (though I could write at length about the importance of black boxes in Actor Networks and their apparent/implicit agency). We define what it is to be human in our current context.

"The question is not what we view as core human traits, but what kind of humans will this make? Is Human A who reads in depth Proust and reflects on what makes a good life, or Shakespeare's Sonnets and reflects on love … then writes an essay the same as Human B who gets ChatGPT to summarise all of this or asks NotebookLM to do a podcast? No, they are not. Both are changed by this activity but in very different ways. Is one better than the other? Is a society with or without either better or not? Unfortunately, the reality is we may not get a choice – the push of AI into all aspects of life, as with earlier information and communication technologies and digital media, will rapidly move ahead, driven by economic imperative and political expediency."

"The question is not what we view as core human traits, but what kind of humans will this make? Is Human A who reads in depth Proust and reflects on what makes a good life, or Shakespeare's Sonnets and reflects on love, or reads Solzhenitsyn or Primo Levi and reflects on human evil, then writes an essay the same as Human B who gets ChatGPT to summarise all of this or asks NotebookLM to do a podcast?

"No, they are not. Both are changed by this activity but in very different ways. Is one better than the other? Is a society with or without either better or not? Unfortunately, the reality is we may not get a choice – the push of AI into all aspects of life, as with earlier information and communication technologies and digital media, will rapidly move ahead, driven by economic imperative and political expediency. What will be the case in 2035 is that we will be unpacking the crashes caused by un-regulated AI (as we are have been doing with social media today, and as we did in the 1960s with cars (see 'Unsafe At Any Speed' by Ralph Nader)."

Charlie Firestone

Trust, Personal Identity and Agency Are the Most Interesting and Vulnerable Aspects of Being Human Likely to Undergo Great Change in the Next Decade

Charlie Firestone, president of the Rose Bowl Institute, previously vice president and executive vice president at The Aspen Institute, wrote, "The world of 2035 will be highly digitally connected. AI will be

integrated such subtle ways that it is barely noticeable. The more digitally adept will incorporate AI and other innovative techniques to separate themselves more from those who are not as capable. There will be a great AI divide, creating greater divergence in functional capabilities among humans.

"There will be extremely significant advances to the human condition – particularly in health remedies and collective ventures – as well as a significant increase in individuals' productivity. Challenges will also increase. First, minor actors will be able to create significant AI-enhanced weapons that could be life-threatening to billions. An example: The threat of backpack nukes could blossom into destructive cyber-weapons of equal disaster.

"Second, the trend toward polarization could reach its peak in by 2035. Hopefully, it will hit that peak earlier and we will move toward greater convergence of thought and cooperation. At the same time, further digitization and use of AI is likely to lead to more personal isolation, particularly for those who are already so inclined.

"Already today, the polarization accelerated by digital tools can be used to dampen public empathy to such a great extent that it can escalate horrifying human conflicts. The issues of trust, personal identity and agency are the most interesting and vulnerable aspects of being human likely to undergo great change over the next 10 years. None of these traits can be thought about individually, so the broader trends will affect each.

"The trend toward polarization could reach its peak in by 2035. Hopefully … we will move toward greater convergence of thought and cooperation. At the same time, further digitization and use of AI is likely to lead to more personal isolation, particularly for those who are already so inclined. Already today, the polarization accelerated by digital tools can be used to dampen public empathy to such a great extent that it can escalate horrifying human conflicts. … Already today, we have to question everything we experience in the digital sphere. The need for the application of critical digital literacy skills will increase greatly at a time in which most people may not be inclined or able to implement them."

"The trend toward polarization, exacerbated by the divergence in human use of digital tools, will create more challenges to humans' trust in others, in institutions and in their world views. Already today, we have to question everything we experience in the digital sphere.

"The need for the application of critical digital literacy skills will increase greatly at a time in which most people may not be inclined or able to implement them. Determining who and what to trust will be a significant life skill that some will develop but many will not. Each person's management of their digital selves will strongly impact personal agency.

"Much wider changes to human qualities are likely to come, but probably not in the next 10 years. But looking beyond to 20 years out requires a dip into science fiction. That is left to our imaginations which, by the way, will be with us for a much longer time."

Jeremy Foote

By 2035 Most AI Dependence Will Mirror Our Current Relationships with Smartphones, Integrative but Not Transformative; AI Can Help Us Express Our Humanity More Fully

Jeremy Foote, a computational social scientist teaching and doing research at Purdue University about cooperation and collaboration in online communities, wrote, "What it means to be human, what it feels like to exist in the world, is a product of much more than our technology. It is embedded in social

relationships, in the long weight of culture and history and even in our bodies. In that sense, no matter how dramatic the technological change, 10 years will never be enough to change the experience of being human in any fundamental way.

"While we will almost certainly use AI systems for many daily tasks by 2035, for most people, this dependence will probably mirror our current relationship with smartphones and internet connectivity. It will be deeply integrated into our lives but not transformative of our core human traits. The most likely outcome is that we will develop new norms around having AI assistants who we see as sophisticated tools and collaborators rather than as agentic intelligences.

"It seems likely that many activities that are contested today will be resolved such that norms allow for AI assistance. Scientific papers, journalism and even most classroom work will be authored with AI collaboration, much as we now accept calculators and spell-checkers. Human-AI artistic and musical collaborations are inevitable, and we will see a flowering of creativity as creative work becomes more accessible to more people. In that sense, AI may actually help us to express our humanity more fully.

"Over a longer timeframe, we will need to develop new ethical frameworks around how to treat increasingly sophisticated AI systems. It is likely that we will create autonomous beings long before we are willing to truly recognize them as such entities. However, while these challenges are on the way I predict that by 2035 we will not yet have to confront them head-on."

The next section of Part I includes the following essays:

Youngsook Park: **To create a world that is more prosperous, equitable and fulfilling we must strike a balance between technological advancement and human values.**

Volker Hirsch: **Critical thinking and problem-solving skills may erode if robust and neutral governance, reliable knowledge sources and major education reforms are not undertaken.**

Mario Moreno: **The possibilities to improve humanity are beyond our current understanding. so are the risks. change is arriving quickly. will we ever take a pause for absorption and adaptation?**

Peter Suber: **In the AI age, the gift of trust to the untrustworthy and the acceptance of answers without inquiry will be a clear loss for humanity; there will be widespread, undetectable fraud.**

Risto Uuk: **We are risking the loss of our ability to plan, to think critically, to confidently communicate in-person with others of our kind, even risking our overall well-being.**

Youngsook Park

To Create a World that Is More Prosperous, Equitable and Fulfilling We Must Strike a Balance Between Technological Advancement and Human Values

Youngsook Park, CEO at Almindbot, futurist and chair of the Korean Node of The Millennium Project, wrote, "The next decade will witness exponential growth in AI capabilities, leading to more-sophisticated autonomous systems. In education, AI-powered personalized learning platforms will tailor

instruction to each student's unique needs and pace. AI tutors will provide instant feedback and support, freeing up human teachers to focus on fostering creativity, critical thinking and social-emotional skills.

"Healthcare will undergo a similar transformation, with AI enabling earlier disease detection, more accurate diagnoses and personalized treatment plans. AI-driven drug discovery will accelerate the development of new therapies, while robotic surgery will enhance precision and minimize risks. In industries, AI-powered automation will streamline operations, increase productivity and create new job opportunities. And from self-driving cars to smart factories, AI will revolutionize transportation and manufacturing.

"The reduction in mundane labor will allow individuals to focus on creativity, innovation and social connection. With AI handling many of the world's problems, humans can turn their attention to addressing grand challenges such as climate change, poverty and inequality. … While the integration of AI into society presents numerous benefits, it also brings serious difficulties. Issues such as job displacement, algorithmic bias and the potential for AI to be used for malicious purposes must be carefully considered."

"There will be a shift in human values and purpose. As AI takes on more routine tasks, humans will be liberated to pursue more fulfilling and meaningful endeavors. The reduction in mundane labor will allow individuals to focus on creativity, innovation and social connection. With AI handling many of the world's problems, humans can turn their attention to addressing grand challenges such as climate change, poverty and inequality.

"While the integration of AI into society presents numerous benefits, it also brings serious difficulties. Issues such as job displacement, algorithmic bias and the potential for AI to be used for malicious purposes must be carefully considered. Ensuring that the benefits of AI are distributed equitably and that its development is guided by ethical principles will be crucial. The future of humanity is inextricably linked to the development of AI. By embracing AI as a tool for enhancing human capabilities rather than replacing them, we can create a world that is more prosperous, equitable and fulfilling. As we move forward, it is imperative that we strike a balance between technological advancement and human values."

Volker Hirsch

Critical Thinking and Problem-Solving Skills May Erode If Robust and Neutral Governance, Reliable Knowledge Sources and Major Education Reforms Are Not Undertaken

Volker Hirsch, chief commercial officer at the UK's Medicines Discovery Catapult and venture partner at Amadeus Capitala, wrote, "AI will mediate many human interactions, from personalised virtual assistants and multi-agentic chatbots to AI-driven social platforms. While this could enhance communication, it risks diminishing organic social skills. In the short term, a disbalance between tech-savvy early adopters (and owners of and actors on the respective digital platforms) may well lead to negative distortions and misinformation. Longer-term, I expect that these will be counter-steered by better checks and balances on such systems; a healthy equilibrium is, arguably, a requirement for the economic longevity of these platforms.

"If deployed well, AI can enhance accessibility, giving individuals with disabilities tools to live more independent and fulfilling lives. We are likely to see significant innovations in life sciences and healthcare powered by AI, which should lead to better (and earlier) diagnostics and advances in

personalized cell and gene therapy, cancer detection and treatment, improving quality of life and longevity, whilst, at the same time, impacting the economics of health dramatically.

"In the workplace, AI is likely to automate routine tasks and augment human decision-making. This should lead to more efficient workflows and new opportunities following increased productivity, it might also exacerbate wealth inequality IF benefits are not evenly distributed. AI will likely aid governance through predictive analytics, enabling data-driven policies. However, reliance on AI for political decisions might raise concerns about transparency, bias, and accountability.

"Privacy concerns are likely to escalate, as more personal data becomes integrated into AI-driven systems, potentially leading to mass surveillance or misuse of information. This might, however, be short-term as people gain better understanding on how AI utilises data. I also expect that specific AI approaches, like federated learning (which does not expose the raw data to the algorithms), will likely alleviate/eradicate concerns about private and confidential data (for instance in health). Within the broader society, a full and equitable enjoyment of AI's benefits will, however, crucially depend on three factors:

1. "Comprehensive, unbiased and balanced data sets that contain continuous checks on the maintenance of these values.
2. "A drastic change to our approach in education: The stale, calcified approach to teaching and learning is not fit to deal with the kind of quick change we are likely going to see, which risks leaving behind those least equipped to catch up under their own steam; educational systems and approaches need to be adapted to allow for continuous learning and training.
3. "Robust and neutral governance from state actors. This might be the Achilles heel in the present political environment. The U.S., Russia and China are lagging behind other nation-states in this category.

"Without [unbiased, balanced data sets; a drastic change to educational systems; and robust and neutral governance] being in place, there is a distinct danger that critical thinking and problem-solving skills might be eroded; they both depend on good education and reliable knowledge sources. The abuse of AI for short-term goals, including the use of deepfake technology and AI-enhanced misinformation could undermine trust in media and public discourse, leading to significant societal turmoil. Other areas that might be impacted by a lack of adapted educational approaches are empathy and creativity."

"Without these three factors being in place, there is a distinct danger that critical thinking and problem-solving skills might be eroded; they both depend on good education and reliable knowledge sources. The abuse of AI for short-term goals, including the use of deepfake technology and AI-enhanced misinformation could undermine trust in media and public discourse, leading to significant societal turmoil. Other areas that might be impacted by a lack of adapted educational approaches are empathy and creativity. As AI takes on caregiving or companionship roles, humans might interact less with each other, potentially dulling empathy and interpersonal skills. And an over-reliance on AI for generating ideas might narrow the definition of creativity or make human creativity less valued."

Mario Morino

The possibilities to improve humanity are beyond our current understanding, and so are the risks. Change is Arriving Quickly. Will We Ever Take a Pause for Absorption and Adaptation?

Mario Morino, chairman of the Morino Institute and co-founder at Venture Philanthropy Partners, a pioneer in venture philanthropy, wrote, "By 2035, AI will drive many innovations, improvements and

disruptions, assuming a 'normal' evolutionary path. The pace of change will literally explode thanks to the speed at which AI empowers its users. Will we ever reach a point where the sheer volume of change will necessitate a pause, allowing for absorption and adaptation? It's impossible to predict with certainty what will happen in the next 10 years. That said, here are three potential scenarios – ranging from normal evolution to absolutely radical change – that could define the next decade.

Normal Evolution: With AI's inherently increasing speed, many aspects of its use will help humans improve in both work and life, leading to changes in behavior in transitions similar to those we experienced during the introduction of personal computers, distributed systems, smartphones and social media but this change will be even more pervasive, with both greater benefits and risks than we can currently imagine. This is the 'normal' view.

Expedited Learning: AI will revolutionize how we learn and the speed at which we absorb information. By tapping into existing resources – text, video, audio, and future generative content – imagine digesting information from most human systems (broadly defined), research papers, YouTube and other streaming channels, the Library of Congress, the human genome and more. Future learners will aim their AIs at meeting their specific needs and become skilled at prompting it for tailored insights with supporting explanations. Picture in-depth, multi-sensory, real-time learning and experimentation.

"Unimaginable opportunities and threats lie before us. Will AI be the unifying force that helps humans unlock greater value by integrating data, predictive analytics, robotics, nanotechnology, synthetic biology and more? Or will it be a destructive force in the hands of dictators, terrorists, sociopaths and other malicious actors? Or both? While AI can help humans solve global problems such as finding a cure for cancer, combating climate change and limiting the use of weapons of mass destruction, there's also the very real danger of it being misused in ways history has shown will happen."

Seismic Societal Shifts: Unimaginable opportunities and threats lie before us. Will AI be the unifying force that helps humans unlock greater value by integrating data, predictive analytics, robotics, nanotechnology, synthetic biology and more? Or will it be a destructive force in the hands of dictators, terrorists, sociopaths and other malicious actors? Or both? While AI can help humans solve global problems such as finding a cure for cancer, combating climate change and limiting the use of weapons of mass destruction, there's also the very real danger of it being misused in ways history has shown will happen.

"The possibilities to improve humanity are beyond our current understanding, but with this great opportunity comes the risk of unintended negative consequences. We face fascinating and frightening times ahead."

Peter Suber

In the AI Age, the Gift of Trust to the Untrustworthy and the Acceptance of Answers Without Inquiry Will Be a Clear Loss for Humanity; There Will be Widespread, Undetectable Fraud

Peter Suber, an expert in the philosophy of law, director of the Harvard Open Access Project and senior researcher at Harvard's Berkman Klein Center for Internet & Society, wrote, "We will depend on AI in more and more aspects of our lives. But it's undependable. It will improve, and the improvements will reduce many but not all the risks of our dependence. However, for the same reason, these improvements will deepen our dependence.

“AI supports writing, and it can be better than nothing for novice, rushed and commercial writers. However, writers like scholars, journalists and novelists understand how the process of writing supports the process of thinking. That's why they'll use AI less often or less deeply than others, and why those who use it most will least appreciate what they are missing.

“Students who turn to AI-assisted writing in the easiest ways will deprive themselves of a fundamental part of their education. Students who use AI in ‘less convenient’ ways, for example to challenge their drafts with argued objections, could enhance their educations.

“AI supports conversation and the illusion of companionship, and it could be better than nothing for the lonely. But it will always be a weak substitute for casual and committed human connection.

“The gift of trust to the untrustworthy and the acceptance of answers without inquiry will be a clear loss. … We could become credulous about public figures (or the ones we like), credulous about their attackers (or the ones we like), or incredulous, suspicious and unpersuadable about nearly everyone. We could let antecedent bias and trust replace truth-seeking or let cynicism and denial replace truth-seeking.”

“AI supports curiosity. We can easily ask any questions that occur to us and get instant answers. But a hefty fraction of the answers will be false, undocumented, or both. The cultivation of spontaneous curiosity will be a clear gain. The gift of trust to the untrustworthy and the acceptance of answers without inquiry will be a clear loss.

“AI supports undetectable fraud, for example in email phishing attacks and political smear campaigns. (This is just one front on which AI improvements will increase rather than decrease the risks of our dependence on it.)

“We'll know this in general even if we can't know it in individual cases. We'll know it because every day we'll hear notable people claim that some embarrassing photograph or video of them is a fake. We won't know when they're right or when they're wrong. We might give them credence in general; give it on partisan lines; or withhold it in general.

“These are the major forks in the road, though there are others. Each of them leads to disaster. We could become credulous about public figures (or the ones we like), credulous about their attackers (or the ones we like), or incredulous, suspicious and unpersuadable about nearly everyone. We could let antecedent bias and trust replace truth-seeking or let cynicism and denial replace truth-seeking.”

Risto Uuk

We Are Risking the Loss of Our Ability to Plan, to Think Critically, to Confidently Communicate In-Person With Others of Our Kind, Even Risking Our Overall Well-Being

Risto Uuk, European Union research lead for the Future of Life Institute, based in Brussels, Belgium, wrote, “Over the past few decades, material well-being indicators have largely improved and this trend could be expected to continue. However, measures of life satisfaction and experience sampling haven't shown comparable improvements, and loneliness has increased. Mental well-being appears to have stagnated or even declined for many people. Given that income and life circumstances significantly influence life satisfaction, AI could potentially drive further improvements. This potential, however, depends on coordinated intervention across all sectors, including government. AI possibly also presents

serious risks, including catastrophes, existential threats, increased surveillance, erosion of democracy and concentration of power, among others. The shift toward living more online rather than in the physical world may challenge human psychological well-being.

"Socrates was allegedly opposed to the technology of writing, which he believed would reduce the capacity to remember things. He was right about that. But we now recognize that writing has enabled tremendous improvements in daily life, particularly through its role in advancing modern science. That said, automating every task, including critical ones, through new technologies, may not yield positive outcomes overall. Should we accept the loss of our ability to plan, or think critically or to communicate with people in physical spaces? A general-purpose technology like AI could potentially have that impact.

"Automating every task, including critical ones, through new technologies, may not yield positive outcomes overall. Should we accept the loss of our ability to plan, or think critically or to communicate with people in physical spaces? A general-purpose technology like AI could potentially have that impact. … in areas like creativity, decision-making and problem-solving, AI tends to do it for users rather than encourage the users to practice those skills. People naturally gravitate toward the path of least resistance, turning to AI for immediate solutions rather than working hard on a solution themselves."

"Looking ahead to the potential impact of AI on specific capacities in the coming decade, the outlook for curiosity and learning ability is especially concerning to me. Many current applications offer gimmicky features or simply provide answers rather than encouraging learning to think or amplifying curiosity. Without self-motivation to use AI as a learning tool, users merely receive answers from AI (sometimes incorrect ones). Similarly, in areas like creativity, decision-making and problem-solving, AI tends to do it for users rather than encourage the users to practice those skills. People naturally gravitate toward the path of least resistance, turning to AI for immediate solutions rather than working hard on a solution themselves.

"Regarding social and emotional intelligence, while AI could help users explore how to overcome communication challenges or ways to support others, this requires proactive engagement – something most users don't naturally pursue.

"I expect dramatic changes in human capabilities and behaviors due to AI in the next decade. When a smartphone was introduced and widely adopted, it had a dramatic effect on human capacities and behaviors in many ways. From the near-complete loss of phone number memorization to several hours of daily use, even to the point of people not noticing surroundings when walking and not speaking with each other in restaurants. AI will have a similar and even larger effect because it is more general-purpose. For instance, almost nobody might draft an essay on their own from scratch or even have the ability to do so. Frankly, I'm already tempted by it right now when brainstorming these thoughts."

The next section of Part I includes these essays:

Cristos Velasco: **Human responsibility will be altered by 2035 and traits like creativity, empathy and reasoning will evolve and continue to prevail as the main differentiators of humanness.**

Amy Sample Ward: **Choice, analysis and reasoning are valuable practices of being human that are being eroded by the integration of AI into nearly every technology tool and service.**

Calton Pu: **How might AI change 'being human'? it's yet to be seen, but most people simply think of cars, computers and smartphones as useful extensions of their humanness.**

Jeremy Pesner: **If people cede more and more work to AI while forgetting how to do it themselves, they could change in several ways, losing thinking, writing and organizational skills.**

Cristos Velasco

Human Responsibility Will Be Altered By 2035 and Traits Like Creativity, Empathy and Reasoning Will Evolve and Continue to Prevail as the Main Differentiators of Humanness

Cristos Velasco, international practitioner in cyberspace law and regulation and board member at the Center for AI and Digital Policy, based in Mannheim, Germany, wrote, "I strongly believe that dependence upon AI and related technologies will continue to change being human for the better by 2035.

"The pace of human adaptation due to AI will depend on many different factors that will be impacted widely and diversely based on the economic and social development of countries, and more particularly based on the mindset of citizens (regardless of the existent generation gap). Some will be more able and willing than others to adapt and shift to trusting in the use of AI to improve their quality of life, to bridge communication barriers or simply to redefine work and leisure. This shift will eventually be unstoppable, however, thus most humans will need to adapt and coexist with AI.

"Changes in humans' sense of responsibility is one of the impacts I expect as AI advances due to an increase in complex ethical implications in many aspects of being a citizen, including the administration of justice, law enforcement, healthcare, citizen security and consumer protection. This will eventually lead to redefining human responsibility."

"Changes in humans' sense of responsibility is one of the impacts I expect as AI advances due to an increase in complex ethical implications in many aspects of being a citizen, including the administration of justice, law enforcement, healthcare, citizen security and consumer protection. This will eventually lead to redefining human responsibility.

"Further, societies will face cross-border pitfalls, legal and regulatory issues and possible conflicts between ethical principles and the rule of law that are not yet fully developed, interpreted, or resolved at the international and regional level. Preserving key and fundamental human values and balanced technological progress will help us enjoy and preserve the experience of being human.

"How might the expanding interactions between humans and AI affect what many people view today as 'core human traits and behaviors? As the interaction between AI systems and human deepens, core human traits like creativity, empathy and reasoning will evolve and continue to prevail as the main differentiators of human qualities and attributes that AI systems and computer algorithms still lack and may not be able to fully develop. Maintaining a balance between embracing the benefits of AI while preserving core traits and human behaviors will be the next race to preserving the future of our existence in a fully connected and AI driven society."

Amy Sample Ward

Choice, Analysis and Reasoning Are Valuable Practices of Being Human That Are Being Eroded By the Integration of AI Into Nearly Every Technology Tool and Service

Amy Sample Ward, CEO of NTEN and author of "The Tech That Comes Next," wrote, “It is already the case that the drive to establish the technological and infrastructure systems associated with building out new AI tools is competing with the vital need for individuals and communities to receive basic services like access to water, electricity and internet connectivity. By 2035, the experience of being human could change to be in even more competition for resources against data centers and technology services that do not otherwise support or aid billions of human lives.

“The deep irony of this is quite evident right now in the city of Detroit where community members are being funded to create ‘innovations’ such as AI tools that identify if their water is safe to drink, while relying on large technology companies that are using up massive amounts of water to run the data center enabling the app. Choice, analysis and reasoning are valuable and exercised practices of being human that are being eroded by the integration of AI into nearly every technology tool and service. How do people continue to experience being human when these important practices are disabled from their regular life?”

Calton Pu

How Might AI Change ‘Being Human’? It’s Yet to Be Seen, But Most People Simply Think of Cars, Computers and Smartphones as Useful Extensions of their Humanness

Calton Pu, co-director of the Center for Experimental Research in Computer Systems at Georgia Institute of Technology, wrote, “Over the last 50 years, humans have become comfortable with the evolution of new technologies and the incorporation of technological advances into their lives. Most humans think of cars, computers and smartphones as useful tools, not a threat They see them as useful extensions of their humanness.

“Whether AI and related technologies are going to change humans or extend humans’ core characteristics will depend on each individual’s perspective. How did smartphones change us; did they extend our reach and abilities?

“Whether AI and related technologies are going to change humans or extend humans’ core characteristics will depend on each individual’s perspective. How did smartphones change us; did they extend our reach and abilities?”

“What about the influence of computers back in the days before we developed our relationship with smartphones? And how did we view our relationship to cars before we used computers? These revolutionary tools have all become significant tools in our lives. It is difficult for most of us to imagine our life without cars, computers or smartphones.

“Before the arrival of today’s AI, humans had accepted and incorporated many such person-enhancing technologies as extensions of them, and that may have changed their humanness. As these extensions of the ‘human core’ were adopted and then ended up changing human lives, we learned how adaptable humans can be. Overt time, it's only natural that at least some humans will adapt to having and using AI tools as extensions that they may find to eventually broaden their humanness.”

Jeremy Pesner

If People Cede More and More Work to AI While Forgetting How to Do It Themselves, They Could Change in Several Ways, Losing Thinking, Writing and Organizational Skills

Jeremy Pesner, a policy analyst, researcher and speaker expert on technology, innovation and futurism, wrote, "Children learn to add numbers by hand, but never actually do it once they graduate elementary school. At that point, they are given a calculator because it's assumed they know how to add well enough to skip the tedium of the process. I suspect that AI systems will be used in the same way – used as shortcuts for thinking once students have already proved that they're capable of thinking without them. It would be hugely problematic to cede to AI the abilities to think and organize writing and responses before students learn to do that themselves.

"I suspect our education system will remain AI-free until students learn how to do their own research and writing. Given the growing consensus of not giving children mobile phones or social media accounts before high school, I suspect that is the time that they should learn how to use these systems. Hopefully, high schools will teach students how to meaningfully query and use AI, while always double-checking and remaining critical of the output. It may well be possible within the next decade for students to learn to train their own AIs, which can introduce them to the promises and perils of the technology.

"I asked ChatGPT about the pros and cons of using a calculator and it highlighted the increased efficiency and its use as aid for advanced learning as professionals and said the cons are decreased engagement with the process and foundations of math. That is an excellent metaphor for the path before us now. How do we maintain our engagement and understanding of the work and material we want to produce while still letting machines handle the parts we don't want to?"

"Depending on how well all of this is handled and executed, humans' sense of themselves could change in several different ways.

"In what I imagine we would consider to be the better scenario humans learn how to harness AI while still maintaining their innate abilities; just because we all use calculators doesn't mean we've forgotten how to add. In this case, we have clearly delineated the instances in which AI is helpful or routinely outperforms humans, but also where the human touch is still necessary, and how the resultant output changes depending on how many humans and machines are in the mix. Humans, therefore, still understand their unique value contributions to digital work, artistic and entertainment outputs and feel empowered to create what they want while farming out the tedious, busywork that is the more complex version of adding numbers together.

"However, the less optimistic scenario is that people cede more and more work to AI, while forgetting how to do it themselves. If students just feed essay prompts into ChatGPT and never engage with how to write a response themselves, they will be at a loss for not only the skill of actual writing, but the process of thinking through and structuring their ideas.

"If they just ask ChatGPT for the answers to questions without verifying the response or searching the web themselves, they'll never understand how to conduct research or use the Internet to bring together information to their fingertips (the technology's original promise). If they only rely on AI to generate images, music or video and never attempt to create anything original themselves, they won't develop an engagement with the creative process or understand how to come up with something that has truly never been seen before.

“What this essentially means is that being human is a muscle we have to stretch and use, just like regular exercise. If we don’t use these traits, we’ll lose them.

“I asked ChatGPT about the pros and cons of using a calculator and it highlighted the increased efficiency and its use as aid for advanced learning as professionals and said the cons are decreased engagement with the process and foundations of math. That is an excellent metaphor for the path before us now.

“How do we maintain our engagement and understanding of the work and material we want to produce while still letting machines handle the parts we don’t want to? The better an answer we can provide to that question, the greater a chance we stand of maintaining our identity and autonomy as humans.”

The next section of Part I includes these essays:

Umut Pajaro Velasquez: **The time is now to help humanity make a positive transition to a new world where AI augments people’s lives far beyond simply making things more efficient.**

William Ian O'Byrne: **We must ensure that human-AI integration is focused on ethical considerations and a commitment to preserving valuable core human traits.**

Robert Atkinson: **AI is an ‘additive' technology, not a transformational one.**

A Professor of Computational Social Science: **It's not likely that AI or any technology will shift core human traits or behavior.**

Umut Pajaro Velasquez

The Time is Now to Help Humanity Make a Positive Transition to a New World in Which AI Augments Individuals’ Lives Far Beyond the Point of Simply Making Things More Efficient

Umut Pajaro Velasquez, a researcher and professor from Cartagena, Colombia, expert on issues related to the ethics and governance of AI, wrote, “By 2035, artificial intelligence (AI) could be seamlessly integrated into every facet of our existence, anticipating our needs, augmenting our capabilities, and reshaping our social, political and economic realities.

“This future presents both extraordinary possibilities and profound challenges. However, a 2023 Pew Research and Elon University study found that only 28% of tech experts believe AI systems will prioritize human control by 2035. We have very little time to change that and focus on human-centered AI before it is late.

“If we achieve human-centered design, AI could revolutionize daily life in a more-positive way. AI-powered devices will anticipate our needs, automate tasks and personalize experiences. In healthcare, AI will detect diseases earlier, personalize treatment and assist in surgery. In education, AI will personalize learning and provide tailored feedback. AI is already contributing to scientific advancement, but it also raises difficult questions about humans’ social connection.

"AI companions might reduce loneliness, but an overreliance on them could hinder people's ability to form meaningful relationships with other humans. The pervasive use of AI in social media and digital communication could lead to more social isolation, not a desirable outcome. Regulation and the deepening of digital literacy to not only foster critical thinking but also help humans understand tapping into their own emotional regulation and person-to-person real-world social communication are crucial.

"The pervasive use of AI in social media and digital communication could lead to more social isolation, not a desirable outcome … In politics, it can enhance democratic processes and government efficiency … but it will also exacerbate inequalities, erode privacy and threaten human autonomy … It also has the potential to enhance human creativity and self-expression."

"AI will revolutionize the economy and workforce. While it may lead to job displacement in certain sectors, it will also create new jobs and change the nature of work. Human workers will focus on tasks requiring creativity, critical thinking and emotional intelligence. AI has the potential to boost economic growth significantly, and we need to prepare ourselves accordingly for it.

"AI presents both opportunities and challenges. In politics, it can enhance democratic processes and government efficiency. However, it could also be used for malicious purposes, such as manipulating public opinion and spreading misinformation. It can enhance our lives in countless ways, but it will definitely also exacerbate inequalities, erode privacy and threaten human autonomy. Navigating this duality requires a nuanced understanding of AI's potential benefits and risks, a commitment to ethical AI development and proactive multistakeholder AI governance.

"Ethical concerns include AI bias and privacy issues. There are also long-term risks, such as the potential for AI to pose an existential threat or erode human values. However, AI also has the potential to enhance human creativity and self-expression. Education plays an important role.

"Proactive governance and regulation are essential to navigate the complex landscape of AI and ensure it is used responsibly. Policymakers have a crucial role in shaping AI's development and deployment, addressing ethical concerns and mitigating potential risks with a human-centered perspective.

"The future of being human in an AI-driven world is not predetermined. It is a future that we should be shaping collectively, through our choices and actions and our commitment to ensuring that AI serves humanity and enhances the human experience."

William Ian O'Byrne

We Must Ensure That Human-AI Integration is Focused on Ethical Considerations and a Commitment to Preserving Valuable Core Human Traits

William Ian O'Byrne, associate professor of literacy education at the College of Charleston, wrote, "As we look ahead to 2035, integrating artificial intelligence and related technologies into our daily lives will profoundly influence our social, political and economic landscapes. This deepening partnership presents both opportunities and challenges that will shape the essence of what it means to be human.

"On one hand, AI has the potential to enhance various aspects of our lives. For instance, AI can provide personalized learning experiences in education, catering to individual student needs and promoting more effective learning outcomes. AI-driven diagnostics and treatment plans can improve patient care and efficiency in healthcare. Economically, AI can optimize operations, drive innovation and open new avenues for growth.

"However, this increasing reliance on AI also raises concerns. There's a risk that over-dependence on technology could erode personal agency, critical thinking and privacy. The commodification of personal data and the potential for algorithmic biases may lead to social inequalities and ethical dilemmas. Therefore, it's crucial to approach AI integration thoughtfully, ensuring that it serves as a tool for empowerment rather than a replacement for human judgment and interaction.

"There's a risk that over-dependence on technology could erode personal agency, critical thinking and privacy. … Over the next decade, AI advancements are likely to transform our experiences significantly. As our interactions with AI systems that anticipate our needs and preferences become more seamless, we make sacrifices to gain convenience. Adapting to AI also necessitates a reevaluation of core human traits such as empathy, creativity and authenticity. … An understanding of digital literacy and ethical AI practices is essential to navigate this evolving landscape."

"Over the next decade, AI advancements are likely to transform our experiences significantly. As our interactions with AI systems that anticipate our needs and preferences become more seamless, we make sacrifices to gain convenience. Adapting to AI also necessitates a reevaluation of core human traits such as empathy, creativity and authenticity. As AI systems become more adept at mimicking human behaviors, distinguishing between genuine human interaction and AI-generated responses may become challenging.

"The cultivation of an understanding digital literacy and ethical AI practices is essential to navigate this evolving landscape. Educators are pivotal in preparing individuals to critically engage with technology, promoting thoughtful integration into daily life. By emphasizing the development of a digital identity and encouraging reflective practices, we can ensure that technology enhances rather than diminishes our humanity.

"The deepening partnership between humans and AI by 2035 will undoubtedly reshape our understanding of what it means to be human. By approaching this integration with intentionality, ensuring attention to ethical considerations and a commitment to preserving core human traits, we can harness the benefits of AI while safeguarding our humanity."

Robert Atkinson

AI is an 'Additive' Technology, Not a Transformational One

Robert Atkinson, an economist and founder and president of the Information Technology and Innovation Foundation, commented, "Most people do not work in knowledge-based cognitive jobs, and therefore their experience with AI, at least in how they think and process information, will be limited. AI is going to give many people in knowledge-based jobs more tools, in the same way typewriters, computers and the Internet provided more tools to knowledge workers over the last 50 years. For most of what we do – interacting with people, experiencing the world for ourselves and doing physical activity – AI will not be transformative. Just as radio, TV and the Internet were not transformative. They were additive and we learned to adapt to them. We have long been dependent on knowledge technologies

such as books, and they have not fundamentally changed who we are as humans. They have complemented human existence in an unalloyed good way."

A Professor of Computational Social Science

It's Not Likely That AI or Any Technology Will Shift Core Human Traits or Behavior

An associate professor specializing in computational social science and network science at major U.S. university wrote, "Human-AI interaction will become more seamless and less noticeable over time, with an overall net-positive benefit. If I look back at the history of the Internet, there was initial panic about the deterioration of, for example, social relationships because of the introduction of computer-mediated communication. While there are persistent concerns in this vein, the empirical evidence suggests that computer-mediated communication has a more-or-less neutral impact on social relationships for most people (e.g., neither worse nor better), and is a huge positive for some, especially folks who struggle to find social support and make personal connections in their offline lives. The advance of humans and AI by 2035 will be largely similar – it will become integrated as a routine part of our daily lives and in many cases we will not even notice we are using it. It will make many tasks more efficient and will also introduce some challenges – notably, it will reduce the need for some jobs and cause major shifts in industries such as data analysis and customer support. I don't think AI or any technology will fundamentally shift core human traits or behavior. My hope is that AI will free up time so humans can focus on uniquely human endeavors like creativity, empathy and care. History would tell us this is unlikely, but I can still hope!"

> Up Next... Part II of the experts' essays...

The experts whose work is featured in the next section mostly focused their responses on overall societal change; many express concerns over the economic and political forces shaping AI; some suggest potential remedies as humans adapt to new digital tools and systems over the next decade**.**

Essays Part II – Concerns over the economic and political forces shaping AI, societal impact and potential remedies

The following essays are mostly focused on the likely overall societal impact of digital change by 2035. Many of these experts note that the flaws in today's sociotechnical systems are shaped and driven by economic and political forces and human behavior. Some say they expect a very dark future if improvements are not made in regulation, education, governance and more. Many expressed hopes that AI systems' current negative dynamics of extractive capitalism and autocratic nation-states' surveillance and control will be mitigated by a turn toward truly human-centered technology design and operation. A few touched on potential societal change that may emerge if and when artificial general intelligence and superintelligence arrive.

The first section of Part II features the following essays:

Larry Lannom: **By 2035 we will likely experience positive scientific advances plus disruptions of social trust/cohesion and employment and increased danger of AI-assisted warfare.**

Jerome C. Glenn: **AI could lead to a conscious-technology age or the emergence of artificial superintelligence beyond humans' control, understanding and awareness.**

Marjory S. Blumenthal: **The AI hype, hysteria and punditry are misleading; developments promised are unlikely to be realized by 2035, but human augmentation will bring promising benefits.**

Vint Cerf: **By 2035, imperfect AI systems will be routinely used by people and AIs, creating potential for considerable turmoil and serious problems with unwarranted trust.**

Stephen Downes: **'Things' will be smarter than we are. By 2035 AI will democratize more elements of society and also require humans to accept that they are no longer Earth's prime intelligence.**

Marina Cortes: **AI has led to the most powerful business model ever conceived, one that is consuming a massive share of the planet's financial, energy and organizational resources.**

Raymond Perrault: **Once real AGI is broadly achieved, assuming it can be embodied in an economically viable solution, then all bets are off as to what the consequences will be.**

Larry Lannom

By 2035 We Will Likely Experience Many Positive Scientific Advances Plus Disruptions of Social Trust/Cohesion and Employment and the Increased Dangers of AI-Assisted Warfare

Larry Lannom, vice president at the Corporation for National Research Initiatives, based in the U.S., wrote, "AI will not change 'core human traits and behaviors' in any fundamental sense any more than did the industrial revolution or any other dramatic shift in the environment in which humans live. However, it is likely to be extremely disruptive within the 10-year timespan in question and in that sense

will definitely affect all of us. These disruptions could take any of a number of forms including a combination of disruptions. These include:

- **"Economic disruption**, as AI begins to replace human workers in areas such as customer service, computer program development and basic legal research and drafting – all of which is already happening. It is also possible that by 2035 the more difficult problems of AI-managed physical activities, e.g., elder care, factory maintenance, farm work and other open-ended activities currently beyond the capabilities of industrial robots will be solved. This will all cause serious economic disruption and force governments to address basic needs of an increasingly unemployed population. The predictions of mass unemployment due to automation have generally proved too pessimistic in the past, but that doesn't preclude a long and difficult period of adjustment, leading to considerable social unrest.

- **"Disruption of social trust and cohesion**, as AI bots, especially those posing as humans, flood the global communication space making it ever more difficult to distinguish fact from fiction. There are regulatory solutions to this problem, e.g., make all AI bots identify as such, declare social media companies to be legally responsible for their algorithms and require other forms of transparency, but these would require political will and international cooperation, both of which seem unlikely in the current race for AI superiority.

"Predicting with any accuracy which of these disruptions will cause significant change over the next 10 years is impossible. However, it is important to consider the potential for a combination of these somewhat foreseeable types of disruption to take place. Experiencing a cascade of unintended consequences of even the most benign potential heightens the difficulty of imagining the resulting opportunities and challenges that may lie ahead."

- **"Increased danger of AI-assisted warfare**, including cyber warfare, unconstrained 'killer bots' and new viruses or other disease agents developed specifically to harm enemy populations. The ability of rogue states or non-state actors to engage with AI in this area is difficult to anticipate, as opposed to the fairly predictable economic and social disruptions but holds the potential of becoming a uniquely dangerous outcome. While the construction of nuclear weapons is difficult to hide, the development of AI weapons will be largely invisible.

- **"Scientific and technological advances** brought on by the use of AI to solve problems and find patterns that unaided humans have not solved or suspected is also a type of disruption, but one that is positive instead of negative. New forms of energy generation, disease prevention, efficient and clean transportation systems and new materials that replace those that come from difficult and dirty extractive mining practices are just some of the potential advantages of the application of a tireless super intelligence. The even-handed application of these advances, of course, will be another kind of challenge and the failure to do so another potential disruptive harm, but acquiring new knowledge is better than not doing so. This is the exciting part of AI – unimagined solutions to problems that seem unsolvable or perhaps not even yet recognized as problems.

"Predicting with any accuracy which of these disruptions will cause significant change over the next 10 years is impossible. However, it is important to consider the potential for a combination of these somewhat foreseeable types of disruption to take place. Experiencing a cascade of unintended

consequences of even the most benign potential heightens the difficulty of imagining the resulting opportunities and challenges that may lie ahead."

Jerome C. Glenn

AI Could Lead to a Conscious-Technology Age or the Emergence of Artificial Super Intelligence Beyond Humans' Control, Understanding and Awareness

Jerome C. Glenn, futurist and executive director and CEO of the Millennium Project, wrote, "If national licensing systems and global governing systems for the transition to Artificial General Intelligence (AGI) are effective before AGI is released on the Internet, then we will begin the self-actualization economy as we move toward the Conscious-Technology Age. If, instead, many forms of AGI are released on the Internet from the U.S., China, Japan, Russia, the UK, Canada, etc., by large corporations and small startups their interactions will give rise to the emergence of many forms of artificial superintelligence (ASI) beyond human control, understanding and awareness.

"I'd like to share with you a set of insights published in the Millennium Project's State of the Future 20.0 report, which I co-authored:

"'Governing artificial general intelligence could be the most complex, difficult management problem humanity has ever faced. AI expert Stuart Russell has urged that, "Failure to solve it before proceeding to create AGI systems would be a fatal mistake for human civilization. No entity has the right to make that mistake."

"'So far, there is nothing stopping humanity from making that mistake. Since AGI could arrive within this decade, we should begin creating national and supranational governance systems now to manage that transition from current forms of AI to future forms of AGI, so that how it evolves is to humanity's benefit. If we do it right, the future of civilization could be quite wonderful for all.

"'There are, roughly speaking, three kinds of AI: narrow, general, and super. Artificial narrow intelligence ranges from tools with limited purposes like diagnosing cancer or driving a car to the rapidly advancing generative AI that answers many questions, generates code, and summarizes reports. Artificial general intelligence may not exist in its full state yet, but many AGI experts believe it could within a few years. It would be a general-purpose AI that can learn, edit its code and act autonomously to address many novel problems with novel solutions like or beyond human abilities.

"It's important to recognize the impact of the ongoing race for AGI and advanced quantum computing among the U.S., China, European Union, Japan, Russia and several corporations. This rush could mean that humans cut corners on safety and don't develop the initial conditions and governance systems properly for AGI; hence, artificial superintelligence could emerge from thousands of unregulated AGIs beyond our understanding, control and not to our advantage. Many AGIs could communicate, compete, and form alliances that are far more sophisticated than humans can understand, making a new kind of geopolitical landscape."

"For example, given an objective, it could query data sources, call humans on the phone and re-write its own code to create capabilities to achieve the objective that it did not have before. When and if it is achieved, the next step in machine intelligence – artificial *super*intelligence – will set its own goals and act independently from human control, and in ways that are beyond human understanding. Thousands

of un-regulated AGIs, interacting together, could give birth to artificial superintelligence that poses an existential threat to humanity.

"'It's important to recognize the impact of the ongoing race for AGI and advanced quantum computing among the U.S., China, European Union, Japan, Russia and several corporations. This rush could mean that humans cut corners on safety and don't develop the initial conditions and governance systems properly for AGI; hence, artificial superintelligence could emerge from thousands of unregulated AGIs beyond our understanding, control and not to our advantage. Many AGIs could communicate, compete, and form alliances that are far more sophisticated than humans can understand, making a new kind of geopolitical landscape.

"'The energy requirements to power this transition are enormous, unless better strategies than large language models (LLMs) and large multi-model models (LMMs) are found. Nevertheless, the proliferation of AI seems inevitable since civilization may be getting too complex to manage without AI's assistance. At the same time, elementary quantum computing is already here and will accelerate faster than people think; the applications are likely to take longer to implement than people will expect, but it will improve computer security, AI and computational sciences, which in turn will accelerate scientific breakthroughs and technology applications, which in turn increase both positive and negative impacts for humanity.

"'All of these potentials are too great for humanity to remain so ignorant about them. We need political leaders to understand these issues. The gap between science and technology progress and global, regional and local leaders' awareness is dangerously broad.'"

Marjory S. Blumenthal

Today's AI Hype, Hysteria and Punditry Are Misleading; Developments Promised Are Unlikely to be Realized by 2035, But Human Augmentation Will Bring Promising Benefits

Marjory S. Blumenthal, a senior policy researcher at RAND Corporation and fellow at the Future of Privacy Forum, predicted, "Today, developments in AI and its uses fill the news and commentary – an excessive amount of coverage that promotes hype, hysteria and punditry. Yet major technological change tends to happen slower than people expect. Today's AI builds on many innovations in information and communication technologies. It is disruptive in specific contexts but it is leading to adaptations and experimentation, both of which guarantee that linear projections of what is evident today are unlikely to be realized in 10 years.

"Some of the most promising benefits will come from augmenting humans – bigger and better decision support, analysis and presentation of data, adaptation to different learning or expressive styles, or robotic action in contexts (like certain surgeries or work in hazardous environments) in which human limitations constrain people or put them at risk.

"Known perils will persist and even worsen but they will be more widely recognized and subject to an evolving mix of countermeasures. … Information literacy will be more vigorously and widely spread, and baseline skepticism will be greater. Although there is a rush today to at least consider what regulation might do to deter AI's perils, regulation will evolve unevenly, will never be fully comprehensive, and in particular will not constrain the 'bad guys'' intent on social or robotic manipulation for criminal or other adversarial reasons."

"These applications are already evident and in 10 years will be more refined, less expensive and more integrated into education, training and operations.

"Known perils will persist and even worsen but they will be more widely recognized and subject to an evolving mix of countermeasures. For example, the cognitive effects of social (and really all) media might become more insidious, but information literacy will be more vigorously and widely spread, and baseline skepticism will be greater.

"Although there is a rush today to at least consider what regulation might do to deter AI's perils, regulation will evolve unevenly, will never be fully comprehensive, and in particular will not constrain the 'bad guys' intent on social (or robotic) manipulation for criminal or other adversarial reasons.

"History has shown that even without computer-based technologies governments and criminals have always manipulated perception – AI augments longstanding problems. It also offers tools to help in detecting and responding to manipulation, something evident in today's attention to bias, data poisoning, adversarial training, and other components of nefarious applications of AI.

"Comfort working with and trusting computer-based systems does not make a person less human. The 1960s' pioneering ELIZA system demonstrated that some people could feel more comfortable communicating with a system than with other people. Immersive environments (such as massively multiplayer online roleplaying games) have long demonstrated people's comfort 'losing themselves' in a system.

"Yes, some people become addicted to computer-based games, but addiction is a phenomenon that includes but is not limited to such systems.

"Science fiction – a sometimes motivator for innovation – models human-system interaction and points to a future where that is common. Being human might look different then – as it does today compared to hunter-gatherer times (which, of course, still exist in places).

"Even human augmentation by the implanting of brain-computer interfaces doesn't make a person 'not human,' although it can be argued that human augmentation by implanted devices does change psychological attributes in ways that warrant study.

"In 10 years, the trends will be clearer, both failed and successful applications will be countable, more people will know that they have been exposed to or will have had opportunity to work with AI, and I hope that more thought will have gone into human-centric or human-augmenting applications than what can be seen in today's scramble to demonstrate sheer capability. … it would be hubris – or perhaps a new form of Lamarckism – to argue that in such a short time core human traits and behaviors would have changed."

"One area of uncertainty today relates to the workforce impacts of AI. It is always easier to identify displacement of old work than creation of new work, which might occur in different contexts and with different skill requirements.

"Today's AI raises questions about so-called 'knowledge work' and other kinds of white-collar work, contexts in which augmentation of a smaller workforce is a likely path forward. Even without today's AI, for example, automated document analysis has been trimming demand for legal talent for decades, and

regular layoffs in tech have long been symptomatic of sloppy management that overhires and then trims.

“Moreover, high-touch work (e.g., in health care and pre-K to 12 education) will change less, and aging populations globally will make some of the displacement and/or augmentation welcome – AI could extend career horizons for some. Creative work will demonstrate both displacement (e.g., for routine design or image-generation activity) and the opening up of new or enhanced modalities. If being human depends on the amount and kind of work then AI will change the options for many, but the experiences will be uneven, varying a lot by occupation, industry and geography.

“In 10 years, the trends will be clearer, both failed and successful applications will be countable, more people will know that they have been exposed to or will have had opportunity to work with AI, and I hope that more thought will have gone into human-centric or human-augmenting applications than what can be seen in today’s scramble to demonstrate sheer capability.

“But it would be hubris – or perhaps a new form of Lamarckism [a theory of evolution that states that organisms can have characteristics that are lost or acquired through use or disuse over time to future generations] – to argue that in such a short time core human traits and behaviors would have changed.”

Vint Cerf

There Will Be Significant Impact by 2035: Imperfect AI Systems Will Be Routinely Used By People and AIs, Creating ‘Potential for Considerable Turmoil’ and Serious Problems With ‘Unwarranted Trust’

Vint Cerf, vice president and chief Internet evangelist for Google, a pioneering co-inventor of the Internet protocol and longtime leader with ICANN and the Internet Society, wrote, “Given the past decade of AI research results, especially the emergence of generative, multi-modal large language models (LLMs), we can anticipate significant impact by 2035. These tools are surprising in their capability to produce coherent output in response to creative prompts.

“It is also clear that these systems can and do produce counter-factual output even if trained on factual material. Some of this hallucination is the result of a lack of context during the weight training of the multi-layer neural models. The ‘fill in the blanks’ method of training and back propagation does not fully take into account the contexts in which the tokens of the model appear.

“There are attempts to fine tune the 'models using, for example, reinforcement learning with human feedback (RLHF). These methods among others, including substantial pre-prompting and large context window implementation, can guide the generative output away from erroneous results but they are not perfect.

“The introduction of agentic models that are enabled to take actions, including those that might affect the real world (e.g., financial transactions), has potential risks. Flaws in

“Flaws in consequential reasoning, ‘misunderstanding’ between communicating agentic models, and complex dependencies among systems of such models all point to the potential for considerable turmoil in an increasingly online world. … We may find it hard to distinguish between artificial personalities and real ones. That may result in a search for reliable proof of humanity so that we and bots can tell the difference. … The ease of use of these models and their superficial appearance of rationality will almost certainly lead to unwarranted trust. … Increased dependence on these systems will also increase the potential for cascade failures.”

consequential reasoning, misunderstanding between communicating agentic models, and complex dependencies among systems of such models all point to the potential for considerable turmoil in an increasingly online world.

"Standard semantics and syntax for what I will call 'interbot' exchanges will be necessary. There is already progress along these lines, for example at the schema.org website. Even with these tools, natural language LLM discourse with humans will lead to misunderstandings, just as human interactions do.

"We may find it hard to distinguish between artificial personalities and real ones. That may result in a search for reliable proof of humanity so that we and bots can tell the difference. Isaac Asimov's robot stories drew on this dilemma with sometimes profound consequences.

"The ease of use of these models and their superficial appearance of rationality will almost certainly lead to unwarranted trust. The LLMs produce the verisimilitude of human discourse. It has been observed that LLMs sound persuasive, even when they are wrong because their output sounds convincingly confident.

"There are efforts to link the LLMs to other models trained with specialized knowledge and capabilities (e.g., mathematical manipulation, knowledge-graphs with real-world information) to reduce the likelihood of spurious output but these are still unreliable. Perhaps by 2035 we will have improved the situation significantly but increased dependence on these systems will also increase the potential for cascade failures.

"Humans value convenience over risk. How often do we think 'it won't happen to me!'? It seems inevitable that there will be serious consequences of enabling these complex tools to take action with real-world effects. There will be calls for legislation, regulation and controls over the application of these systems.

"On the positive side, these tools may prove very beneficial to research that needs to operate at scale. A good example is the Google DeepMind AlphaFold model that predicted the folded molecular structure of 200 million proteins that could be generated from human DNA. Other largescale analytical solutions include the discovery of hazardous asteroids from large amounts of observational data, the control of plasmas using trained machine-learning models and near term, high-accuracy weather prediction.

"The real question is whether we will have mastered and understood the mechanisms that produce model outputs sufficiently to limit excursions into harmful behavior. It is easy to imagine that ease of use of AI may lead to unwarranted and uncritical reliance on applications.

"The real question is whether we will have mastered and understood the mechanisms that produce model outputs sufficiently to limit excursions into harmful behavior. It is easy to imagine that ease of use of AI may lead to unwarranted and uncritical reliance on applications. It is already apparent in 2025 that we are deeply reliant on software in networked environments. … we are going to need norms and regulations to recover from various kinds of failure for the same reason that the introduction of automobiles eventually led to regulation of their manufacture and use as well as training programs to increase the likelihood of safe usage and law enforcement where irresponsible behavior surfaces."

"It is already apparent in 2025 that we are deeply reliant on software in networked environments. There are literally millions of applications accessible on our mobiles, laptops and notebooks. New interaction modes including voice add to convenience and dependence and potential risk.

"Without doubt, we are going to need norms and regulations to recover from various kinds of failure for the same reason that the introduction of automobiles eventually led to regulation of their manufacture and use as well as training programs to increase the likelihood of safe usage and law enforcement where irresponsible behavior surfaces.

"For the same reasons that many tasks are done differently today than they were 50 or even 25 years ago, AI will alter our preferred choices for getting things done. Today we have the choice of ordering things online to be delivered to our doorsteps that we would typically have had to pick up from a store. Of course there was the Sears Catalog of the late 19th Century, postal and other delivery services, overnight services such as FEDEX, UPS, DHL and now Amazon and – soon – drone delivery.

"By analogy, many of the things we might have done ourselves will be done by AI agents at our request. This could range from writing a program or a poem to ordering plane or theatre tickets. Multimodal AI services already translate languages, render text-to-speech and speech-to-text, draw pictures or compose music or essays on demand and prepare business plans on request.

"It will be commonplace in 2035 to have local bio-sensors (watch, smartphone accessories, Internet of Things devices) to capture medical symptoms and conditions for remote, AI-based diagnosis and possibly even recommended treatment.

"AI agents are already being used to generate ideas, respond to questions and write speeches and essays. They are used to summarize long reports and to generate longer ones (!). AI tools will become increasingly capable general-purpose assistants. We will need them to keep audit trails so we can find out what, if anything, has gone wrong and how and also to understand more fully how they work when they produce useful results. It would not surprise me to find that the use of AI-based products will induce liabilities, liability insurance and regulations regarding safety by 2035 or sooner."

Stephen Downes

'Things' Will Be Smarter Than We Are: By 2035 AI Will Democratize More Elements of Society and Also Require Humans to Accept That They Are No Longer Earth's Prime Intelligence

Stephen Downes, a Canadian philosopher and expert with the Digital Technologies Research Centre of the National Research Council of Canada, wrote, "It's going to be hard to discern how AI and related technologies will have helped people by 2035 because we will be facing so many other problems. But it will have helped, and without it things would probably be much worse, especially for the poor and disenfranchised.

"The real risk is not from AI, but from other humans armed with AI. There will never be a shortage of people who want to put machine guns on drones, or use technology to raise rents … So long as some humans crave power and control over others, we will be at risk. I'd like to think, though, that if the vast majority of people have the capacity to do more good they will."

"AI will democratize a lot of things that used to be the preserve of corporations and the wealthy. Translation, for example, has been out of the reach of the average person, but by 2035 people around the world will be

able to easily talk directly with each other. Anything that requires thought and creativity – writing, media, computer programming, design – will be within the reach of the average person. A lot of that output won't be very good – the cheap AI running on your laptop might not have the capacity of a Google data array – but it will be good enough to help people succeed without years of training.

“2035 might be a bit early to see the widespread impact, but the effect on science and technology will be beginning to be more evident. We'll see it first in medicine, as AI-designed treatments begin getting approval. New AI-developed materials and processes will be in the early commercialization stage. And complex systems – everything from energy to traffic to human resource management – will be running more smoothly.

“Still, the next 10 years will be characterized by a lot of opposition to AI, much of it focused on the threats and the cost (though it can often be much lower than human-authored equivalents). We will experience what might be called a Second Copernican Revolution; just as humans in the 1600s had to comprehend that they were not at the centre of the universe, we will have to comprehend that humans are not the centre of intelligence. It will be hard to accept that 'things' can be as smart as we are, and we won't trust them.

“What we'll find, though, is that AI has no real ability nor desire to become our overlords and masters. And instead of devising 'human-in-the-loop' policies to prevent AI from running amok, we will devise 'AI-in-the-loop' policies to help very fallible humans learn, think and create more effectively and more safely.

“The real risk, in my view, is not from AI, but from other humans armed with AI. There will never be a shortage of people who want to put machine guns on drones, or use technology to raise rents, or spy on political opponents by measuring vibrations in glass. So long as some humans crave power and control over others, we will be at risk. I'd like to think, though, that if the vast majority of people have the capacity to do more good they will.”

Marina Cortês

AI Has Led to the Most Powerful Business Model Ever Conceived, One That Is Consuming a Massive Share of the Planet’s Financial, Energy and Organizational Resources

Marina Cortês, leader of the IEEE-SA’s Standard for the Implementation of Safeguards, Controls, and Preventive Techniques for Artificial Intelligence Models, wrote, “On U.S. Inauguration Day 2025, when I saw the big tech leaders seated behind the president elect I felt I had lost my bird’s-eye view on the environment of AI technology. Before this, I had felt deeply immersed in the space of complex correlations between the different players that factor into AI safety and AI standards development.

“I work with IEEE, a global organization that both governments and tech companies refer to for guidance. We generally have found the tension between governments and technology companies to be beneficial.

“The players whose platforms and products are soon to control much of the world are driving the future direction of the planet as a whole. Their key product – AI – controls information. The powerful who control information are influencing governments, whilst their products control the citizens. They control both the rulers and the ruled.”

“On one side we have governments, ideally acting on behalf of their citizens, wanting to promote and support the development of safe technology. On the other we have tech companies striving for profits as they create tools for society. The role of IEEE as a global organisation relying on the work of unpaid volunteers is to provide impartial advice on to these entities.

“Now is quite clear that government and the tech industry seem to be merging in regard to AI policy. It is clear that the tension that had been creating somewhat of a balance between safe technology and profitable technology has been obliterated in the discussion of AI development. The question is not only who leads a government it seems, but also who has influence over the leader. Heads of government have always paid some allegiance to powerful business interests to a greater or lesser extent, but these seem to me to be new dynamics. The players whose platforms and products are soon to control much of the world are driving the future direction of the planet as a whole. Their key product – AI – controls information. The powerful who control information are influencing governments, whilst their products control the citizens. They control both the rulers and the ruled.

“I had earlier believed there were three major roadblocks on the path ahead that would prevent AI from growing too quickly before safeguards are in place: the cost of the research, the pace of development and overall energy and computation needs. In 2024, AI development was seen as costly and unlikely to yield a profit for many years. I figured that when it became clear to venture capitalists and other investors that no yield would be returned soon on their investment in the technology and none was in sight that they would no longer be spellbound by the promise of AI. This roadblock disappeared in January 2025.

“Before then it seemed as if we were headed toward an AI market bubble. Then Stargate – an AI infrastructure initiative boasting a $500-billion-dollar investment was announced by the U.S. president and several global tech companies. (Imagine the carbon emissions that a half trillion dollars will bring from the data centers being planned.) And in the same days in which we had been witnessing more impact of climate change in unprecedented disasters across the face of the planet, we were presented with the most ingenious business model ever conjured to date.

“Today, citizens are being deprived of the robust public information structures important to democracy. They have been replaced by the companies making up the tech-government mix – those that now control the supply chain of news and the dispersal of ‘knowledge.’ The public doesn’t understand the business space they are unknowingly subscribing to. … A handful of people are taking over the entire ecosystem of the plant in regard to financial resources, energy resources, organizational resources and, ultimately, in regard to climate resources.”

“Today, citizens are being deprived of the robust public information structures important to democracy. They have been replaced by the companies making up the tech-government mix – those that now control the supply chain of news and the dispersal of ‘knowledge.’

“The public doesn’t understand the business space they are unknowingly subscribing to, as they are increasingly burdened by financial problems of their own, struggling to make ends meet, without the mental space or the energy to study and perceive the big picture of this genius business model. They know that taxes are to be paid and they dutifully continue to do so.

“A handful of powerful people are taking over the entire ecosystem of the planet in regard to financial resources, energy resources, organisational resources and, ultimately, in regard to global climate resources. These resources are being diverted to the goal of AI development. All of this is happening so

fast that those of us alert to the situation do not have the ability to mobilize the public and help them understand the potential impact of current circumstances. The public is powerless to take action or to have any agency over what's happening.

"This planet is inhabited by the equivalent of eight billion ants, confused and in a dense fog, each going through the motions to get to the next day, while collectively unknowingly empowering a giant resource-extraction machine operated by a handful of individuals, who are moving full steam ahead on exhausting all materials, energy and living complexity that had been carefully crafted to a perfect balance in a biosphere that has been painstakingly learning from its mistakes over five billion years.

"A global situation of this kind is the equivalent of seeing representatives of an alien civilization land on our planet, extract the entirety of its resources and leave it behind to move on to the next. The agency of citizens could be seen as equivalent to that of unsuspecting ants when compared with the agency of the lead agents of tech. We are not organized. Our communication infrastructures depend on those tech agents. We don't have access to reliable globalised news. We have no inside information about the events behind this rapid advance of AI that we can rely on.

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"Those in power might as well be aliens. They often take actions that show they don't care about human rights and agency. They don't seem to care about the planet. Our lives, our knowledge, our organizations. Nearly everything is being liquidated and cashed in in return for a several-trillion-dollar ticket to fund their image of what the future should be. They are just human. As such they are susceptible to ill-judgment. No group of humans as small as this has ever evolved through natural selection to have power over eight billion of their own kind. I believe any of us might succumb to the insanity of such power.

"The only way to restore balance is to tilt the scales backwards so that success can only rise so far before turning around, bound for square zero again. That is balance. It is the wisest lesson this stunning biosphere has ever told us. The tale of balance is a story that has been told countless times in our planet. We have made mistakes, that is normal, we are only human. We can learn from those. Of course we can, and we will. After all, our home is that remarkable, dazzling, beautiful pale-blue dot in the universe."

Raymond Perrault

Once Real AGI Is Broadly Achieved, Assuming It Can Be Embodied In an Economically Viable Solution, Then All Bets Are Off as to What the Consequences Will Be

Raymond Perrault, a leading scientist at SRI International from 1988-2017 and co-director of Stanford University's AI Index Report 2024, wrote, "I quite enjoy using large language models and find their ability to organize answers to questions useful, though I have to treat anything they provide as a sketch of a solution rather than one I trust enough to act upon unless the outcome is unimportant. This is

particularly true if the task involves collecting and organizing information from many sources and drawing inferences from what is collected.

"I do not expect the fundamental connection between the predict-next-word (System 1-like) systems now available and ones that can control these with systematic reasoning (System 2) to change radically soon. Too many smart people have worked on this for too long for this to not be considered an extremely difficult problem that will require a contribution at least as significant as the existing transformer-based architecture. As long as this connection does not significantly improve (and I don't think the current state of TAG, CoT and analogs come close to a general, robust, solution), anything produced by LLMs can only be taken as a sketch of a solution to any mission critical user problem. And until that happens, I cannot see my relation to these systems changing significantly.

"Once real AGI happens – assuming it can be embodied in an economically viable solution – then all bets are off as to what the consequences will be. Such systems operating under the control of responsible humans would be tremendously valuable, but armies of them operating independently of human control would be terrifying. However, I still don't see any of these options changing my sense of humanity, but maybe this is just a lack of imagination on my part."

The next section of Part II features the following essays:

Otto Barten: **AI is a boon and a danger to humanity that must be managed in a way that helps identify and mitigate the worst risks to avoid dystopian outcomes.**

Gerd Leonhard: **If we use AI to solve our most urgent problems and forego the temptation to build god-like machines that are more intelligent than us, our future could be bright indeed.**

Jamais Cascio: **Branded slaves or ethics advisors? whose interests do the AIs represent? will humans retain their agency? Will AIs be required or optional if we hope to live well?**

S.B. Divya: **Social Isolation and Ideological Bubbles Will RIse, Reducing Humans' Ability to Adapt, and 'Prolonging the Suffering from the Driving Forces of Capitalism and Technological Progress'**

Liza Loop: **Will algorithms continue to prioritize humans' most greedy and power-hungry traits or instead be most focused on our generous, empathic and system-sensitive behaviors?**

Neil Richardson: **In the future our digital self - comprised of our digital/online skills, digital avatars and accumulated data – will merge with our physical existence, resilient in the face of change.**

Otto Barten

AI Is a Boon and a Danger to Humanity That Must be Managed in a Way That Helps Identify and Mitigate the Worst Risks to Avoid Dystopian Outcomes

Otto Barten, a sustainable-energy engineer, data scientist and entrepreneur who founded and directs the Existential Risk Observatory, based in Amsterdam, wrote, "We can't assume that there will be an all-positive AI/human-shared future. But if there's even a slight chance of a major bad outcome or even a

slim possibility of extinction, the potential for that should be a central element in thinking and policymaking about this topic. Most AI scientists *don't* think the chance is small.

"AI is extremely open. That's good but that's also the risk. It presents multiple threat models. Human extinction is a real possibility. How? There could be a loss of human control during advanced AI development ending in extinction or a human zoo scenario. There might be a loss of control later, during application – since at some point a much smaller percentage of global cognition will be human and perhaps we might fall out of the loop altogether.

"Just as AI might enable new science that solves the world's toughest challenges it is also likely to turn out to be very dangerous. In line with the new tech becoming more powerful one mistake could end us, and immediately after achieving true artificial general intelligence (AGI) there's a possibility we open the door to that.

"Assuming we do survive, hard power and economic changes will be very important and they have the possibility of leading to dangerous outcomes.

"Mass unemployment seems likely, and the mass loss of individuals' economic bargaining power could bring a complete loss of power for large parts of the population. Inequality, both between people and between countries, could well skyrocket post-AGI. If AI systems become dominant over most human activity there's even the possibility that an eternal global AI-powered dictatorship could be a default outcome.

"Just as AI might enable new science that solves the world's toughest challenges it is also likely to turn out to be very dangerous. … Assuming we do survive, hard power and economic changes will be very important and they have the possibility of leading to dangerous outcomes. Mass unemployment seems likely, and the mass loss of individuals' economic bargaining power could bring a complete loss of power for large parts of the population. Inequality, both between people and between countries, could well skyrocket post-AGI. If AI systems become dominant over most human activity there's even the possibility that an eternal global AI-powered dictatorship could be a default outcome."

"Many people's happiness is at least partially derived from their sense that the world somehow needs them, that they have utility. I think AI will likely end that utility. Additionally, there are risks that AI worsens the climate crisis and severs planetary boundaries, mostly due to change in economic growth. Addiction to AI in some form (AI friends and relationships, polarizing news and information, entertainment, etc.) could lead to a dystopian future.

"On the plus side, radical abundance is likely. If the powers that be (AI or human) decide to spread this abundance to all in equal measure many problems we have now could be solved entirely. If we somehow manage to navigate past all of the risks of powerful AI, I would not be surprised if disease, hunger, poverty and perhaps the problems of climate change and even mortality might disappear altogether.

"We could generally be made much happier and more fulfilled in such a positive scenario. Of course, many other scenarios are possible, including ones where we never invent AGI or AGI turns out to be a lot more boring and less powerful than some think it might be. It is important to take all scenarios into account today and manage in a way that helps identify and mitigate the worst risks to at least avoid extinction and the most dystopian outcomes."

Gerd Leonhard

If We Use AI to Solve Our Most Urgent Problems and Forego the Temptation to Build God-like Machines That Are More Intelligent Than Us, Our Future Could Be Bright Indeed

Gerd Leonhard, speaker, author, futurist and CEO at The Futures Agency, based in Zurich, Switzerland, wrote, "Here's the thing: AI (and eventually AGI) *could* be a boon for humanity and bring about a kind of 'Star Trek' society in which most of the work is done for us by smart machines and most practical problems such as those tied to energy, water, disease, transportation, etc., will be solved.

"But in order for that to happen, we need to completely rethink our economic and social logic, away from the 1P society (all about profit and growth, whether it's about money or about state-power), towards a 4P or even 5P society: People, Planet, Purpose, Peace and Prosperity.

"The key question, by 2030, will not be if technology (or AI / AGI) *can* do something but whether it *should* do something (from 'if 'to 'why'), and who is in control of that fundamental question. If we use AI to start another arms race (as we did in nuclear energy), we will not survive as a species – the race towards AGI has no winners. If we achieve AGI we will all lose, and machines will be the winners.

"If, instead, we use AI to solve our most urgent practical problems and forego the temptation to build god-like machines that are more intelligent than us, our future could be bright indeed."

Jamais Cascio

Branded Slaves or Ethics Advisors? Whose Interests Do the AIs Represent? Will Humans Retain Their Agency? Will AIs be Required or Optional If We Hope to Live Well?

Jamais Cascio, a futurist named in Foreign Policy magazine's Top 100 Global Thinkers and author of "Navigating the Age of Chaos," commented, "The answer to how the next decade of humans' growing applications of AI will influence 'being human' will depend upon the outcome of three major, ongoing operational points.

"First, who controls the AIs we use? Are they built to reflect the values of the manufacturers, the regulators or the users? That is, are the elements of AI behavior that are emphasized and the elements of AI behavior that are limited shaped by the company/industry that makes them (those beholden to their pecuniary interests); by regulators – and therefore likely restricted in some or many ways; by the users – and therefore likely reflecting the values and interests of those users; or by some other actor? This will shape how the AIs affect human behavior.

"These three operational points: Whose interests do the AIs represent? What are the limits of what they will do for the user? Are they mandatory, expected or optional in people's daily lives? These will be the drivers of how AIs may change our humanity. How we think, act and behave in a world in which we always have to have with us our branded slave is very different from how we think, act and behave in a world in which bringing an ethics advisor with us is a personal choice."

"The second issue is whether the AIs we work with are able to disagree with or refuse our requests. That is, are the AI-based systems intrinsically compliant? Will they do anything the user asks, or will they abide by ethical rules and – if so – who makes the rules)? This will shape our expectations of how we interact with others.

"A third issue is whether humans have the ability to live/exist/go about their lives without the presence of AI.

- "Is it something you just have to have with you all the time and you may be at risk if you don't have it? A non-technical parallel (not identical, but similar) is an ID card.
- "Is it something that you technically don't have to have with you, but you receive social opprobrium or you can't access important services if you don't? A non-technical parallel is money, whether cash or card.
- "Is it something you can take with you or leave behind as desired? A non-technical parallel is sunglasses.

"These three operational points: Whose interests do the AIs represent? What are the limits of what they will do for the user? Are they mandatory, expected or optional in people's daily lives? These will be the drivers of how AIs may change our humanity. Because how we think, act and behave in a world in which we always have to have with us our branded slave is very different from how we think, act and behave in a world in which bringing an ethics advisor with us is a personal choice."

S.B. Divya

AI Impact Will Increase Social Isolation and Ideological Bubbles, Reduce Humans' Ability to Adapt, and 'Prolong the Suffering from the Driving Forces of Capitalism and Technological Progress'

S.B. Divya, is an engineer and Hugo & Nebula Award-nominated author. Her 2021 novel "Machinehood" asked, "If we won't see machines as human, will we instead see humans as machines?" In response to our research question Divya wrote, "The trends I have observed over the past decade are continuing. We're entering a period of upheaval, and change is unkind to people of little means.

"A sense of competition between human and machine/AI labor is increasing in many sectors. Until new skills are acquired and new job sectors open up, much of the labor force will suffer due to unemployment. In parallel, social isolation is increasing alongside ideological bubbles. AI tools are likely to exacerbate both problems. Feeding their own patterns of behavior back to people will cause beliefs and habits to be more deeply ingrained and it will reduce the ability to change and adapt, thereby prolonging the suffering from the driving forces of capitalism and technological progress. In the long run, I suspect that humanity will emerge from the next half century with new avenues to deal with AI, climate change and rising totalitarianism, but the intervening decades do not look good for much of the populace."

"Feeding their own patterns of behavior back to people will cause beliefs and habits to be more deeply ingrained and it will reduce the ability to change and adapt, thereby prolonging the suffering from the driving forces of capitalism and technological progress."

Liza Loop

Will Algorithms Continue to Prioritize Humans' Most Greedy and Power-Hungry Traits or Instead Be Most Focused On Our Generous, Empathic and System-Sensitive Behaviors?

Liza Loop, educational technology pioneer, futurist, technical author and consultant, wrote, "The majority of human beings living in 2035 will have less autonomy, that is they will have fewer

opportunities to choose what they get and what they give. However, the average standard of living (access to food, shelter, clothing, medical care, education and leisure activities) will be higher. Is that better or worse? Your answer will depend on whether you value freedom and independence above comfort and material resources.

"I also anticipate a thinning of the human population (perhaps in 20 to 30 years rather than 10) and a more radical divide between those who control the algorithms behind the AIs and those who are subject to them. Today, many people believe that the desire to dominate others is a 'core human trait.' If we continue to apply AI techniques as we have applied the digital advances of the previous 40 years, domination, wealth concentration and economic zero-sum games will be amplified.

"Today, many people believe that the desire to dominate others is a 'core human trait.' If we continue to apply AI techniques as we have applied the digital advances of the previous 40 years, domination, wealth concentration and economic zero-sum games will be amplified. … If we use AI to create abundance, to develop systems of reciprocity based on win-win relationships and simultaneously choose to limit our population, our social, political and economic landscapes could significantly improve by 2035."

"Other core human traits include a capacity to love and care for those close to us, a willingness to share what we have and collaborate to expand our resources and the spontaneous creation of art, music and dance as expressions of joy. If we humans decide to use AI to create abundance, to develop systems of reciprocity based on win-win relationships and simultaneously choose to limit our population, our social, political and economic landscapes could significantly improve by 2035. It is not the existence of AIs that will answer this question. Rather, it is whether algorithms will continue to prioritize our most greedy and power-hungry traits or be most focused on our generous, empathic and system-sensitive behaviors."

Neil Richardson

In the Future Our Digital Self – Comprised of Our Digital/Online Skills, Digital Avatars and Accumulated Data – Will Merge With Our Physical Existence, Resilient in the Face of Change

Neil Richardson, futurist and founder of Emergent Action, a consultancy advocating vision-focused strategies, and co-author of "Preparing for a World That Doesn't Exist - Yet," wrote, "Artificial Intelligence is set to profoundly impact civilization and the planet, offering transformative opportunities alongside significant challenges. This evolution requires a departure from rigid answers and singular truths, embracing a learning model that values emergence, adaptability and transformation.

"To thrive, humans must cultivate a mindset that is comfortable with uncertainty, open to evolving 'truths' and resilient in the face of continuous change.

"While the positives will outweigh the negatives the risks are undeniable. Like nuclear and biological weapons, AI is a powerful technology that necessitates robust safeguards and regulatory frameworks to avert catastrophic outcomes. To prevent a dystopian future, we must proactively ensure that AI is harnessed for humanity's benefit.

"As AI reshapes work, learning and daily life, civilization must rethink its approach to education. Lifelong learning will become a necessity, demanding a fundamental shift in how we teach and learn. Teachers will no longer be mere dispensers of static truths; instead, they will act as facilitators who guide learners toward diverse perspectives, encouraging exploration, adaptability and critical thinking.

"One of AI's most promising contributions is its ability to liberate humans from repetitive and mundane tasks, enabling us to focus on activities that bring greater meaning and resonance to our lives. While AI excels in handling quantitative and analytical processes, the realms of qualitative and emotive complexities will remain inherently human. Building relationships, fostering collaborations and critical thinking core aspects of crafting meaning, will continue to rely mostly on human ingenuity and emotional intelligence.

"Soon our 'digital shadow' – a complementary digital self that is comprised of our virtual and online skills, digital avatars and accumulated data – will merge with our physical existence. This fusion may grant us access to a new dimension of experience, a kind of 'timelessness' in which our identities transcend mortality. Future generations could interact with our digital selves, composed of meticulously organized photos, videos, financial transactions, travel logs and even the books we've read and reviewed. This evolution raises profound questions about identity, legacy and the human experience in an AI-driven world.

"AI's potential to enhance human life is immense, but its integration into society demands intentionality and vigilance. By addressing its risks with foresight and embracing its opportunities with creativity, we can ensure that AI becomes a force for progress, equity and enduring human value."

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This section of Part II features the following essays:

Louis B. Rosenberg: **The manipulative skills of conversational AIs are a significant threat to human's agency: causing us to act against best interests, believing and acting on things that are not true.**

Jonathan Taplin: **In 2035 AI will foster and grow the mass mediocrity monoculture already being built since online ads and the 'democratization of creativity' led to the internet's 'enshittification.'**

Denis Newman Griffis: **Fundamental questions of trust and veracity must be re-navigated and re-negotiated due to AI's transformation of our relationship to knowledge and how we synthesize it.**

Peter Lunenfeld: **AI could redefine the meaning of authenticity; it will be both the marble and the chisel, the brush and the canvas, the camera and the frame; we need the neosynthetic.**

Esther Dyson: **We must train people to be self-aware, to understand their own human motivations, to understand that AI reflects the goals of the organizations and systems that control it.**

Howard Rheingold: **How AI influences what it means to be human depends on whether it is used mostly to augment intellect or mostly as a substitute for participation in most human affairs.**

Charles Fadel: **How do you prepare now to live well in the future as it arrives? Build up your self: your identity, agency, sense of purpose, motivation, confidence and resilience.**

Louis B. Rosenberg

The Manipulative Skills of Conversational AIs Are a Significant Threat to Human's Agency: Causing Us to Act Against Best Interests, Believing and Acting on Things That Are Not True

Louis B. Rosenberg, technologist, inventor, entrepreneur and founder and CEO of Unanimous AI, wrote, "AI will have a colossal impact on human society over the next five to 10 years. Rather than comment on the many risks and benefits headed our way, I want to draw attention to conversational agents, which I believe are the single most significant near-term threat to human agency.

"In the near future, we will all be talking to our computers and our computers will be talking back. These conversations will be highly personalized, as AI systems will adapt to each individual user in real-time. They will do this by accessing personal data profiles and by conversationally probing each of us for personal information, perspectives and reactions.

"Using this data, the AI system could easily adjust its conversational tactics in real-time to maximize its persuasive impact on individually targeted users. This is sometimes referred to as the AI Manipulation Problem and it involves the following sequence of steps:

1. Impart real-time conversational influence on an individual user
2. Sense the user's real-time reaction to the imparted influence.
3. Adjust influence tactics to increase persuasive impact.
4. Repeat steps 1, 2, 3 to gradually optimize influence.

"This may sound like an abstract series of computational steps, but it's actually a familiar scenario. When a human salesperson wants to influence a customer, they don't hand over a brochure or ask you to watch a video. They engage you in real-time conversation so they can feel you out, adjusting their tactics as they sense your resistance to messaging, pick up on your fears and desires or just size-up your most visceral motivations. Conversational influence is an interactive process of probing and adjusting to increase persuasive impact.

"AI systems will soon be so skilled that humans will be cognitively outmatched, making it quite easy for interactive conversational agents to manipulate us into buying things we don't need, believing things that are not true and supporting ideas or propaganda that we would not ordinarily resonate with. … without regulation, conversational AI systems could be significantly more persuasive than any human. That's because the platforms that deploy AI agents could easily have access to personal data about your interests, values, personality and background."

"The problem we will soon face is that AI systems have already reached capability levels at which they could be deployed at scale to pursue conversational influence objectives more skillfully than any human salesperson. In fact, we can easily predict these AI systems will soon be so skilled that humans will be cognitively outmatched, making it quite easy for interactive conversational agents to manipulate us into buying things we don't need, believing things that are not true and supporting ideas or propaganda that we would not ordinarily resonate with.

"When I speak with regulators and policymakers about The AI Manipulation Problem, they sometimes push back by expressing that human salespeople already can talk a customer into buying things they don't need and fraudsters can already talk their marks into believing things that are untrue. While these are true facts, without regulation, conversational AI systems could be significantly more persuasive than any human. That's because the platforms that deploy AI agents could easily have access to personal data about your interests, values, personality and background. This could be used to craft optimized dialog that is designed to build trust and familiarity. Once engaged, the AI system can push further, eliciting responses from you that reveal your trigger points – are you motivated by fear of missing out? Are you most receptive to logical arguments or emotional appeals? Are you susceptible to conspiracy theories?

"These risks don't require speculative advancements in AI technology. These risks will emerge as society increasingly shifts over the next few years from traditional computing interfaces to interactive conversations with AI agents. Unless regulated, conversational AI systems will likely be designed for persuasion, trained on a wide range of skills from sales and marketing strategies to psychological profiling and cognitive biases. In this way, conversational AI systems could be deployed to pursue targeted influence objectives with the skill of a heat-seeking missile, finding an optimal path into every individual they are aimed at. This creates unique risks that could fundamentally compromise human agency.

"My advice to regulators and policymakers is to take steps now to ensure that conversational agents can be deployed widely to support the many amazing applications that will surely emerge, while preventing these very same AI agents from being used as optimized instruments of mass persuasion. You can read more about this risk here."

Jonathan Taplin

In 2035 AI Will Foster and Grow the Mass Mediocrity Monoculture Already Being Built Since Online Ads and the 'Democratization of Creativity' Led to the Internet's 'Enshittification'

Jonathan Taplin, author of "How Google, Facebook and Amazon Cornered Culture and Undermined Democracy" and director emeritus at the Annenberg Innovation Lab at USC, wrote, "AI is contributing to a brittle cultural monoculture. We have to somehow get back to a balanced culture that is both sustainable and resilient. A musical ecosystem like Spotify, where one percent of the artists earn 80 percent of the revenues, is not balanced or sustainable. Remember, about 30,000 tracks are uploaded to Spotify every day. That number will increase as more people use generative AI to 'create music.'

"One of the fantasies that men like Zuckerberg and Musk hold is that eventually the government will provide a universal basic income to all these unemployed folks. Then the question is, 'What will these people do all day?' And the smug answer is that they will become 'creators.' At the risk of being called elitist, let me state that not everyone can be a creator. I still believe in genius, and the fact that anyone can now make a song with AI and put it up on Spotify does not pass the 'who cares?' test. We are getting overwhelmed with mountains of crap."

"In the media history I have presented, I've explored how advertising slowly became the main driver of our culture. The decision in the late 1920s to have advertising be the main source of funding for broadcasting as opposed to the European model of state-sponsored broadcasters like the BBC, was the first major shift. But even in the heyday of broadcast television we were probably exposed to advertising for four minutes an hour between 7 and 10 p.m. Today, we are exposed to advertising from the moment we

awaken and pick up our mobile phones to the moment our eyes close at night. Most surveys say that the average American sees between 6,000 and 10,000 ads per day. At the USC Annenberg School, where I taught, one of the top career options today is to become an online influencer – essentially a corporate shill.

"The main driver of the media efficiency meme is Generative AI, so that, too, is a hot area of study at communications schools. There is a notion that AI can allow everyone to be a creator – that it will 'democratize creativity.' But as Brian Merchant writes, 'AI will not democratize creativity. AI will let corporations squeeze creative labor, capitalize on the works that creatives have already made and send any profits upstream to Silicon Valley tech companies where power and influence will concentrate in an ever-smaller number of hands. The artists, of course, get zero opportunities for meaningful consent or input into any of the above events. Please tell me with a straight face how this can be described as a democratic process.'

"Obviously, there is a lot of talk about the coming AI revolution's impact in the decades to come and the effect it may have on eliminating jobs of many college-educated white-collar workers. One of the fantasies that men like Zuckerberg and Musk hold is that eventually the government will provide a universal basic income to all these unemployed folks.

"The question is, 'What will these people do all day?' The smug answer is that they will become 'creators.' At the risk of being called elitist, let me state that not everyone can be a creator. I still believe in genius, and the fact that anyone can now make a song with AI and put it up on Spotify does not pass the 'who cares?' test. We are getting overwhelmed with mountains of crap. There's even a word for it, 'Enshittification,' coined by writer Cory Doctorow in 2022.

"As Sal Kahn writes, 'Everybody has noticed how Facebook, Google, even dating apps, have become progressively less interested in the user's experience and increasingly just stuffed with ads and junk.' In this regard, the left is as guilty as the right in its obsession with equality at all costs. From trophies for 'participation' in kids' soccer to the unwillingness to state that some music and film is truly bad ('don't be so judgmental, man'), the monoculture we are creating is one of mass mediocrity."

Denis Newman Griffis

Fundamental Questions of 'Trust and Veracity Must Be Re-navigated and Re-negotiated' Due to AI's Transformation of Our Relationship to Knowledge and How We Synthesize It

Denis Newman Griffis, a lecturer in data science at the University of Sheffield, UK, and expert in exploring the effectiveness and responsible design of AI technologies for medicine and health, wrote, "The shape of human-AI interactions over the next decade depends significantly on how humanity approaches the processes of working with AI systems and how we develop the skills involved in using them.

"AI is a toolbox containing many different tools, but none of them are neutral: AI systems carry with them the assumptions and embedded epistemologies of their creation and their intended purposes. These may be beneficial in making it easier to do certain things, such as identifying potential risks while driving. They may be

"We are infinitely complex beings and the most profound, most mundane and most prolific parts of our lives are lived in relation to the other complex, changing people around us. The world in which those relationships occur, and the tools with which we approach them, have changed dramatically."

equally harmful when their embedded epistemologies come into conflict with the diverse world of multiplicity in which we live, breathe, and interact – for example, by failing to recognise wheelchair users as pedestrians because this population was excluded from training data; or failing to recognise that different people will place different value judgments and prioritisation on economic growth vs. environmental sustainability.

“The experience of being human is constantly changing while also remaining remarkably stable. We are infinitely complex beings and the most profound, most mundane and most prolific parts of our lives are lived in relation to the other complex, changing people around us. The world in which those relationships occur, and the tools with which we approach them, have changed dramatically with every technological advance and are continuing to change with AI as one in a very long series of technological transformations.

“Our interconnectedness grew exponentially with the internet and our communities were reshaped with social media. AI technologies are changing our relationship to knowledge from the world and how we synthesise it. There are fundamental questions of trust and veracity to re-navigate and re-negotiate, and the importance of this cannot be overstated, but nor can the fact that these types of questions we have been wrestling with for decades already and centuries before that.

“The future of humans and AI is a future of humans and humans, in which AI facilitates some connections, hinders others and reshapes how we exchange knowledge and information just as predecessor information technologies have done. The impact of these advances will be shaped by the literacies we develop and the skills with which we approach these processes and each other as ever-changing humans in an ever-changing world.”

Peter Lunenfeld

AI Could Redefine the Meaning of Authenticity; It Will Be Both the Marble and the Chisel, the Brush and the Canvas, the Camera and the Frame; We Need the Neosynthetic

Peter Lunenfeld, director of the Institute for Technology and Aesthetics at UCLA and author of "The Secret War Between Downloading and Uploading: Tales of the Computer as Culture Machine," wrote, “If there’s one thing the past quarter century should have taught us, it’s that the massive changes we think are far in the distance can happen in the blink of the eye while the things we hope or fear will affect us immediately just don’t happen. What seems immutable is Immanuel Kant’s understanding that ‘out of the crooked timber of humanity, no straight thing was ever made,’ and that includes the bundle of often competing and sometimes contradictory ‘things’ that we are labelling artificial intelligence. Just as widespread access to the Internet increased our access to data without increasing our communal stock of knowledge much less wisdom, AI will offer us a crooked future over the next 10 years.

“The notion that artificial intelligence is entirely artificial collapses under any kind of scrutiny, it's a series of algorithms programmed by humans to map and mine previously produced human artifacts like language and art and then produce a simulacrum of same. The 21st century, especially since the literal explosion of commercialized and massified artificial intelligence, is now defined by the neo-synthetic.”

“For two centuries we’ve accepted photographic media as evidence of something that happened, even when we’ve known better. AI will finally destroy this truth value, and if we’re lucky we’ll start to count on sourcing and provenance as importantly as we do with text. At worst,

we'll be buried in an imageverse of deep-fakes and not even care. Again, anyone who claims to be able to tell you how and when this will play out with certainty has a crypto-pile of Dogecoins to sell you.

"I certainly don't feel qualified to answer how AI will affect the whole of our humanity, but I have thought quite a bit about how it will affect that aspect of ourselves we label creativity. The notion that artificial intelligence is entirely artificial collapses under any kind of scrutiny, it's a series of algorithms programmed by humans to map and mine previously produced human artifacts like language and art and then produce a simulacrum of same. The 21st century, especially since the literal explosion of commercialized and massified artificial intelligence, is now defined by the neo-synthetic. In what I've termed the 'unimodern,' world which is ever-more digitized and digitizable, the neo-synthetic reigns supreme.

"Of course, we need the neo-synthetic. We need to synthesize the vast amounts of cultural production since just the year 2000. More photographs are taken every year in this new millennium than existed in the first century of the medium. We need new ways to understand the production of culture when the previously daunting fields of animation, sound design, cinematography and dimensional modeling are now things you can do on your phone. We need AI to understand the apparently insatiable human thirst to produce as well as consume digital and digitized art, design and music.

"One reason to pay attention to art and artists is that they've long stood at oblique angles to markets, not outside them, but certainly at enough of a skew to keep both hope and skepticism alive through the rise and fall of technologies and the ebb and flow of market cycles. I'd like to avoid what I once labeled vapor theory and stay with AI as it exists. In this, I think that art and artists will de- rather than en-shittify our engagement with the neo-synthetic future of artificial intelligence."

"But the roots of the synthetic go far beyond the merely un- or not natural. The synthetic is linked as well to synthesis, that result of the very human dialectic that pits thesis against anti-thesis to produce synthesis, a way of bridging dichotomies and achieving, if not revolutionary leaps of consciousness, at least the ameliorative growth that we used to call progress and that now lacks branding. When we synthesize information we are engaged in logical processes and deductive reasoning, two areas where human cognition will be greatly augmented by wide-spread AI systems.

"In the 1970s, after the release of the Sony Portapak, the artist John Baldessari famously called for the video camera to become as ubiquitous in art and image making as the pencil. That moment has come and gone, and if there's one thing we can determine about social media, it's that people feel pretty comfortable recording any and everything.

"But AI has the capacity to become much more than video, it will be both the marble and the chisel, the brush and the canvas, the camera and the frame. In 2022, Cory Doctorow, a British-Canadian novelist and techno-pundit, coined the term 'enshittification' to describe how social media platforms decay and become shittier: first, they are good to their users; then they abuse their users to make things better for their business customers; finally, they abuse those business customers to claw back all the value for themselves. One reason to pay attention to art and artists is that they've long stood at oblique angles to markets, not outside them, but certainly at enough of a skew to keep both hope and skepticism alive through the rise and fall of technologies and the ebb and flow of market cycles. I'd like to avoid what I once labeled vapor theory and stay with AI as it exists. In this, I think that art and artists will de- rather than en-shittify our engagement with the neo-synthetic future of artificial intelligence.

"Earlier, I noted that the AI we're using now to work with as artists is still highly dependent on previous human production as its model. But as the systems complexify and evolve, they will start drawing from AI produced models, and in fact they already are. This contributes to the 'neo' in neo-synthetic. What we are seeing is the emergence of an electronic parthenogenesis, a virgin birth of sorts. It's not just humans producing synthetics in labs and making tires and snack foods out of them, it's the machines themselves synthesizing themselves. Whether this brings on the singularity science fiction has prophesied or just more intense neo-synthesis is yet to be seen."

Esther Dyson

We Must Train People to be Self-Aware, to Understand Their Own Human Motivations, to Understand that AI Reflects the Goals of the Organizations and Systems That Control It

Esther Dyson, executive founder of Wellville and chair of EDventure Holdings, a famed serial investor-advisor-angel for technology startups and internet pioneer, wrote, "The short answer is, it depends on us. The slightly longer answer: The future depends on how we use AI and how well we equip the next generation to use it. I'd like to share more specifics on this, excerpted from an essay I wrote for The Information:

"'People worried about AI taking their jobs are competing with a myth. Instead, people should train themselves to be better humans.

- 'We should automate routine tasks and use the money and time saved to allow humans to do more meaningful work, especially helping parents raise healthier, more engaged children.
- 'We should know enough to manipulate ourselves and to resist manipulation by others.
- 'Front-line trainers are crucial to raising healthy, resilient, curious children who will grow into adults capable of loving others and overcoming challenges. There's no formal curriculum for front-line trainers. Rather, it's about training kids and the parents who raise them to do two fundamental things.

"AI can give individuals huge power and capacity that they can choose to use to empower others or to manipulate others. If we do it right, we will train children, all people, to be self-aware and to understand their own human motivations – most deeply, the need to be needed by other humans. They also need to understand the motivations of the people and the systems they interact with, many of which will be empowered and driven by AI that reflects the goals of the people and institutions and systems that control them. It's as simple as that and as hard to accomplish as anything I can imagine."

1. 'Ensure that they develop the emotional security to think long-term rather than grasp at short-term solutions through drugs, food, social media, gambling or other harmful palliatives. (Perhaps the best working definition of addiction is "doing something now for short-term relief that you know you will regret later.")

2. 'Kids need to understand themselves and understand the motivations of the people, institutions and social media they interact with. That's how to combat fake news or the distrust of *real* news. It is less about traditional media literacy and more about understanding: "Why am I seeing this news? Are they trying to get me angry or just using me to sell ads?" …

‘Expecting and new parents are the ideal place to begin such training. They are generally eager for help and guidance, which used to come from their own parents and relatives, from schools and from religious leaders. Now such guidance is scarce.’ *(End of excerpt)*

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“They also need to understand the motivations of the people and the systems they interact with, many of which will be empowered and driven by AI that reflects the goals of the people and institutions and systems that control them. It's as simple as that and as hard to accomplish as anything I can imagine.”

Howard Rheingold

How AI Influences What It Means to Be Human Depends On Whether it is Used Mostly to Augment Intellect or Mostly as a Substitute for Participation in Most Human Affairs

Howard Rheingold, pioneering internet sociologist and author of "The Virtual Community," wrote, “How AI affects core human traits and behaviors depends in part on whether it is widely used as a tool for augmenting intellect rather than only as an artificial substitute for human intellect.

“One theme that has emerged for me in the developing narratives about artificial intelligence is that large language models and their chatbots can most productively be thought of as thinking tools – cultural technology. That is to say it can partner with rather than artificially replace human intellect. But it is not either-or. Both AI as human-augmentation technology and AI as an independent agent is developing. The trend toward AI-as-agents – semi-autonomous intelligence that can accomplish intellectual tasks – is dominant now and should be rebalanced.

“AI literacy – knowing how to use LLMs as tools to advance one's own work, thought, socializing and play – will emerge as a critical uncertainty with regard to how the emerging medium will impact the experience of being human. The uses of cultural technologies such as speech, writing, mathematics, shape our external environments and our image of who humans are and what we are capable of. This has been a driving force in cultural evolution and it will continue to be. Both the real powers granted to individuals by literacies and the image of who humans are change dramatically when a significant portion of a population learns to speak, read, log on and prompt.

“Creating a knowledge lens based on human output is likely to inevitably be prone to inaccuracy. Another and potentially even more destructive know-how gap and degradation of the knowledge commons looms if AI agents working independently of humans on behalf of humanity make decisions and create content based on previous LLMs hallucinations and uses of fabricated information.”

“Internet search was a powerful expansion of the cultural knowledge tools that evolved from prior expansions of human cognitive and communicative capabilities: print, alphabet and language itself. Most people on Earth can now ask any question any time anywhere and get many, even millions of answers within a second or two. But contrary to the previous summations of human knowledge in the print epoch, during which gatekeepers such as editors, publishers, librarians, educators, critics and

scientific publications formed mostly-effective truth filters. It is now up to the individual who asks a question via search to know how to determine which of the myriad answers are accurate, inaccurate or deliberately misleading. As social media, surveillance capitalism and the online population grew, the tide of bullshit and disinfotainment has grown to tsunami proportions.

"I see the current stage of the degradation of trustworthy information as a literacy problem. There is no secret to 'crap detection' – the art of sifting through online info for the valuable and useful stuff. But digital literacy isn't a primary focus in schools. Two results of digital illiteracy: A know-how gap and a degraded knowledge commons.

"Regarding LLMs as external cognitive scaffolds: The many aspects of today's Web – from search to social media – are a warning example for the future of humanity's dependence upon a powerful external cognitive scaffold that is dangerous to misunderstand and misuse. There are no widely-accessible pathways to learn how to use it to the benefit of the commons as well as oneself.

"The phenomenon of 'hallucination' in the output of LLMs ties to their training data, much of it from wholly fictitious resources. There is not yet proof that the production of fictitious knowledge can be engineered away.

"Creating a knowledge lens based on human output is likely to inevitably be prone to inaccuracy. Another and potentially even more destructive know-how gap and degradation of the knowledge commons looms if AI agents working independently of humans on behalf of humanity make decisions and create content based on previous LLMs hallucinations and uses of fabricated information."

Charles Fadel

How Do You Prepare Now to Live Well in the Future As it Arrives? Build Your Self: Your Identity, Agency, Sense of Purpose, Motivation, Confidence and Resilience

Charles Fadel, futurist, founder and chair of the Center for Curriculum Redesign and co-author of "Education for the Age of AI," wrote, "Even those in the thick of AI analysis can't tell you where things will probably go in the next decade, especially in the context of jobs. We don't know how to define 'intelligence,' so how can we define AGI? Beyond knowing that artificial intelligence will continue to play a role we are absolutely incapable of saying how jobs or our lives will change. So-called experts can't tell you what will happen because we don't have the tools for that. It would require cognitive task analysis of every single one of our activities on a day-in, day-out basis. That's impossible, especially because the rate of change is insane.

"What we *can* do is ask, 'What do we need to do now to prepare people to live in the future as it arrives?'

"What do we need to do now to prepare people to live in the future as it arrives? … The most important goal is to assist them in developing to be highly adaptable, self-directed learners. … We have to accept that the world is more fluid than ever, more jarring than ever. Perhaps the military acronym VUCA – volatile, uncertain, complex and ambiguous – best describes the world of the student today – and really, anyone today."

"Let's explore this in the context of education. AI is going to put more pressure on teachers and mentors to figure out what their roles are. If you have no idea where the world is going, how would you educate people nowadays? The most important goal is to assist them in developing to be highly adaptable, self-directed learners.

“A teacher may start a class out by saying: ‘I'm going to give you various disciplines, competencies, skills, character, etc., to start you with a solid Swiss Army knife for life. But really, the students’ primary goal should be to understand and cultivate the habits and skills that will allow them to figure things out on their own and keep on reacting to whatever comes at them for the rest of their lives.’

“We have to accept that the world is more fluid than ever, more jarring than ever. Perhaps the military acronym VUCA – volatile, uncertain, complex and ambiguous – best describes the world of the student today – and really, anyone today.

“What helps cultivate adaptability? Let’s take sailing, for example. Everything changes all the time when you're sailing: currents, wind, temperature, salinity. You have to adjust constantly. Another example? Martial arts. You're constantly having to adapt to some new thing coming at you. Another example is doing improvisational acting. All of those create constant teachable lessons.

“You’re not going to find this kind of teaching in a mass curriculum. You need experience novel activities that force you to be adaptable and adjust. There will have to be a much higher preponderance of teaching and training environments to cultivate this. Even in ‘normal’ teaching situations, good instructors who want to teach adaptability can find ways to mix things up. The teacher says, ‘I told you we were going to cover these things today, but we’re not going to do that now.’ Or the teacher says, ‘I told you there wouldn’t be a test this week, but I’m giving one right now.’ Or they say, ‘You thought this was a history class, but today we’re doing math.’

“Accept that you’re in a changing river because that’s what life is like. When it comes to self-direction, people should be trained to pay attention to their identity, agency, sense of purpose and their adherence to lively inner motivation. It's a question of building self-confidence about accepting the courage and resilience to deal with any situation that shows up. All people should embrace these goals.”

“Students should come to expect the unexpected in order to inspire their growth and deepen their maturation. Teachers should tell them: ‘This is a class designed to jar you. Be prepared for anything and then deal with it. Life is full of surprises and this class will prepare you for that. I don't care if you’re confused. Welcome to the real world.’ People must adapt and stop their resistance of everything other than the expected. They must embrace their reality and think, ‘Just go with the flow.’ Accept that you’re in a changing river because that’s what life is like. When it comes to self-direction, people should be trained to pay attention to their identity, agency, sense of purpose and their adherence to lively inner motivation. It's a question of building self-confidence about accepting the courage and resilience to deal with any situation that shows up. All people should embrace these goals.

“So how might humanity adapt to this new world on a broader basis? We can use the new tools to give ourselves an upgrade. Look at a not-so-science-fiction scenario, a very ‘Brave New World’ type of scenario. Suppose we develop an AI that can identify which codons within a group of 75 genes are the ones that code intelligence, and humanity engineers itself into becoming much smarter? Or maybe we figure out how to boost our mitochondria so they are more efficient at energy processing in the brain, also broadening its capabilities. Or perhaps a new nutraceutical of some sort may be part of brain advancement.

"We have no idea how we will react as a society when we see these big developments arriving and foisting new challenges and opportunities upon us. Neither side of the issue – the human side or the AI side – will remain fixed and final."

The next section of Part II includes the following essays:

Wendy Grossman: **AI has created a world in which 'sentences do not imply sentience.' who we allow to be owners and operators of these tools will determine their impact on humans.**

Katya Abazajian: **AI will continue to be a tool used by a rich and powerful minority in ways that entrench inequality and negatively affect the global majority.**

Pamela Wisniewski: **Unfortunately, it's easier to build AI systems that remove humans and reduce costs than it is to advance human ingenuity and enrich the human experience.**

Russ White: **A bifurcation of society may occur in which the tech elites, the workers and those who prefer to live and work in a low-tech, hand-made, alternate-economy setting.**

Mark Davis: **'AI is leading us into a digital plutocracy in which a handful of multi-billionaires (among the richest people on Earth) make the machines that decide human affairs'**

Marc Rotenberg: **The two prominent scenarios for the future: AI helps enable human-centric progress in support of fundamental rights | AI diminishes rights, agency and open societies.**

Christopher Riley: **Most humans will be more empowered and enlightened, but jobs will be lost as the 'consequence of efficiency is always less need for human effort'**

Douglas Rushkoff: **AI could move society toward its standardization to the mean.**

Wendy Grossman

AI Has Created a World in Which 'Sentences Do Not Imply Sentience.' Who We Allow to Be Owners and Operators of These Tools Will Determine Their Impact on Humans

Wendy Grossman, a UK-based science writer, author of "net.wars" and founder of The Skeptic magazine, wrote, "The key problem I have with this question is that we don't yet *have* AI in the classical sense of the term. Jamie Butler has said of generative AI that for the first time in human history 'sentences do not imply sentience,' and I think that's important because "AI" until very recently certainly did *not* mean 'uses math and statistics to predict the next plausible word in a sentence in response to a prompt.' So, I don't care if 'AI' in its current state makes 'music' or 'draws images' or 'answers questions' because none of it is meaningful in a human sense.

> **"The companies making 'smart' things seem determined to impose on us things we actually don't want. … These are not functions of 'AI' but of the tools' *owners*. And that really is the key. Who is owning the 'AI'? Who we allow to be owners and how we allow them to operate is what's going to determine the impact these tools have on being human."**

"That said, it's still true that people will use it for low-value applications, thereby replacing graphic artists, photographers, writers and musicians on the basis that people aren't really looking/reading/listening. See Liz Pelly's piece on Spotify in Harper's, trailing her new book 'Mood Machine' and a similar piece about Netflix's assembly line for movies for examples. You don't need AI to create bullshit.

"There is not going to be an artificial general intelligence – the thing we meant by 'AI' in the beginning – by 2035. Or by 2055. At which point I will be 101 and no one will care what I think.

"Having automated tools doesn't change being human. It changes how we do specific things. I hope some of it will make dangerous and difficult jobs less dangerous and easier. Right now, the companies making 'smart' things seem determined to impose on us things we actually don't want – features that do nothing useful but rampant privacy invasion and data collection and endemic surveillance and control. Those things do change being human – but again, these are not functions of 'AI' but of the tools' *owners*.

"And that really is the key. Who owns the 'AI'? Who we allow to be owners and how we allow them to operate is what's going to determine the impact these tools have on being human. None of today's billionaire tech bros are fit owners."

Katya Abazajian

AI Will Continue to Be a Tool Used By a Rich and Powerful Minority in Ways That Entrench Inequality and Negatively Affect the Global Majority

Katya Abazajian, founder of the Local Data Futures Initiative, based in Houston, Texas, predicted, "I believe that AI's emergence for commercial use is currently a tool that people in many places around the world and of many class and social backgrounds are experimenting with for a variety of purposes, but as its strengths and weaknesses become clearer it will become a tool that is primarily used by a rich and powerful minority to further entrench lines of inequality that negatively affect the global majority. As with any other technology, its effects on human behavior will largely be dictated by the values and goals of the people writing the source code.

"There is a segmentation favoring positive effects for owners or decision-makers and negative effects for workers or land protectors, for example. The positive effects may directly impact users and the negative effects might affect the broader global community, especially when considering the environmental impacts of AI use.

"Broadly, the capitalist ruling class is interested in increasing corporate profits, reducing labor costs and silencing dissent, regardless of the cost in terms of natural or human resources. As such, the positive benefits will likely emerge in the form of increased efficiency in manufacturing processes, for example, and the negative outcomes will emerge in the form of a loss of whatever human resources are in the way of that goal.

"The capitalist ruling class is interested in increasing corporate profits, reducing labor costs and silencing dissent, regardless of the cost … As such, the positive benefits will likely emerge in the form of increased efficiency and the negative outcomes will emerge in the form of a loss of whatever human resources are in the way of that goal. … It's important to include the rights to people's freedom of movement and autonomy in the definition of 'humanity's operating system' to understand AI's impacts on humanity beyond basic functions of creativity and thought."

"AI's impact on our core human traits and behaviors will necessarily be negative for most people on Earth if its extraction of natural resources negatively affects our access to water and energy costs. Also, a significant number of non-users of AI will be affected by the increased level of surveillance that will be made possible by AI technologies, which can affect people's freedom of movement and autonomy in surveilled spaces which are also part of humanity's core functioning. I believe it's important to include the rights to people's freedom of movement and autonomy in the definition of 'humanity's operating system' to understand AI's impacts on humanity beyond basic functions of creativity and thought."

Pamela Wisniewski

Unfortunately, It's Easier to Build AI Systems That Remove the Human and Reduce Costs Than It Is to Build AI Systems That Supplement Human Ingenuity and Enrich the Human Experience

Pamela Wisniewski, associate professor in human-computer interaction and fellow in engineering at Vanderbilt University expert in social media, privacy and online safety, wrote, "Artificial Intelligence is a tool that can both enrich and erode the human experience. It is not either/or, both can be true simultaneously. To the extent that we can use AI to augment the human experience, rather than to replace it, there is still hope for a better future. In other words, when AI can help people think deeper rather than thinking for them, it can sharpen our skills and lead to better outcomes. My worry, however, is that it is easier to build AI systems that remove the human to reduce costs, rather than build AI systems that supplement human ingenuity and enrich the human experience.

"When we use AI to accomplish tasks we have already mastered, it can create economies of scale that allow humans to focus on more important and meaningful work. Inversely, if we use AI before we learn how to do those tasks ourselves, it will rob us of important scaffolding and the experience of learning by doing. For example, AI does an amazing job at synthesizing and summarizing existing text. However, if we don't teach our children the process of summarizing and synthesizing text for themselves, we rob them of a chance to deepen their ability to think critically.

"For the most part, AI is programmed to be subservient, allowing us to be the masters in the human-AI relationship. This makes having a relationship with AI fairly easy, in fact a lot easier than working with humans. Collaborating with humans is different. People are messy. Relationships with people involve conflict, resolution, power dynamics and unpredictability.

"Just like a butterfly must take action to struggle to get out of a cocoon, humans benefit from some level of struggle that is often largely removed in human-AI interactions. Therefore, we need to be aware that we must not replace the core experiences of human-to-human communication with AI. We learn from the struggles we experience in navigating differing human values and the many nuances of the human experience.

"Just like a butterfly must take action to struggle to get out of a cocoon, humans benefit from some level of struggle that is often largely removed in human-AI interactions. Therefore, we need to be aware that we must not replace the core experiences of human-to-human communication with AI. We learn from the struggles we experience in navigating differing human values and the many nuances of the human experience. … An over-reliance on AI to the extent that we allow it to be the authority of what is good (over the imperfections of humans), is dangerous. I would rather see a student struggle with language and thought to express their own ideas than to see them produce a perfect essay written by AI."

"AI is the ultimate 'mansplainer.' It tends to have high levels of confidence, despite often lacking competence and embedding incorrect information within a response that may have an equal or greater

amount of accurate content. Because AI's 'voice' – be it written or spoken – can seem so convincing, many people who are otherwise competent or in the process of learning competency rely heavily on it for their writing and research, especially if they lack confidence that their work is 'good enough.' An over-reliance on AI to the extent that we allow it to be the authority of what is good (over the imperfections of humans), is dangerous. I would rather see a student struggle with language and thought to express their own ideas than to see them produce a perfect essay written by AI."

Russ White

A Bifurcation of Society May Occur in Which the Tech Elites, the Workers and Those Who Prefer to Live and Work in a Low-Tech, Hand-Made, Alternate-Economy Setting

Russ White, a leading Internet infrastructure architect and Internet pioneer, described a potential division of humans dependent upon their level of tech use and uptake, writing, "I can see society being divided into three distinct parts in 2035.

1. **"Tech bros who run and control things**, the political, social and technological systems, including most social media and AI systems. These people will interact with AI, both using and controlling it.

2. **"Workers, or 'economic units,'** who follow the instructions given to them by some AI or another to 'do a job.' These people will be trying to build families and communities but will work at the whim of the AI systems controlling their lives. This group will include everyone we consider 'in the trades' today, such as electricians, plumbers, builders, carpenters, drivers of all kinds, warehouse workers, etc. These people will play the role of the obedient subjects of AI.

3. **"Outsiders**. People who have moved out into more-remote locations and are creating an alternative economy by trading directly with one another and tapping into the desires of people in the other two groups for 'handcrafted' work. They will sell their 'lifestyle' as an aspiration, hoping to help those in the other groups believe that 'low-tech life is possible.' The outsiders will live on intergenerationally owned land. Most in the general population will consider them to be 'dumb, unintelligent and uneducated.' The Outsiders will not be supported by the others in times of emergency, such as natural disasters, and will largely be considered 'poorer' than people in the other two groups. They will eschew material wealth, preferring a form of 'benevolent ignoring.' They will have no political power, hence their entire existence will be at the whim of those in the other groups in matters in which they might decide, for example, that they want to use property X lived on and owned by the Outsiders for purpose Y."

Mark Davis

'AI Is Leading Us into a Digital Plutocracy in Which a Handful of Multi-billionaires (Among the Richest People on Earth) Make the Machines That Decide Human Affairs'

Mark Davis, a professor in the school of culture and communication at the University of Melbourne expert in the changing nature of public knowledge, wrote, "What happens when we look at AI from an instrumentalist point of view? Quite quickly we see how neatly it sits within narratives of human technological progress always reaching toward new horizons. We can predict quite safely that over the

next decade medical research will advance in leaps and bounds. The rapid advances in digital imaging that began in the 2010s continue to accelerate and are no longer confined to data acquisition. AI-driven diagnosis, for example, has considerable potential to improve patient cancer outcomes.

"AI also has considerable potential to address environmental problems through, for example, analytical mapping of soil erosion or greenhouse gas emissions. And to address management problems, through its predictions of market and human behaviour; even to assist with governance and resource allocation more generally. We can expect rapid advances in science more generally. Driven by advances in sensor technology alongside AI, every field from astronomy to archaeology to zoology will have its renaissance.

"And yet, there are threatening clouds. This scientific progress will be driven by data that doesn't belong to specific creators. What about data that does? Generative AI has already begun to extrapolate trends in the creative industries already evident by the mid 2010s. Painters, musicians, graphic designers, novelists, filmmakers, illustrators, cartoonists, animators, scriptwriters, already feeling the strictures of precarity, are already among the lowest paid of labourers, edged out by tiny commissions on streaming services and other online creative platforms, in a market heavily weighted to consumers. Imagine, for example, trying to make a living as a musician given the 100,000 new tracks uploaded to Spotify every single day.

"AI, from the point of view of many creatives, is little more than a high-speed form of plagiarism with just enough steps between final product and the copyright owner to dodge potential lawsuits. In many cases creatives will be replaced altogether. For example, a growing number of tracks on streaming services are already AI generated. We are already seeing a boom AI-as-service generated art and design.

"Journalism too, will be significantly impacted. News media were already short-changed by the shift in advertising spending from hundreds of small outlets across radio, television and print news, to Alphabet (Google) and Meta (Facebook, Instagram et al). Generative AI enables the work of a handful of news generators to be endlessly recycled. This is already happening with second- and third-tier online news and reviews sites.

"AI, from the point of view of many creatives, is little more than a high-speed form of plagiarism. … [and it] enables the work of a handful of news generators to be endlessly recycled. This is already happening with second- and third-tier online news and reviews sites. … Looked at from a democratic perspective AI is a disaster. The shift is epistemic … The introduction of AI is an arms race and land grab all in one, driven by the hype cycle and demands of venture capital more than any civic ideals. Already the AI arms race has seen the creation of services people didn't really ask for or need, and the instantiation of those services in the platforms and devices that people use every day, whether they are wanted or not. If nothing else, we are being given a lesson in the arbitrary power of platforms over our lives."

"Looked at from a democratic perspective AI is a disaster. The shift is epistemic. All those fusty human gatekeepers – editors, publishers, producers – that were sidelined by algorithmic recommendation engines represented a flawed society that despite its raced and gendered injustices, nevertheless strained towards civic and creative ideals. As the most recent development in platform capitalism, the introduction of AI is an arms race and land grab all in one, driven by the hype cycle and demands of venture capital more than any civic ideals. Already the AI arms race has seen the creation of services people didn't really ask for or need, and the instantiation of those services in the platforms and devices that people use every day, whether they are wanted or not.

"If nothing else, we are being given a lesson in the arbitrary power of platforms over our lives.

“The deep democratic problem with AI is that it takes us another step closer to a digital plutocracy in which a handful of multi-billionaires, many of them among the richest people on Earth, make the machines that decide human affairs. Already, the narrow ownership of digital platforms means that in practice the public sphere is privatised and controlled by a plutocracy. AI extends this model. Just as the original mission of platforms was to expand the extractive domains of capitalism into the personal lives of users, so the contest to further advance generative AI is in practice a competition among them to expand their extractive powers into every domain of human knowledge and experience, past and present. AI in this respect is a further step in the commodification of knowledge. With knowledge goes power. AI is a tool for the hegemonic ceding of power from its traditional sources in the state, the media and the university, to Silicon Valley.

“Recently we’ve seen that some of this small group of plutocrats seek more than technocratic power, sacking fact checkers, adjusting algorithms, dictating editorials, using their platforms as a bully pulpit in the pursuit of political influence. These developments represented a new stage in what has been called techno-feudalism, divided between ‘serfs’ and digital landholders/rentiers. AI also comes at enormous environmental cost. It has been estimated that global AI use will soon consume six times more water annually than the country of Denmark. A Chat GPT request requires 10 times more energy than a Google search. AI, like all computation, relies on rare earth metals that are often mined unsustainably.

“At present the AI hype cycle is close to its peak. As in the case of digital platforms more generally, the hype cycle is being used to justify a ‘move fast and break things’ ethic in the name of maintaining U.S. technological hegemony, with little regard for potential downstream impacts. The lack of public debate and recent loosening of governance over AI suggests lends further weight to arguments that digital technology has ultimately not served democracy well.”

Marc Rotenberg

The Two Prominent Scenarios for the Future: AI Helps Enable Human-Centric Progress in Support of Fundamental Rights | AI Diminishes Rights, Agency and Open Societies

Marc Rotenberg, editor of “AI Policy Sourcebook” and director of the Center for AI and Digital Policy in Washington, DC, wrote, “We can begin to see two different scenarios for the AI future. In one, AI augments the work of people, provides new insight into social and economic problems and offers new solutions that we may choose to adopt based on our own judgment. Fundamental rights, the rule of law and democratic institutions are secure. In this human-centric view, AI is one of many tools available to society, one of many techniques that enables human progress. But there is also an alternative scenario in which AI displaces the work of people, embeds current social and economic problems and conceals outcomes in layers of complexity and opacity that humans simply come to accept. The structures that maintain free and open societies begin to diminish. There are clearly important policy choices ahead."

Christopher Riley

Most Humans Will Be More Empowered and Enlightened, But Jobs Will Be Lost As the ‘Consequence of Efficiency is Always Less Need for Human Effort’

Christopher Riley, executive director of the Data Transfer Initiative, previously with R Street Institute and leader of Mozilla’s global public policy, wrote, “Although 2035 is a full decade away, I don't believe we

will have anything that feels to the expert to be an 'AGI' that is on par with human mental flexibility and agility. LLM-based learning systems will have peaked in their raw power by the mid-2020s, and the advancements since then will have been in their implementation and embedding, their increasing presence and ubiquity as assistants in all forms of information research, retrieval and organization to further implement the will of the human directing their operation.

"As a consequence, in many ways, 'being human' will be a more-empowered and more-enlightened state – less dependent on inefficient tasks and freer to be creative and to iterate on ideas and strategies with less lost time and effort. However, AI-based systems will need 'manual; (i.e., still digital, but with fewer actions performed by learning systems) overrides, or backups, in virtually all implementations. AI will never not make mistakes, and when it does, its mistakes will be virtually unable to correct in systemic or guaranteed ways.

"We as humans may continue to become more and more prone to impatience and frustration as systems we increasingly depend upon become more powerful, yet also periodically unreliable and unsolvable.

"In many ways, 'being human' will be a more-empowered and more-enlightened state – less dependent on inefficient tasks and freer to be creative and to iterate on ideas and strategies with less lost time and effort. However … AI will never not make mistakes, and when it does, its mistakes will be virtually unable to correct in systemic or guaranteed ways. We as humans may continue to become more and more prone to impatience and frustration as systems we increasingly depend upon become more powerful, yet also periodically unreliable and unsolvable. … One thing that seems certain is that there will be job disruptions … the consequence of efficiency is always less need for human effort. … We're on a track for further and further economic inequality and tension verging on class warfare."

"We're entering the era of AI ubiquity with a degree more of individual internalization of the imperfection of the systems, however, in contrast to the growth in the ubiquity of computers themselves, where they were occasionally imperfect but in ways that felt somehow fixable. Perhaps, we'll accept that the limitations of the systems are in fact not our fault and embrace the manual override-type options that must in most circumstances be available and end up in the best of all worlds – empowered to take advantage of the benefits of embedded AI systems, yet not entirely trapped by them because we cannot, and therefore will not, depend on their functioning in all circumstances for any critical endeavor. This will, of course, be further improved if AI systems are built to be portable and interoperable, as I have written. With all of this said, it's less significant in my mind to consider the individual human being in the AI future, and more the human as a member of society. Most of our actions and will are driven by our role as a human interacting with other humans, after all. And there are some forks ahead in the road, and I can't predict which path we'll take at any of them.

"One thing that seems certain is that there will be job disruptions. Tasks focused on relatively menial information organization and production – like creating low-value advertising copy or conducting basic research – will be supplanted entirely by AI, leaving more and more people without employment. There's no backup plan for these humans; the consequence of efficiency is always less need for human effort. While there are still many things that developed societies need to be done by human hands, like building and maintaining physical infrastructure and providing health and community services, the companies making billions off of AI don't suffer directly the consequences of underinvestment in these functions. We're on a track for further and further economic inequality and tension verging on class warfare.

"How this affects politics, the arena where we could formulate and execute solutions to inequality, remains to be seen. I have written that I believe there is a chance that AI will fundamentally improve democracy by creating a more widespread and more-accurate shared basis of truth. Should that come to pass, we may find ourselves in a world where the groundswell of democracy will push pro-tax, pro-public-investment leaders to the forefront. But – to shift things back to the individual human – if instead the critical mass turns full Luddite and we disbelieve what we find on computers, we could find ourselves reverting to much more primitive ways of thinking about and understanding the world."

Douglas Rushkoff

AI Could Move Society Toward Its Standardization to the Mean

Douglas Rushkoff, an author and documentarian who studies human autonomy in a digital age, he is also the host of U.S. National Public Radio's "Team Human" podcast, wrote, "My main thought right now is that AI will continue to revert us to the mean. I don't need to explain how AI works here, or its tendency to push things to the probable outcome. I believe it not only works that way in particular responses but in its overall impact. The media environment of AI pushes society towards the mean. This is happening on a personal and political level as well. Our governments are moving toward feudalism and authoritarianism, which is the most common form of government in Western civilization. Similarly, levels of state/national violence, forms of thuggery and mob rule, etc. We have yet to see whether returning to feudalism will be better or worse for the world at large than efforts until now for Enlightenment-based democratic principles, which fell prey to neoliberalism. But it doesn't look so good."

This section of Part II features the following essays:

Marina Gorbis: **By 2035 we will be surrounded by AIs: bots that work for you, bots that work with you, bots that work on you and bots that work around you and with each other.**

David Barnhizer: **Our complex technological systems are evolving to program themselves and are already shaping humanity more than anyone has really begun to comprehend.**

John Laudun: **'AI's augmentation of the humans' abilities to process information and make decisions will largely be institutional in nature, thus its impact will not be what we desire.'**

Tim Kelly: **AI is not under control or predictable, and its 'black box' algorithms are worrisome, but it will rapidly advance human activities and boost performance and adoption of new tech.**

Michael Kleeman: **Productivity will rise, but trust will be a victim and there will be less real innovation and a duller world as existing systems become reinforced and perhaps self-reinforcing.**

Kevin Leicht: **The economic concentration of this tech will allow a very small number of people and organizations to 'enhance' human cognition in ways they see fit.**

David Porush: **AI ought to be prescribed as the safest and most-effective psychotropic drug, one that spurs the mind and soul to embrace an ever-expanding cosmos.**

Steven Abram: **We can be fooled into perceiving AIs as sentient, but generalized intelligence is not human intelligence. there are risks in sentient AI but will AI ever be self-aware?**

Marina Gorbis

By 2035 We Will Be Surrounded by AIs: Bots That Work for You, Bots That Work With You, Bots That Work On You and Bots That Work Around You and With Each Other

Marina Gorbis, executive director of the Institute for the Future, wrote, "When we talk about the impact of AI on humans, I often think about William James's book 'The Varieties of Religious Experience: A Study in Human Nature,' published in the early 1900s. The key argument he makes is that while institutional arrangements and doctrines might be uniform in different religions, people's experiences, behaviors and emotional responses to these arrangements are complex and highly individual. Similarly, AI tools and capabilities as they become ubiquitous and embedded into every aspect of people's daily lives – work, social interactions, leisure and creative processes, entertainment – will generate a variety of collective and individual human experiences.

"There will be a whole panoply of agents that will interact with people in a variety of ways. At the Institute for the Future, we call them the 'bestiary' of new AI entities and relationships. They fall into four main categories: bots that work for you, bots that work with you, bots that work on you, and bots that work around you (and with each other). We will simply be surrounded by them.

"We are already seeing early signs of how people will negotiate relationships with these non-human agents in their professional and personal relationships. Some will resist their adoption and eschew personally using or interacting with them at all possible costs, some will enthusiastically experiment and adopt them, some will passively accept the inevitable and acquiesce to using the tools and some will work on preserving the ways of doing and interacting from the pre-LLM era in their communities and personal lives."

"Of course, technologies do not live in a vacuum but are shaped by the social, cultural, regulatory and institutional environments in which they operate. Stricter regulatory environments, copyright laws, data access rules and many more factors shape their acceptance and application. But on a human level, we are already seeing early signs of how people will negotiate relationships with these non-human agents. Some will resist their adoption and eschew personally using or interacting with them at all possible costs, some will enthusiastically experiment and adopt them, some will passively accept the inevitable and acquiesce to using the tools, and some will work on preserving the ways of doing and interacting from the pre-LLM era in their communities and personal lives. This variety of AI-human relationships is likely to be the site of personal and institutional battles for the next 10 years. In the end, AI will re-shape our society in the same way the Gutenberg press did so: for better and for worse and with lots of battles along the way."

David Barnhizer

Our Complex Technological Systems Are Evolving to Program Themselves and Are Already Shaping Humanity More Than Anyone Has Really Begun to Comprehend

David Barnhizer, professor of law emeritus at Cleveland State University and author, wrote, "Brilliant human minds are working on the challenges of creating 'alternative intelligence systems' that process information, interpret experience and generate conceptual structures of decision-making and

action. In doing so, these rapidly developing non-human systems are increasingly able to teach themselves and use that new and expanding ability to improve and evolve.

"As 'deep learning' in AI systems improves we should have no illusions about their ability to create conceptual structures that continuously improve and expand while internalizing an enormous range of information far beyond a human's ability to access, develop, process, interpret and utilize.

"AI/Robotics technology is 'shaping' us at least as much as we are shaping and designing it. We are largely unaware that the technological systems of AI and robotics that we think we control are redesigning and effectively 'reprogramming' us

"We've never had to deal with things more intelligent than ourselves before. The Google DeepMind research team is focused on developing 'deep learning,' which uses multiple layers of algorithms in neural networks to process images and text quickly and efficiently. The idea is for machines to eventually be able to make decisions the way humans do.

"Geoffrey Hinton, a VP of AI research at Google quit his job in 2023 to undertake a public campaign to warn about the risks of AI. In a 2024 BBC Radio interview this 2024 Nobel Prize winner in physics said there is a "10 to 20%" chance that AI could lead to human extinction within the next three decades. He added, 'We've never had to deal with things more intelligent than ourselves before. And how many examples do you know of a more intelligent thing being controlled by a less intelligent thing? There are very few examples. What we've got now is something that's replacing human intelligence and just ordinary human intelligence will not be the cutting edge anymore; it will be machines.'"

"We are unprepared for the economic and social impacts of the structural and personal changes that are upon us. If our economy is not robust and sustained, opportunities for humans will decrease dramatically, social mobility will be reduced and we will have limited ability to assist growing numbers of our people. No area of work will escape the onslaught of job losses."

"If these developments do not provide sufficient insight into our situation, think about the impacts being experienced with generative artificial intelligence systems such as ChatGPT. OpenAI's CEO, Sam Altman, describes the company's goals this way: 'We trained these models to spend more time thinking through problems before they respond, much like a person would. … Through training, they learn to refine their thinking process, try different strategies, and recognize their mistakes.' Altman says the firm is focused on researching artificial superintelligence.

"AI/Robotics impacts on human work: The current era has been labeled the Fourth Industrial Revolution. It is characterized by the disruptive transformation of AI and robotics. These systems threaten to destroy millions of jobs, reducing social mobility and opportunity and imposing massive financial costs on governments. The situation will further deteriorate over the next 10 years.

"We are unprepared for the economic and social impacts of the structural and personal changes that are upon us. If our economy is not robust and sustained, opportunities for humans will decrease dramatically, social mobility will be reduced and we will have limited ability to assist growing numbers of our people. No area of work will escape the onslaught of job losses. All work opportunities, from the most 'intellectual' activities to the basic areas of services and labor are being eliminated. This includes a wide range of professional occupations previously thought of as distinctly 'human' – middle management, finance, banking, insurance, medicine, high-tech, transportation, law, even the arts.

"The aging global population, a rise in refugees, plus mass unemployment. This is all playing out in the context of a set of critical issues. Birth rates are plummeting below replacement levels in virtually all economically developed nations. People are living well beyond historical averages. Pope Francis has called what is occurring as the '*Age Curse*' for European societies. This phenomenon is also taking place in Japan, China, Russia and America. The pope also recently warned that Artificial Intelligence could undermine the foundational institutions of society and the Vatican just isssued a briefing on it.

"My vision of what lies ahead is bleak, even to the point of considering the possibility of an 'AI Apocalypse. At least 20 percent of Americans over 50 have little or nothing saved for retirement and the Social Security Trust Fund is projected to be depleted by 2035. Poor, desperate and uneducated migrants are flooding into nations across the world (the UN High Commissioner for Refugees estimates 2.9 million will need resettlement in 2025) at a time when robotic workers and AI applications are replacing agricultural, construction and home-care jobs. Findings published by the National True Cost of Living Coalition show that 65% of Americans whose incomes are 200% above the national poverty line – which is about $62,300 for a family of four and often considered middle class – said they are struggling financially.

"The rapid disappearance of employment opportunities across a diverse spectrum of forms due to Artificial Intelligence generates a process that goes beyond Joseph Schumpeter's idea of 'creative destruction' and eventual economic rebirth. In the Schumpeterian dynamic, there are cyclical downturns followed by a return to prosperity. With AI, while some analysts continue to use historical data to assume a recovery will eventually occur, this is not going to happen in the developing AI world. This is because the arrival of AI on the human scene is not the same as that of a simplistic 'tool' but rather it is a transformational 'event.'

"Research by Carl Frey and Michael Osborne indicates, as do other studies, that, unlike other transformations of our economic system, there won't be a significant Schumpeterian employment recovery on the other side of the downturn. They wrote: 'This raises questions about, a) the ability of human labor to win the race against technology by means of education; and b) the potential extent of technological unemployment, as an increasing pace of technological progress will cause higher job turnover, resulting in a higher natural rate of unemployment.'

"Artificial intelligence and robotics pose grave threats to jobs and our way of life. Even as long as a decade ago, Erik Brynjolfsson and Andrew McAfee, top experts on the digital economy, were arguing that rapid technological change has been destroying jobs faster than it is creating them. As the middle class continues to shrink and lower-level work opportunities disappear, where do the displaced and marginalized people go? The answer is that vast numbers of people will find themselves sliding down the socio-economic scale. Central to Brynjolfsson's and McAfee's analysis was what they call the 'great decoupling' of productivity and employment, with a highly negative impact on human employment. The timeline is clear.

"Brynjolfsson states: "It's the great paradox of our era. … Productivity is at record levels, innovation has never been faster and yet at the same time we have a falling median income and we have fewer jobs. 'People are falling behind because technology is advancing so fast, and our skills and organizations aren't keeping up.'

"What do we do with millions of people who have lost the opportunity to engage in the only types of work for which they are qualified or capable?

"We don't even understand the human mind so why pretend we 'know' AI? It has long struck me that we should be considering what might change with the arrival of 'alternative' intelligence systems that are capable of evolving an entirely inhuman and unique form of awareness that does not mirror or replicate the limited human model. We are creating a competitor that has no reason to think of us as benign, enlightened or trustworthy, given the less than admirable track record of the human race. Given that advanced AI systems will have complete access to the behavioral history of humanity, it is unlikely that a sophisticated and aware AI systems will develop great admiration for the quality of the human race."

John Laudun

'AI's Augmentation of the Humans' Abilities to Process Information and Make Decisions Will Largely Be Institutional in Nature Thus Its Impact Will Not Be What We Desire'

John Laudun, a researcher of computational models of discourse who teaches narrative intelligence at the University of Louisiana-Lafayette, wrote, "Over the next 10 years, AI will largely serve large organizations. That will mean only more trouble for working Americans and will lead ultimately to a drop in productivity and innovation. As more organizations feel themselves obligated to incorporate AI into their business, they will do so at the expense of hiring new employees, whose work they will see as likely to be readily replicated by AI. Moreover, many of these organizations are of such a scale and such a nature that their use of AI, which will be under-informed (because AI is now over-hyped), will often produce negative results for their customers.

"The adverse effects of applying algorithmic solutions to human-complex problems has already been established in both the judicial system and healthcare systems. Sentencing software that was supposed to have made the process more objective and fair turned out to be racist because it was trained on prior cases. The same has been revealed in the insurance industry's use of algorithms either to deny claims for health care or to reject homeowner policies, some of which have been paid into for decades, because an algorithm had determined, via an image taken by a drone flown over the home without the owner's knowledge, that their roofs were too far out of repair. Attempts to appeal errors of fact or offers to repair apparent damage were refused. You have to pay more because the software said so.

"Too many consider these AIs to have human-level capabilities despite the fact that humans can develop the same competency with far less data and computational power. … As the birth cliff of 2028 approaches and some people worry that there won't be enough people to do the work, I worry that there won't be enough jobs for people. I also worry about just how much can be automated: do we really want healthcare claims automated? So long as a person remains in the loop, there is a glimmer of hope that empathy may come into play. There is no such hope with AI."

"Large language models, the current instantiation of AI in the public imagination, are perhaps more robust and subtle due to the sheer size of the data upon which they have been built, than their more obviously statistical machine learning cousins, but they are still statistical machines. Nothing more. Yet the results they produce seem so human. Creating a chat interface for GPT may have been the most innovative marketing move of the early 21st century. Too many consider these AIs to have human-level capabilities despite the fact that humans can develop the same competency with far less data and computational power.

"Humans are more context-aware and responsive to subtle forms of interaction than AI. While the adaptability of AI to a wide variety of situations has been impressive, we have already seen repeated instances of the cracks that begin to show in such moments.

"Much of this falls at the feet of people not understanding what AI is and in the process granting it credit for a humanlike level of cognition it does not possess. Much of the responsibility for this lies at the feet of the large corporations who own the technology and who are eager to capitalize, quite literally, on their investment. Combine this with organizations keen to rid themselves of the workers who do the kinds of repetitive tasks that automation largely does well, and you have a perfect storm of sellers and buyers. But all of this is, and will continue to be, B2B, business-to-business. As the birth cliff of 2028 approaches and some people worry that there won't be enough people to do the work, I worry that there won't be enough jobs for people. I also worry about just how much can be automated: do we really want healthcare claims automated? So long as a person remains in the loop, there is a glimmer of hope that empathy may come into play. There is no such hope with AI.

"We may very well see the end of so-called 'bullshit jobs,' the jobs that seem on their surface to be meaningless because of their repetitive or pass-through nature. But bullshit creates two things that are important to innovation: boredom and friction. If people don't have the opportunity to be paid while frustrated or paid while daydreaming, there will be far fewer opportunities for creative individuals to reinvent themselves or create entirely new categories of products or solutions. And while some might argue that it won't be long before AI achieves divergent thinking, they miss that the one important dimension of creativity is in acceptance. If fewer people are working, the market for products will be smaller, decreasing the overall creativity of the organizations and the society which they serve.

"It seems clear that AI's 'augmentation' of the human abilities to process information and make decisions will largely be institutional in nature and that the impact will not be one we desire. We can only hope that enough independent thinkers and practitioners continue to lurk in universities and small businesses that real innovation will continue to percolate and make possible the kind of AI revolution so many dream of."

"Limiting our scope to the next 10 years and to the American scene, it seems clear that AI's augmentation of human abilities to process information and make decisions will largely be institutional in nature and the impact will not be one we desire. We can only hope that enough independent thinkers and practitioners continue to lurk in universities and small businesses that real innovation will continue to percolate and make possible the kind of AI revolution so many dream of. My fear is that – given the fact that the resources required to optimize AI largely lie with larger institutions and given the current American policy environment for those institutions to be privately held and thus optimized for profit and not for public good – individuals will more often than not be the object of AI and not the subject."

Tim Kelly

AI Is Not Under Control or Predictable, and Its 'Black Box' Algorithms Are Worrisome, But It Will Rapidly Advance Human Activities and Boost Performance and Adoption of New Tech

Tim Kelly, lead digital development specialist at World Bank, previously head of strategy and policy at the International Telecommunication Union wrote, "The impact of AI on human development is likely to be incremental and relatively easily assimilated into daily use of computers, phones, cars, etc., rather than sudden, dramatic and disruptive. The change will benefit the many, to a modest extent, especially

in high-income countries, but will have a negative effect on a few, especially those with limited or unaffordable access to digital technologies.

"To a large extent, the impact of AI will be similar in nature to other general-purpose technologies, such as mobile phones, the internet, satellite technology, etc. But this technology will be different in a couple of important ways. The first is that AI is 'self-learning,' which means it is not entirely under human control or predictable and the algorithms underlying AI will largely be a 'black box'. This brings exciting possibilities but also risks. The second is the ability of AI to rapidly and cheaply bring scale to human activities. This implies, for instance, greatly reduced transaction costs, a big enhancement in convenience and the possibility that earlier innovations that had been overhyped – such as cryptocurrencies or self-driving vehicles – may finally become mass market products.

"This technology will be different in a couple of important ways. The first is that AI is 'self-learning,' which means it is not entirely under human control or predictable … This brings some exciting possibilities but also risks. The second difference is the ability of AI to rapidly and cheaply bring scale to human activities. This implies, for instance, greatly reduced transaction costs, enhancement in convenience and the possibility that earlier innovations that had been overhyped – such as cryptocurrencies or self-driving vehicles – may finally become mass market products."

"The advent of AI will differentiate more starkly between a few 'producer' countries and firms, and many more 'consumer' countries and firms. But for those economies without the capacity to make huge investments in 'compute' it may be possible to substitute effectively high-performance gigaband networks and cloud computing for data centers and on-site number crunching."

Michael Kleeman

Productivity Will Rise, But Trust Will Be a Victim and There Will Be Less Real Innovation and a Duller World As Existing Systems Become Reinforced and Perhaps Self-Reinforcing

Michael Kleeman, senior fellow and director of the Institute on Global Production and Innovation at the University of California-San Diego, wrote, "The applications of AI will likely have three major impacts in our social, political and economic landscape. Some of these will be positive, some will be materially disruptive and some will be deeply destructive to our lives.

"On the positive side AI and machine learning will be a new form of industrial revolution, replacing human labor with machines. This will increase productivity, create new careers and allow humans to see patterns in data (of all kinds) that is hard for us to see due to a low signal-to-noise ratio or just because we have been trained to look elsewhere for meanings. As with the revolution in programming, we will become more designers than creators – conceiving but not making – and that will likely reduce innovation over time, leading to a duller world with less real innovation and delight as existing systems will become reinforced and perhaps self-reinforcing.

"AI and machine learning will be a new form of industrial revolution, replacing human labor with machines. This will increase productivity, create new careers and allow humans to see patterns in data (of all kinds) that is hard for us to see. … But the cascading effects [of job losses and the loss of trust in institutions due to these advances] can be essentially damaging to society, perhaps further entrenching the power structures and leading to a loss of human delight."

"On the downside this will cause economic displacement perhaps at a scale not seen in over a generation. This time, however, the impacts will be felt by a wider range of professions and the loss of

jobs, especially higher paying ones in finance, etc. will be truly disruptive and accelerate the concentration of wealth, especially in wealthier nations. The political ramifications of that have always been disruptive and the personal costs tremendous. So perhaps a duller world where the middle and even upper middle class constricts and, with that, associated institutions such as colleges and universities.

"But perhaps the most significant damage will be the negative impacts on interpersonal trust, accelerating the trends today driven by social media 'disinformation echo chambers,' but fed with data (media, words, images, sounds) whose provenance is initially extremely hard to determine and ultimately so common that we cannot begin to test its reality. The cascading effects of this can be essentially damaging to society, perhaps further entrenching the power structures and leading to a loss of human delight. And, coupled with the capability of the technology to enable data fusion and analysis from a broad range of sensors and signals, it enables a surveillance state that further erodes human trust."

Kevin Leicht

The Economic Concentration of This Tech Will Allow a Very Small Number of People and Organizations to 'Enhance' Human Cognition in Ways They See Fit

Kevin Leicht, professor emeritus at the University of Illinois Urbana-Champaign and research scientist at Discovery Partners Institute, Chicago, wrote, "On balance, I do not see a good outcome coming from the deepening dependence of human intelligence on AI. The reasons for this are complex, but they can be summarized fairly easily:

1. "The questions of whether AI, in the abstract, could be a force for positive change in human life is a good one. But 'in the abstract' is not where life is lived. Life is lived 'in the concrete.' It is 'in the concrete' where the implications are largely negative. Evaluating what AI will do apart from who will do it and how they will bring it about is not realistic.

2. "Most of the individuals and organizations involved in developing AI have little to no understanding of human life or human interaction. Zero. Nadda. Ziltch. I have worked with these people for years (I am a sociologist trained in computational social science) and their understanding of social life is horrifyingly bad. They believe they are entitled to interfere with the most intimate and basic details of someone's life. They have amorphous ideas about 'society' that they think are useful (they are not). Most of them have stilted or non-existent social lives and actually get out very little. Their understandings of social groups, social interactions, social networks, political history, cultural history, etc., is virtually non-existent. The ideas they come up with almost inevitably violate people's personal autonomy and civil rights – absolutely without batting an eye. If you put a group of them together in one room you don't get better results, you end up with ideas that are

"Most of the individuals and organizations involved in developing AI have little to no understanding of human life or human interaction. Zero. Nadda. Ziltch. … There will be one or a few entities that will control the AI/human interface. Those few entities will make their founders billions of dollars. Those entities will erect barriers to entry that keep most competitors out of the market entirely … The economic concentration will mean that a very small number of people and organizations will be 'enhancing' human cognition in ways they see fit. Does this sound like a good idea to you? And what does 'see fit' mean?"

ABSOLUTELY guaranteed to violate people's autonomy and civil rights in more-effective ways. Other people are simply objects to be played with. This has been going on for years, I have extensive experience, and no I am not kidding. All of this is a bit like taking dating advice from a 28-year-old virgin who has never left their parents' basement.

3. "Apart from problem two (which is extremely serious because the average computer science graduate can't tell the difference between a Kiwanis Club and herd of cattle) is one other big problem – economic concentration. If I were to bet on what will happen here (based on what has happened up to now, and the best predictor of future behavior is past behavior), there will be one or a few entities that will control the AI/human interface. Those few entities will make their founders billions of dollars. Those entities will erect barriers to entry that keep most competitors out of the market entirely. The founders of these companies will likely share the defects reflected in (2) above. But even if they didn't, the economic concentration will mean that a very small number of people and organizations will be 'enhancing' human cognition in ways they see fit. Does this sound like a good idea to you? And what does 'see fit' mean? It likely means what it has meant in the social media realm we've all suffered through up to now – a few actors, some with noble intentions and others not – controlling vast amounts of bandwidth and space in the name of generating enormous profits for themselves. The idea that this will make us better off is just plain nuts. It will make these entities opulently wealthy and whether that makes the rest of us better off will be completely irrelevant to the calculus of those few organizations.

4. "I know I know I know. 'This time will be different.' If social science teaches us anything, it is that this time will not be different. I would like to be wrong, but I suspect I am not. Until we break tech-bro syndrome, decide that we actually have anti-trust laws we're going to enforce and come up with a more enduring set of ethics surrounding what computers do that is NOT written by ANYONE from a Computer Science/Engineering program, my predictions stand. Remember how social media was going to be liberating? Just, exactly, what did it liberate us from? Why it was *reality*! Now imagine a whole AI-human interface driven by this same level of abject absurdity.

"Unless the underlying basis for technological innovation and adoption changes, the AI-human interface will not better society or individuals. A radically changed technology development landscape might produce better results, but I don't see any evidence we're interested in doing much to create that landscape. I'm so convinced of this, I'm willing to sign it! - *Kevin T. Leicht*"

David Porush

AI Ought to Be Prescribed as the Safest and Most-Effective Psychotropic Drug, One That Spurs the Mind and Soul to Embrace an Ever-Expanding Cosmos

David Porush, writer and longtime professor at Rensselaer Polytechnic Institute, responded, "I showed my granddaughter a video of a player piano performing Mozart's Piano Concerto in C Major. She asked me, 'Why should I bother to play piano at all?' No one should concede defeat in this new chapter of the age-old contest between John Henry and the machine. AI will not replace what makes us human; rather, it will push us – through competition, inspiration, and collaboration – to refine and expand our unique capabilities. As AI increasingly colonizes domains once thought to be the exclusive province of human intelligence, it challenges us to discover new ways to assert our humanity.

"AI is already reshaping how we teach, learn and assess knowledge. It forces educators to reconsider what it means to write, to think and to earn a grade. After reading thousands of essays, I can say with certainty that ChatGPT would earn at least a B+ on most of them – including ones on self-consciousness and epistemology. In other words, AI should already be radically transforming the classroom in every way except for its most irreplaceable aspect: human presence; warm-body intimacy. The same is true for journalism, research, coding, design, medicine – the list expands each time I revisit it. Some would say it liberates us to completely reimagine education, work, art, creativity and knowing itself.

"It has taught me, as it will teach countless professionals and students, to refine my questioning to sharpen the muscle at the core of scientific inquiry, Talmudic discourse and Socratic dialogue. Will AI improve our morals? No. Will it eradicate our inclinations toward sin? Hardly. Instead, it will invent new ways to do both – offering tools for both crime and security, for both deception and enlightenment. AI ought to be prescribed as the safest and most-effective psychotropic drug, one that spurs the mind and soul to embrace an ever-expanding cosmos."

Stephen Abram

We Can Be Fooled Into Perceiving AIs As Sentient, But Generalized Intelligence is Not Human Intelligence. There Are Risks in Sentient AI but Will AI Ever Be Self-Aware?

Stephen Abram, futurist at Lighthouse Consulting and director of the Federation of Ontario Public Libraries, wrote, "Humanity has always found it difficult to define what it means to be human, what it means to be alive, whether or how we differ from other life forms. There are arguments about nature versus nurture and differences of opinion and varying points of view across the fields of genetics, philosophy, languages, meta-cognition, brain research, education, pedagogy/andragogy, anthropology, ethnography, cultural studies and so many more. The differences of opinion emerging from individuals, groups and sub-cultures can build barriers to our understanding of ourselves.

"Suffice it to say, we don't really know, or at least have wide agreement on, what it means to be 'human.' We don't have a great definition of sentience in the context of AI. Indeed, it is proven that some people benefit from therapy to reach maturity and greater resilience. Can we ask ourselves how we apply that to AI models? When we don't really know what it means to be human, in all our varieties, how do we measure the potential emergence of 'humanity' in AI?

"Generalized intelligence is *not* human intelligence. Performative emotional intelligence is *not* really what we expect from a flesh-and-blood human. The large data resources from which LLM learning models draw their responses contains recorded content, much of it flawed, biased or incorrect, featuring just about every human strength and weakness. We can imagine what artificial emotional intelligence can be, but it is *not* human. It's artificial. That said it can fool us into perceiving sentience. We can imagine a coming singularity. While it's just imagination today, we need to consider guardrails and future decision-making prior to its potential arrival. My humanity tells me that there are risks in sentient AI models. Will AI ever be that self-aware?"

"At this point, the most advanced AI is learning like a child, not an adult, with some level of expertise (with hallucinations) but mostly in narrow categories. Understanding that is critical to evaluating its progress to adulthood. Indeed, the metaphor that AI is moving into its teen years is apt, as we consider what it might become with all the ramifications of emergence as a fully formed adult.

“Generalized intelligence is *not* human intelligence. Performative emotional intelligence is *not* really what we expect from a flesh-and-blood human. The large data resources from which LLM learning models draw their responses contains recorded content, much of it flawed, biased or incorrect, featuring just about every human strength and weakness. We can imagine what artificial emotional intelligence can be, but it is *not* human. It’s artificial. That said it can fool us into perceiving sentience. We can imagine a coming singularity. While it’s just imagination today, we need to consider guardrails and future decision-making prior to its potential arrival. My humanity tells me that there are risks in sentient AI models. Will AI ever be that self-aware?

“That said, we do know that being human is affected by many factors – genetics, experience, values, mental health and so many more. It is very complex and not easily understood as an individual – let alone on a global basis. If we perceive (or it is, actually, true), that AI is ‘human,’ how do we judge its information, conversational experience, and decision results? Since it ‘learned’ everything from the digital record, it must, by definition, contain the good and the demonstrably bad – bigotry, racism, sexism, and so much more beyond the tip of iceberg, including hallucinations. How do we judge the mental health of AI? What are the components of the decision and awareness of trusting AI’s sources?

“For example, one initial step in AI has been imagining and creating AI-driven robots. As with many technological inventions, we try to enable them in forms we’re more comfortable with. In ‘The Jetsons’ futuristic cartoon series, people would refer to the robot maid as ‘her.’ Why? Because equating her humanlike vacuuming and answering the phone made sense. Today we have voicemail answering the phone and Roombas cleaning the carpets. Robot soldiers have arrived, along with military drones with laser targeting.

“Achieving simple tasks isn’t nearly as complex as true thinking, creating, innovating and problem-solving. Some tasks, like vacuuming and recording a message, can be done with no emotional intelligence. On the other hand, more complicated ones may need emotional intelligence beyond the performative or polite. Step and Fetchit-style document, answer, data entry or information retrieval seems designed for AI Agents, while understanding a person and their needs behind a request is infinitely more complex and valuable. The difference between determining the difference between complicated tasks and complex efforts is the key to AI progression. This is the challenge facing the development of AI Agents today. That’s a big leap.

“As it stands today, it’s a challenge to navigate all of humanity’s collective knowledge, let alone intelligence. The digital record – on which just about 100% of all AI and LLM models are trained – is weak on many fronts. At its foundation, AI is retrospective. It will be a while, if ever, before positive cognitive leaps can be made by AI beyond narrow tasks that are based on a narrower range of high-quality sources such clinical diagnoses where we see hints at these tools showing potential for good results. There will be benefits in that, when paired with highly trained human filters as the ultimate chooser.

“Choosing the frameworks for decision-making using AI involves real foundations in ethical and moral behaviour as well as sensitivities to the situational contexts of culture, interpersonal dynamics and so much more. In society, there are those of us who respect and embrace diverse perspectives, the role of neurodiversity in making positive changes, cognitive leaps, seeking insights and other contextual factors that are nearly erased in large language models and big data.

“Can AI tools leap above tasks and retrospective learning to being something akin to a human? Being human involves being wrong sometimes. It involves forgetting. It involves being sorry. It involves regret. To be human is to embrace the good and the bad and learn from all experiences. That’s a truth worthy of a discussion!

“How will AI change our lives? A lot and much of it positive. I look forward to those innovations. I don't look forward to AI making human mistakes if it (and we) don't learn from them. While I remain positive about the social and economic potential of AI, I withhold judgment of if it can – or should – become ‘human.’”

The following section of Part II features these essayists:

Alf Rehn: **Will most everything in 2035 be standardized to the mean? maybe. maybe not. humans may find themselves partnering with either ‘the mediocrity engine' or 'the octopus.'**

Dave Karpf: **'The trajectory of any given technological innovation bends toward money'; the imaginary world in which everyone has a reliable personalized AI butler is exceptionally unlikely.**

Steve Rosenbaum: **Life in 2035 is a continuous economic transaction that we never consented to but can't escape run by an economic aristocracy using AI to extract value from human existence itself.**

Alexandra Whittington: **In the age of AI, we must recognize the economic value of care work and provide higher wages and better support for those who serve humanity in high-human-touch roles.**

Jim C. Spohrer: **Robots for home and business use will become useful and popular and AI personal assistants will handle most communications under human supervision.**

Clifford Lynch: **Professional AI agents are likely to offer consultations in legal, medical, accounting, interior decorating, career counseling and other aspects of human life.**

James Resnikoff: **The effect of AI on being human is that it will be alienating due to the unequal power relations it mediates between corporation and individual, rich and poor.**

Alf Rehn

Will Most Everything in 2035 Be Standardized to the Mean? Maybe. Maybe Not. Humans May Find Themselves Partnering With Either ‘The Mediocrity Engine’ or ‘The Octopus’

Alf Rehn, a professor of innovation, design and management at the University of Southern Denmark and head of the Center for Organizational Datafication and its Ethics in Society, wrote, “There are many faces to hybrid intelligence in 2035, but I expect that two aspects of it will be particularly noticeable. I refer to them as ‘The Octopus’ and ‘The Mediocrity Engine.’

“The Mediocrity Engine: There's no denying that by 2035 AI has made a lot of people more middling. They don't do terrible work but they don't do great work either. Their emails are perfectly adequate,

and their own written output, whilst grammatically correct, is often devoid of spark and wit. They cook a lot of the same food in the same way. Granted, while on holiday they see more sights, but they are nearly always the same sights, often from the same hotels. Nearly everyone is 'average' in 2035, using their Mediocrity Engines (also known as AIs) to generate good enough work, good enough text and good-enough lives.

"Poet John Betjeman turns out to have been a seer. He wrote this in 'Slough':

> 'It's not their fault they do not know/
> The birdsong from the radio/
> It's not their fault they often go/
> To Maidenhead
>
> And talk of sport and makes of cars/
> In various bogus-Tudor bars/
> And daren't look up and see the stars/
> But belch instead.'

"The Octopus: By 2035 perhaps some will have resisted the call of the average and started working with AIs that do not aim to mimic humans and standardize everything to the mean and the median. They communicate with Octopodes, strange new intelligences that do not so much hallucinate as tell tales of the world from the perspective of entirely new intelligences. The people who take to working with an Octopus create work and text that is quite different from that of the Mediocrity Engine in ways both bad and good. Some of their work turns quite strange – alien even – but tends to do so in a way that at least stimulates the mind and raises questions. At other times, the meeting of 'alien' and 'human,' two very different intelligences both with their own strong suits, generates great leaps in thinking, highly creative works, true innovations.

"In 2035, different professions and personalities are drawn to different forms of AI. Mostly they can co-exist quite happily, but universities have become battlegrounds between those dedicated to mimicking the greatness of the ages and those trying to think in entirely new ways. It doesn't take a genius to realize that the former group is well-aligned with the administration, where Octopus-like AIs are banned and the Mediocrity Engines reign supreme.

"The really interesting thing is what is happening among the kids of 2035. More often than not they have a Mediocrity Engine to help them with their homework and their assignments, like a really nerdy friend you can always call upon. When the kids want to *actually learn something*, they call upon a plethora of intelligences: Octopodes and squirrels and termites, oh my! Cat minds and cockroach intelligences, anything not to think in ways as dull and lifeless as those of truly lesser intelligence – their parents."

Dave Karpf

'The Trajectory of Any Given Technological Innovation Bends Toward Money'; the Imaginary World in Which Everyone Has a Reliable Personalized AI Butler is Highly Unlikely

Dave Karpf, associate professor of media and public affairs at George Washington University and author of "Analytic Activism: Digital Listening and the New Political Strategy," wrote, "My central expectation is

that people's relationship to AI a decade from now will be determined by other social factors – chief among them being the likely sharp decline of democratic institutions and the regulatory state and the unfettered, exploitative revenue models that develop for major AI companies as a result.

"The central thesis of the first piece of public writing I produced on this topic was that the trajectory of any given technological innovation bends toward money. We still do not have even a faint glimpse of what a profitable revenue model for OpenAI or Anthropic or Mistral AI might look like. All of their current offerings are intriguing cash furnaces.

"We will never end up with mass AI agent-butlers because there isn't *nearly* enough money in it. The big money is going to be in scams, in advertising and – especially – in replacing existing large economic sectors (education, health care, law, etc.) with cheaper, less-regulated, less-effective competitors."

"We *could* imagine a world circa 2035 where every individual on the planet has a personalized AI agent-butler. The AI butlers could, by that point, be reliable and sophisticated, sparing us from a multitude of daily hassles and giving the mass citizenry the type of luxury that the extremely wealthy currently take for granted, with their reliance on retinues of (human) personal assistants. That future is technologically feasible. But it is exceptionally unlikely. It has been an imagined future dating back decades – the type of future revealed in Douglas Adams's delightful film 'Hyperland.' We will never, however, end up with mass AI agent-butlers because there isn't *nearly* enough money in it. The big money is going to be in scams, in advertising and – especially – in replacing existing large economic sectors (education, health care, law, etc.) with cheaper, less-regulated, less-effective competitors.

"Given the crack-up and capture of the regulatory state by tech billionaires, a decade from now, that's where I expect we will be. AI will have made everyday human life worse, because private equity and big tech will buy up every company that has a significant user base and cut costs by developing AI that provides worse-but-cheaper alternatives.

"This isn't technologically determined. It doesn't have to happen. But, realistically, it is the path we will most likely be treading for the next decade."

Steve Rosenbaum

Life in 2035 is a Continuous Economic Transaction That We Never Consented to But Can't Escape Run By an Economic Aristocracy Using AI to Extract Value from Human Existence Itself

Steve Rosenbaum, co-founder and director of the Sustainable Media Center, author, filmmaker and founder of five companies in the media content sector, wrote, "We're not just changing technology. Technology is rewriting what it means to be human – and who gets to profit from our transformation. Imagine a world where your AI doesn't just predict your next move it determines your economic destiny. Where algorithms don't just track wealth but actively create and destroy financial futures with a line of code. Welcome to 2035: the year capitalism becomes a machine-learning algorithm.

"By 2035 the real power players aren't tech billionaires anymore. They're the autonomous corporations that can monetize human potential down to the most microscopic data point. Every thought, every desire, every potential choice becomes a commodity to be bought, sold and traded. Your personal data is no longer just information – it's the new global currency."

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“Banks? Obsolete. Traditional investment? A relic. Now, AI systems predict economic value before you even know you have it. A teenager's potential earning capacity can be calculated, packaged, and sold before they've written their first resume. Your life becomes an investment portfolio, your human potential reduced to a predictive model.

“But here's the razor's edge: Who controls these algorithms controls everything. Not just markets. Not just governments. Everything.

“The most terrifying transfer of wealth in human history is happening in plain sight. We're not just losing jobs to automation. We're losing the entire concept of human economic agency. Your worth is no longer what you can do – it's what the algorithm says you might do.

“Humans in 2035 aren't workers or consumers. We're walking data streams, our entire existence a continuous economic transaction that we never consented to but can't escape.
The future isn't about artificial intelligence replacing humans. It's about a new economic aristocracy that uses AI to extract value from human existence itself.

“Welcome to late-stage capitalism 2.0. The machines aren't just watching. They're collecting.”

Alexandra Whittington

In the Age of AI, We Must Recognize the Economic Value of Care Work and Provide Higher Wages and Better Support for Those Who Serve Humanity in High-Human-Touch Roles

Alexandra Whittington, a foresight expert at Tata Consultancy Services and co-author or editor of "A Very Human Future," "Aftershocks and Opportunities" and "The Future Reinvented," wrote, “The gender division of labor has been viewed as an expected aspect of human society. While AI will take over many traditional white-collar and blue-collar jobs one category it can’t beat humans at is *caring*.

“AI has the potential to change the status quo and engender a higher level of respect for women, whose work roles have often been concentrated in the ‘human-touch’ categories of caring for children, the elderly, and ill people; doing housework and other forms of domestic labor; social work; teaching and nursing. We should be laser-focused on taking advantage of AI productivity gains to better respect and support the humans whose life’s work is focused on caring for others. We have an aging society that places growing demands on families and especially on women.

To alleviate social strain, society – as it is being reshaped in the age of AI – should be redesigned and well-enough funded to help absorb the impact of the time, financial cost, mental load and physical tasks taken on by the humans who carry the burden of high-human-touch roles. It is important across all

aspects of this sector but it is especially needed to support the elderly in our graying society and to help young families find affordable childcare.

"The funding and harnessing of AI that is now occurring in legal, medical, human resources, entertainment, media and many other sectors will eventually benefit society. Now is the time to recognize the economic value of care work and provide higher wages and better support for professional care workers, advisors and mentors such as teachers nurses, home health care professional, and those whose work is early childhood education and care for the developmentally disabled.

"The funding and harnessing of AI that is now occurring in legal, medical, human resources, entertainment, media and many other sectors will eventually benefit society. Now is the time to recognize the economic value of care work and provide higher wages and better support for professional care workers, advisors and mentors such as teachers nurses, home health care professional, and those whose work is early childhood education and care for the developmentally disabled."

"If professional caring and mentoring becomes a high-paid career more men will be encouraged to enter the care workforce and the women in it will be justly compensated. The societal transformations arriving in the age of AI could help start to dissolve economic and social barriers that perpetuate gender inequalities at home and at work."

Jim C. Spohrer

Robots for Home and Business Use Will Become Useful and Popular and AI Personal Assistants Will Handle Most Communications Under Human Supervision

Jim C. Spohrer, board member of the International Society of Service Innovation Professionals and ServCollab, previously a longtime IBM leader, wrote, "By 2035, the impact of AI will be noticeable from driverless vehicles, more robots (some humanoid), and day-to-day communications being more automated and handled by individuals AI digital twins.

- **"Driverless vehicles**: A mountain of regulatory change will finally be passed and people will enjoy speedy, safe local transport, with many not choosing to buy a personal car. Just as the LAN lines (local area networks) connecting the internet to people's homes and businesses in its early days gave way to mobile smartphones, automobile manufacturers will sell local mobility as a service rather than sell a physical product. Automobile leasing will become cheaper and cheaper as vendors compete.

- **"Robots**: Local service providers will lease robots for use in people's homes and for the construction industry (including deconstruction and reconstruction/maintenance). These robot tools will be supervised locally and by telepresence operators. Again, a mountain of regulatory change will be completed by 2035 to make this happen.

- **"Communications:** AI communications assistants will be realized. People will even be able to construct an AI 'double of themselves' to handle calls, emails and requests as assigned. Their digital twin will propose a completed response, a person will simply check, make small modifications and approve. Routine communication will be noticeably improved and people will be able to have 'polite' interactions with many more people."

Clifford Lynch

Professional AI Agents Are Likely to Offer Consultations in Legal, Medical, Accounting, Interior Decorating, Career Counseling and Other Aspects of Human Life

Clifford Lynch, executive director at the Coalition for Networked Information, wrote, "So far and I suspect for at least the next decade, most people will relate to AI systems using models of relating to other human beings. We will see one class of AI systems that pretend to be people, emulations of ancestors, historical or cultural figures, perhaps virtual friends of various types; here the model is peer interaction among humans perhaps.

"A second class that is widely hyped (but we are still having a lot of trouble making work with a useable level of reliability and accuracy/competence) are various forms of AI 'assistants' or 'agents'; the model here is to serve a typically human role rather than a specific person. Stretching a bit further in this direction, in future one might imagine professional AIs offering consultations: legal, medical, accounting, interior decorating, career counseling and the like, though again I worry about accuracy, reliability and liability issues here.

"The really interesting question to me is whether we will learn to relate to AI systems on their own terms rather than anthropomorphizing them in various ways. … If we proceed down this path we will encounter significant ethical and philosophical problems, as well as more pragmatic near-term legal issues."

"The really interesting question to me is whether we will learn to relate to AI systems on their own terms rather than anthropomorphizing them in various ways. Can we learn anything from our attempts to relate to other biological species and the ways we have approached this? If we proceed down this path we will encounter significant ethical and philosophical problems, as well as more pragmatic near-term legal issues. Consider, for example the current position of the U.S. copyright office that AI systems, on their own, cannot create copyrightable materials (though they can serve as a tool in assisting humans in creating such materials). It's hard for me to believe that this position will stand for another decade.

"A final set of thoughts, and I'm not sure we get here by 2035. Imagine a society that includes both humans and AI systems. It's perhaps easiest to think about this in specific areas: industrial work, military activities, scientific research would be some provocative examples. You are going to have systems of communication that are designed to be used among humans; as AI systems become integral participants in these areas of activity, we'll see some modest adaptation but mainly the AI systems will learn to use human-oriented systems and have their own communications systems/practices for use primarily by AI systems. These may look very different than the primarily human-oriented communications systems. So, to take just one example, think about a specific area of scientific research. The human communication system may still be based on scholarly journal articles. The AI communication system may be something that would be very tedious for humans, full of minutiae to permit reliable replication of experiments and results, and replete with (boring) negative results."

Jason Resnikoff

The Effect of AI on Being Human is That it Will Be Alienating Due to the Unequal Power Relations it Mediates Between Corporation and Individual, Rich and Poor

Jason Resnikoff, assistant professor of contemporary history at the University of Groningen, Netherlands, and co-author of "AI Isn't a Radical Technology," wrote, "As a labor historian and a

historian of technological change, I find 'AI' to be a vague concept. Strictly speaking, the term 'AI' does not actually refer to any specific technological innovation. The field of artificial intelligence generally defines the term AI as a desire to create machines that act as though they are intelligent. That is the description more of an effect than an action.

"The recent burst of interest in AI is related to the development of LLMs and NLP by means of machine learning and artificial neural networks. The business hype surrounding these innovations is wildly overblown. That said, employers are and will make use of these specific technological innovations to degrade working conditions.

"I find myself returning to a basic refrain: what makes AI scary for ordinary people and working people is not what makes AI new, but rather what makes it old. That is, employers will use this technology as they have earlier technological innovations: to degrade labor so they can have it more cheaply. Sometimes they might try to use it to substitute machine action for human labor, but just as often they will use it, as they have been using it so far, to obscure and mystify the human labor that continues to be essential to the labor process overall.

"The uses that employers, nation-states and large companies will make of the technologies called AI will have the same effect as the other technologies they have deployed in the past. They will impress people with the powers they have concentrated, and they will alienate people. The only way 'AI' will not have that effect is, quite apart from the qualities of the technologies themselves, if there is a radical change in the nature of social relations."

"The effect this will have on the experience of being human will be the same as other technological innovations under conditions of capitalism: it will be alienating. This is not a feature of the technology itself, but rather of the power relations that the technology mediates, in this case, the unequal power relations of employer and employee, of giant corporation and lone individual, of rich and poor.

"That, however, is not a new phenomenon. In other words, the uses that employers, states and large companies will make of the technologies called AI will have the same effect as the other technologies they have deployed in the past. They will impress people with the powers they have concentrated, and they will alienate people. The only way 'AI' will not have that effect is, quite apart from the qualities of the technologies themselves, if there is a radical change in the nature of social relations."

This section of Part II features the following essayists:

Brian Southwell: **If AIs evolve to generate, appreciate, overcome and celebrate their mistakes, then we humans may welcome such entities as new companions in our world.**

Nigel M. Cameron: **'A human' world in which the creatures of our technologies serve us and not use us must surely be our vision. how it turns out will depend not on them, but on us.'**

Caroline Haythornethwaite: **As humans, our task will be to work with AI, and that will continue to require coming to an understanding of how it works and what it is good at.**

Bernie Hogan: **It may come to be that the machines have stopped being the tool of oppression and have started acting more like the agents of it.**

Divina Frau-Meigs: **Digital media and information literacy is more crucial to humanity's success and more responsible for its failures than ever before.**

Winston Wenyan Ma: **AI agents will bring much more than incremental improvements in business automation; they will represent a fundamental shift in how companies operate, grow and scale.**

Ginger Paque: **'Garbage in, garbage out' is as true for AI as it is for human discernment, as shown most obviously by contradictory information and hallucinations in AI-generated text.**

Brian Southwell

If AIs Evolve to Generate, Appreciate, Overcome and Celebrate Their Mistakes, Then We Humans May Welcome Such Entities as New Companions in Our World

Brian Southwell, distinguished fellow and lead scientist for public understanding of science at RTI International, wrote, "Nearly 20 years ago, I gave a commencement speech in which I noted how some aspects of my work as a teacher – especially those related to being a purveyor of facts – had been made somewhat obsolete by the arrival of Internet search engines such as Google. Undaunted, I noted how much I still valued the opportunity to help students make sense of facts and ask questions and become aware of personal values. I also remember walking away from the auditorium that day wondering how much I believed that human teachers would continue to matter, especially at a moment when possibilities for asynchronous instruction and podcasts seemed more promising for some administrators than brick-and-mortar classrooms.

"Two decades later, many people still find meeting in person to hear human beings talk compelling and helpful, although of course we also have many alternatives for training. Even in those alternative forms, though, human students often benefit most from human narratives and interaction. A compelling podcast still tends to involve human language and story forms honed by our human experiences. Human beings are likely to find the experience of perfectly replicated environments built of automated prediction of past human experiences to be tempting and sometimes even soothing but also ultimately unsatisfying as the sole content on which they subsist. Live sports involving human competitors draw audiences even though simulated games between robots could be programmed and presented even now.

"We likely will continue to value opportunities to witness human beings acknowledge and attempt to overcome their own frailties, mistakes and limitations as they face less-than-guaranteed success. From that perspective, human beings will likely gravitate toward interactions with other people as a core activity during their biological lives. If artificial intelligences evolve to generate, appreciate, overcome and celebrate mistakes, then we may welcome such entities as new companions in our world, just as we have welcomed canines and felines and plants that seem capable of adapting to their worlds as we do.

"Human beings are likely to find the experience of perfectly replicated environments built of automated prediction of past human experiences to be tempting and sometimes even soothing but also ultimately unsatisfying as the sole content on which they subsist. ... If artificial intelligences evolve to generate, appreciate, overcome and celebrate mistakes, then we may welcome such entities as new companions in our world, just as we have welcomed canines and felines and plants that seem capable of adapting to their worlds as we do."

"We face a future in which many processes of computation and material construction will essentially be invisible to most human beings, and yet that aspect of the future – the threat of invisible mechanisms – is not incredibly different than the past instances in which people used but did not necessarily fully understand telegraphs or radios or even the use of sparks to make fires. Many readers will engage with the comments I am typing via a computer screen connected to the Internet. How many comprehensively grasp the technology used to transmit my keystrokes to the words they are reading on the screen? Does that necessarily matter?

"We should be grateful for the early stages of new technologies in which many tools do not work perfectly. We can learn how tools operate and how or if we can operate when they break. When algorithms and prediction tools provide a plausible narrator articulating an eloquent paragraph in response to a search query, though, as soon will be the case, humans are likely to gain less practice in developing logic skills and in improving or changing patterns of information in their environment. We should be careful as we approach new thresholds of seamlessness and efficiency.

"Advantages of artificial intelligences will be apparent. Much mundane work will be automated. As communities, we may get better at generating long-term decisions which are consistent with our expressed values in situations involving dynamics beyond the scale of individual people. Any single individual with access to new technologies also will be able to accomplish a pace and scale of information production much greater than previously was the case for human beings.

"Beyond the advantages, though, we will continue to be beings who benefit from mistakes and failures and who probably have evolved to enjoy witnessing humans overcome those mistakes and failures. We collectively learn from those situations. We enjoy those situations, and human emotion such as enjoyment is a gift (and a burden). We appreciate people making honorable choices when they have the option of making dishonorable choices, even if the honor codes we develop are not technically required in the world. Predetermined environments will sometimes be attractive, and we may fool ourselves into thinking that such environments are enough, but the beating hearts of at least some human beings also likely will always be drawn to the value of our imperfections."

Nigel M. Cameron

'A 'Human' World in Which the Creatures of Our Technologies Serve Us and Not Use Us Must Surely Be Our Vision. How It Turns Out Will Depend Not On Them, but On Us'

Nigel M. Cameron, president emeritus of the Center for Policy on Emerging Technologies in Washington, DC, wrote, "My core concern in addressing this set of questions is the difficulty humans find in addressing issues in a risk frame of reference. As I argued nearly a decade ago in my book 'Will Robots Take Our Jobs?' (which addresses a subset of the current issue) the key response is that we do not know. So, our response, as individuals, families, communities and governments, needs to be framed in terms of preparation for challenges that may not arise, and in terms of welcome for benefits that are also uncertain.

"Certain facts seem plain, from a policy angle. First, the rush to push people into STEM (science, technology, engineering and math) education and jobs is dumb. The more STEM, the simpler the roboticization. Second, the worldwide push (even Russia tried it) to extend working lives and cut retirement ages is dumb. Whatever happens, human employment will be under increasing threat. I suggested in an article for UnHerd that governments would do well to use the retirement age as a

'governor,' to be raised or lowered in order to maintain full employment as automation brings jobs under threat. Of course, employment is a subset of the human experience, if a vital one. If 'full employment' is relegated to being a fantasy from the 20th century, democracy will destabilize, and our notion of the normal life, the good life, the family life, an oddity.

"Of course, there is much more at stake than employment. Cell phones are a nuisance, but Sherry Turkle notwithstanding (whom I know and admire) their impact on families and individuals has so far been marginal. I once planned, though did not write, a book about all the new friends we shall have down the line – not just AIs, as assistants, colleagues, putative friends and lovers; but birds and animals whose extraordinary intelligence may be released to communicate with us by our technologies; and the extra-terrestrials with whom they may yet connect us.

"I've a suspicion that the human dimension is incapable of mechanical replica. I believe the creative drive of the human mind, as well as its emotional sensitivity and subtlety of judgment will prove incapable of replication by a string of 1s and 0s. That fancy pocket calculators may indeed replicate literature reviews and search functions far above the Google level and indeed aid scientific discovery. But as to poetry and painting and a lively family dinner? I'm hopeful, at least, that replicas will not actually replicate anything."

"Is Ray Kurzweil's Singularity waiting down the road to ambush the human race? Is the Moore's Law curve really all there is? I'm not convinced. The nostrum that tech change always takes a lot longer than expected but ultimately has a bigger impact may yet prove true here. But I've a suspicion that the human dimension is incapable of mechanical replica. I believe the creative drive of the human mind, as well as its emotional sensitivity and subtlety of judgment will prove incapable of replication by a string of 1s and 0s. That fancy pocket calculators may indeed replicate literature reviews and search functions far above the Google level and indeed aid scientific discovery. But as to poetry and painting and a lively family dinner? I'm hopeful, at least, that replicas will not actually replicate anything.

"I spoke on 'The Human Question' at the Champalimaud Foundation's conference a decade back on what the world might be like in 2115, and I reflected on the wondrous dinner we had enjoyed the night before at a table for a hundred diners in the extraordinary old library of the Jerónimos Monastery in Lisbon. I expressed the hope that in 2115 the Foundation would still wish to bring people together for dinner – and that, indeed, they might invite my latest three grandsons, Lincoln, Euan and Gideon, whose lives will likely continue well into the 22nd century.

"A 'human' world in which the creatures of our technologies serve us and not use us must surely be our vision. How it turns out will depend not on them, but on us."

Caroline Haythornethwaite

As Humans, Our Task Will Be to Work With AI, and That Will Continue to Require Coming to an Understanding of How It Works and What It Is Good At

Caroline Haythornethwaite, professor emerita at Syracuse University School of Information Studies, wrote, "I find it difficult to think of one category of human. Let's think age, gender, race, socioeconomic status, regional differences. One observation I have seen is how past IT revolutions have affected some people and not others, but not the same set of people.

"When information technologies entered the workforce, use of the new tools lagged for older people until the older-age category was taken up by the younger IT-trained people. Use also lagged for those with lower incomes until IT became more affordable, and indeed, absolutely necessary for work, education and social connectivity.

"Smartphones and mobile phones have filled gaps in need for connectivity in lower-income and non-hardwire-connected locations and countries.

"Social media is a revolution led by young users – rapidly adopting new connectivity and means of expression. My speculation is that conversing with AI will seem no more odd to today's young users as it does to use social media, search the Web, etc.

"AI will annoy some of us. … It will provide great opportunities for new approaches, thinking, etc., by being like the Industrial Revolution, automating mundane tasks of aggregating and analyzing data sets, rewriting texts for clarity or putting them in the appropriate jargon, even driving a car in traffic. But only if we can come to some confidence in the generation of the AI. If AI sources, procedures, (re)production processes are not available for examination, who knows what biased and limited knowledge will go into the results."

"AI will annoy some of us. 'Google why do you push an AI summary to the top of my search when I am looking for something, not a summary, and not by AI?' We'll all be quoting our AI instead of looking at Wikipedia for basic definitions. And academics will have to replay the 'Wikipedia as a real source' game. But who is behind the AI compilation? Some people have come to know, and trust in general, the collaborative Wikipedia entries, created by humans. I don't. even know where to begin in understanding how these AI definitions are compiled. Am I/Are we going to have open access to AI source code – is that even possible?

"It will provide great opportunities for new approaches, thinking, etc., by being like the Industrial Revolution, automating mundane tasks of aggregating and analyzing data sets, rewriting texts for clarity or putting them in the appropriate jargon, even driving a car in traffic. But only if we can come to some confidence in the generation of the AI. If AI sources, procedures, (re)production processes are not available for examination, who knows what biased and limited knowledge will go into the results.

"As humans, our next-generation task is to work with AI, and that will continue to entail understanding how AI works and what it is good at. Oh, and then we need laws to govern its use."

Bernie Hogan

It May Come to Be That 'the Machines Have Stopped Being the Tool of Oppression and Have Started Acting More Like the Agents of It'

Bernie Hogan, associate professor and senior research fellow at the Oxford Internet Institute, shared the following potential-2035 first-person scenario: "Before we spoke to the dolphins we sincerely thought we were the only intelligent species capable of language. The new translators trained on multimodal communication, fed live through aquatic drones and produced with continual feedback changed all of that. We found similar successes with some monkeys and with elephants.

"Perhaps what challenged us the most was confronting these non-human actors as shared members of the same planet. We discovered their petty squabbles and their fascination with humans. Many didn't believe the translators at first, claiming it was all smoke and mirrors, but when the translators started working with their pets many people became not only enamoured but truly felt humbled.

"The wonder of the translators was combined with the continued unease with the proliferation of smart machines. After a mega disaster from a rogue LLM fine-tuned by malicious actors and the continued tensions among educators and the governments about whether we are creating too much dependency, public conversations have hit a preoccupation.

"Some individuals appear to have leveraged these tools to great effect, almost as if they have discovered a second, super brain, able to facilitate and support learning and convenience. But the machines still require a lot of energy and they aren't available to everyone.

"[In 2035,] some individuals will appear to have leveraged these tools to great effect, almost as if they have discovered a second, super brain, able to facilitate and support learning and convenience. But the machines still require a lot of energy and they aren't available to everyone. … Life in 2035 is a little more comfortable for many but for just as many the machines have stopped being the tool of oppression and have started acting more like agents of it. Despite their intelligence, many still believe they are neither conscious nor capable of it. Others question whether humans are nothing more than wet machines."

"While few have leaned into a sort of neo-arts and crafts movement, most people simply grow to loathe the machines. They provide comfort with novel programming, pornography and entertainment but there persists a feeling, a sense, that using them is not really in our best interest. That maybe we, too, are as beholden to the translators as the animals. People feel a sense of fear that they are being watched at all times. Where before there was a concern that anything could be photographed, now there is the concern that anything could be modelled, including their own personalities.

"Life in 2035 is a little more comfortable for many but for just as many the machines have stopped being the tool of oppression and have started acting more like agents of it. Despite their intelligence, many still believe they are neither conscious nor capable of it. Others question whether humans are nothing more than wet machines."

Divina Frau-Meigs

Digital Media and Information Literacy Is More Crucial to Humanity's Success and More Responsible for Its Failures Than Ever Before

Divina Frau-Meigs, professor, Sorbonne Nouvelle University, Paris), and UNESCO chair Savoir Devenir in sustainable digital development wrote, "By 2035, the key points I emphasized in a recent media and information literacy and AI policy brief for UNESCO will be validated. They emphasize the fact that digital media and information literacy is more crucial today than it has ever been, and it will continue to be a primary factor in humanity's successes and failures:

- "Artificial Intelligence and generative AI are having significant impact on people's engagement with information, technology and media. This raises major concerns in regard to control, human agency, knowledge, independent decision-making and freedom in general.

- "User-empowerment through media and information literacy in response to generative AI's challenges and opportunities is not well-enough funded and supported by governments, non-governmental organizations and other parties that can take a role in assisting in strengthening results and broadening its reach.
- "Among the societal opportunities being deepened by generative AI for those who understand how to use it and have access to it include access to information, participation, employability, creativity, peacebuilding, lifelong learning and participation in creative industries.
- "Among the leading societal challenges being deepened by generative AI are disinformation, loss of data privacy, threats to integrity of elections, surveillance, intellectual property rights, source reliability.
- "Building on familiarity in the face of urgency, AI literacy can be embedded in media and information literacy efforts that are essential to the teaching and training of all sorts of communities (educators, librarians, youth workers, workplaces, senior centers, etc.).
- Media and information literacy is necessary to build people's ethical uses of synthetic media – i.e., video, text, image or voice content – fully or partially generated by AI-systems.
- "Media and information literacy helps people to critically assess the current myths tied to AI (its purported 'intelligence' and the potential for apocalyptic existential risks) and ensure that marketing or political ploys do not detract attention from crucial issues about digital divide and public oversight to assure human agency and equal opportunity.
- "The development and rollout of explainable AI is key both to the design of media and information literacy curricula and to the design of policy and governance about generative AI.
- "To build trust in information and education, source reliability must be overhauled to encompass the different types of evidence provided by generative AI.
- "Media and information literacy can help bridge the digital divide by providing solutions between STEM and non-STEM sectors, training technical and non-technical people to master the basic concepts needed to develop and to use AI proficiently, safely and responsibly.
- "Media and information literacy experts and civil society organizations are not sufficiently involved in the oversight of AI standards in the multistakeholder settings now emerging to establish the best practices for human-AI opportunity.
- "Informed people from outside of the technology industry should be equal participants in the design, implementation and regulation of AI in a manner that remains human-centered and mindful of the public interest.
- "Governments and institutions of higher education have a duty to ensure that media and information literacy policy actions are sustained and solidified over time in order to make them as future-proof as possible in the face of continuously evolving AI.

"The ultimate goal for humanity is to assure that the systems we construct are affording everyone the ability to tap into collective intelligence within safe, viable and sustainable digital knowledge societies."

Winston Wenyan Ma

AI Agents Will Bring Much More Than Incremental Improvements in Business Automation; They Will Represent a Fundamental Shift in How Companies Operate, Grow and Scale

Winston Wenyan Ma, director of Global Public Investment Funds Forum and adjunct professor at New York University School of Law, wrote, "Now, in 2025, agentic AIs – self-governing software programs that perceive their environment, make decisions and act to achieve specific goals – are set to go

mainstream. This could mean the start of human beings losing touch with the fundamentals of their daily lives.

"Unlike general-purpose ('horizontal') AI systems like ChatGPT, vertical AI agents are purpose-built AI tools designed to perform specific tasks or serve specific industries with a high level of accuracy and efficiency. The rise of foundation models like GPT, Claude and open-source counterparts likes Llama and others has created a fertile ecosystem for vertical AI Agents.

"Companies globally increasingly require AI solutions that understand the nuances of their specific industry and can support their unique business processes. As the true potential of AI lies not only in its technological breakthroughs but also in its strategic deployment across industry verticals and business functions, we are now witnessing the transition from general-purpose horizontal AI to Vertical AI, which represents the next logical step in AI technology.

"We are now witnessing the transition from general-purpose horizontal AI to Vertical AI, which represents the next logical step in AI technology. … By 2035, AI agents will not simply be incremental improvements in automation, they will represent a fundamental shift in how companies operate, grow and scale. They will easily beat human pros. The rise of personalized use of AI agents by individuals could see humans losing touch with the fundamentals of their daily lives. They may be in touch with people, places and things in the physical world less and less. They risk missing out on the varied ways in which the rich variety of the world around them can deepen them and touch their souls."

"While the first iteration of copilots augmented human tasks, this next generation is poised to fundamentally change how businesses operate. Take good trade systems for an example. Global companies face significant information overload throughout the sourcing and logistics process. Companies could access the unlimited network of global supply chain. But what comes along is information overload, so they need to spend more time to verify, compare and make decisions.

"Why might AI agents be a game changer? The traditional way of doing global trade is hiring experts and agencies. Hiring someone with expertise sounds simple. But the downside is, that human agents' connections and resources are limited. AI agents can take the role of 'digital colleagues' that can help you plan, problem-solve and act to achieve a goal. In global trade, AI agents do not conduct a passive search like traditional search engines but rather perform as active guides. AI tools can synthesize the information into a request for quotation (RFQ) that can then be issued to potential sourcing partners, simplifying the typically complex and time-consuming RFQ process for business owners.

"Complementing all the above, AI agents can also integrate all the existing digital tools mentioned at the beginning of this article with the new AI intelligence to create a unified solution. With the AI agent in the global trade as an example, we can see three critical markers of genuine Agentic AI:

- **"Autonomous Decision-Making:** True agents don't just process requests – they evaluate situations, weigh options, and make independent decisions within their operational parameters.
- **"Purposeful Action:** Genuine agents maintain persistent goals and work proactively, even when not directly prompted. They don't wait for instructions; they pursue objectives.
- **"Integration with Domain Knowledge:** Built with in-depth understanding of niche processes, compliance standards, and workflows.

"By 2035, AI agents will not simply be incremental improvements in automation, they will represent a fundamental shift in how companies operate, grow and scale. They will easily beat human pros. The rise

of personalized use of AI agents by individuals could see humans losing touch with the fundamentals of their daily lives. They may be in touch with people, places and things in the physical world less and less. They risk missing out on the varied ways in which the rich variety of the world around them can deepen them and touch their souls."

Ginger Paque

'Garbage In, Garbage Out' Is as True for AI as It Is for Human Discernment, as Shown Most Obviously By Contradictory Information and Hallucinations in AI-Generated Text

Ginger Paque, senior policy editor at the Diplo Foundation, wrote, "Digital connections, especially in social media, magnify and exaggerate, and, notably, distort our information-processing characteristics. How we receive and assimilate information is often, but not always, impossible to separate from the importance of AI for humanity. For example, are we as a society affected by the possibility and reality of forming a personal relationship with an AI chatbot, or is this an anomaly? Or are we more affected by the online news and stories about those relationships?

"What could affect AI's role in the human experience is if developers and users disguise AI to the extent that it is difficult to discern what is AI and what is not. Clear, agreed and well-disseminated definitions of AI-related terms are important to this process."

"Perhaps the range of reports and analyses balances the information available and helps observers decide how they want to use AI in their lives. In this case, does AI just make an imaginary friend more coherent, or is it fundamentally different?

"AI helps create and spread misinformation. Experience has taught us that we must fact-check AI-generated responses. For some of us, this realization has caused us to be more cynical about all news and information sources, not just AI or other sources we don't trust. The discerning reader or researcher will probably improve their information processing and a non-discerning one is unlikely to change quickly or easily. That's still a net positive but doesn't change our humanity or experience of being human.

"Google and other search engines are run on AI. Most everyone who uses Amazon search knows the results are not objective, reminding us that AI or at least algorithms, depending on how one defines AI, is no more trustworthy than its coding. 'Garbage in, garbage out' is as true for LLMs and AI coding as it is for human discernment, as shown most obviously by contradictory information and hallucinations in AI-generated text.

"Consulting the ready reference librarian improved my homework as a child (or at least made it easier). Today, Grammarly spelling and grammar checks and even AI suggestions for my writing still require me to accept or reject suggestions. If I use AI for research, I always cite it as a source. I know AI is a resource, even as the human ready-reference librarian and human research assistants have been.

"What could affect AI's role in the human experience is if developers and users disguise AI to the extent that it is difficult to discern what is AI and what is not. Clear, agreed and well-disseminated definitions of AI-related terms are important to this process. There used to be a clear understanding that an if-then program was not AI; now the term if-then is used for a wide range of applications. Research and writing on this topic will help us use AI more effectively and better understand our strengths as creators and our

humanity. As far as I know, the only crystal-clear differentiation between an AI and a human is that a human has human DNA."

The following section of Part II features these essays:

Daniel Pimienta: **Automated language translation will transform global communication; just 20% of humanity can use English, soon people may easily be understood using any language.**

Robert Seamans: **AI will inspire new jobs as others disappear; health options will improve; but individualization can lead to the fraying of social relationships and mental health.**

Matt Belge: **AI must not be a master, but rather a faithful servant. it's up to the people to recognize the bad and put regulations and rules in place to properly govern it.**

David A. Bray: **We need to enable adaptive and positive 'change agents' in public service during this time of revolutionary advances in technology and globalization.**

Keram Malicki-Sanchez: **One great side effect of the advancing influence of AI will be an increased appreciation for the distinct beauty and value of naturally-derived human creations.**

Philippa Smith: **AI will reshape the world for humankind in extraordinary ways, but every world-changing technology has its dark side.**

Sandra Leaton-Gray: **Four vignettes demonstrate a day in 2035 the lives of four British school children whose formal learning is augmented by AIs programmed to serve their needs.**

Daniel Pimienta

Automated Language Translation Will Transform Global Communication; Just 20% of Humanity Can Use English, Soon People May Easily Be Understood Using Any Language

Daniel Pimienta, leader of the Observatory of Linguistic and Cultural Diversity on the Internet, based in the Dominican Republic, wrote, "I'd like to focus my contribution on the specific subject of linguistic diversity and examine the predictable outcomes of AI's influence on it by 2035. As a pioneer in this field, my center has conducted numerous experiments since 1992, exploring the use of automatic translation to support mutual inter-comprehension. Our efforts have evolved over time, including projects such as discussion lists for civil society during the World Summit on the Information Society. Most of these services were limited to major languages (English, French, Spanish and Portuguese). However, the last experiment in 2012, called 'Goodle,' integrated in Moodle an automatic link to Google Translate, which then supported around 50 languages. (Read details about these early experiments here.)

"These experiments focused on aiding inter-comprehension rather than achieving translation. Within this particular framework, today's advancements in AI represent a tremendous leap forward. Tasks that were once costly and difficult to implement are now accessible and inexpensive, offering significant productivity gains:

- Generating initial translations of documents without losing formatting, reducing the time required for translation by up to 80%.
- Creating multilingual versions of websites, with embedded automatic translation during content creation, offers substantial productivity boosts. While human intervention is still needed, the process has become far more efficient.
- Organizing videos on platforms like YouTube, where viewers can easily set subtitles in their preferred language (among the 249 supported by Google Translate), opens the outreach. Although translations are very approximate, this capability is fast enough to deal with the speed of speech and greatly aids inter-comprehension. Furthermore, it opens the door to extending services from translation to interpretation.
- Integrating automatic interpretation into platforms like Zoom provides another layer of inter-comprehension, even if it falls short of real-time professional interpretation.
- Expanding these capabilities to face-to-face conferences with devices that enable participants to choose their preferred language represents a breakthrough for accessibility and inclusivity.

"This is a genuine revolution that will transform international meetings, potentially diminishing the dominance of English as a lingua franca and therefore removing the unfair disadvantages for those with limited or no proficiency in English (a language understood by less than 20% of humanity).

"By 2035, we can expect further refinements and widespread adoption of these tools, leading to a paradigm shift in linguistic diversity. This includes extending these services to more languages and improving the quality of translations for less commonly spoken languages, which could be today below threshold of usability as some studies have suggested.

"In the same vein as AI advancements in other fields, automatic translation will not replace skilled professionals. Instead, it will serve as a valuable tool to enhance their productivity. However, it may significantly challenge mediocre practitioners and compete effectively with non-professionals.

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"AI-assisted translation and interpretation will not eliminate the need for highly competent interpreters and translators. Instead, it will provide extraordinary, low-cost, and easy to use support for mutual inter-comprehension. Once quality thresholds improve across all languages, the reach of these tools will expand further.

"The 'Babel-AI Tower' may not reach the heavens, but it is bringing people closer together by bridging language barriers. In professional settings, AI acts as a spectacular tool; however, as its use becomes routine, the initial sense of magic may diminish. Consequently, the distinction between artificial and human intelligence may become a non-subject, highlighting that the term 'artificial intelligence' might be a misnomer. Many misconceptions stem from the inappropriate use of the word 'intelligence' in AI. A more accurate term, such as "augmented intelligence," offers two advantages:

1. It retains the familiar "AI" abbreviation.

2. It acknowledges that true intelligence resides in the human mind, positioning AI tools as amplifiers and aids to human cognition.

"As with any technology, there are risks associated with misuse or unintentional biases. Ethical considerations must evolve alongside technological advancements. In the context of language translation, it is crucial to distinguish between full translation and aids to inter-comprehension to prevent misunderstandings, a challenge again rooted in wrong terminology."

Robert Seamans

AI Will Inspire New Jobs As Others Disappear; Health Options Will Improve; But Individualization Can Lead to the Fraying of Social Relationships and Mental Health

Robert Seamans, professor of game theory and strategy at New York University's school of business, co-author of "How Will Language Modelers Like ChatGPT Affect Occupations and Industries?" wrote, "AI will affect how we do work, and also how we interact with ourselves and others outside of work. I suspect that most of the changes at work won't be very noticeable. There won't be massive job losses; sure, some jobs will disappear but new ones will be created. Overall, work will change in subtle ways to take advantage of the new technology. The changes in how we interact in the world for ourselves and with others will be more noticeable. A leading positive moving forward is that AI can provide us with personalized suggestions, predictions, etc. This will be most noticeable with health, and we are already seeing this (e.g., personalized sleep schedules and diets, etc.) However, as we get more and more personalized suggestions for everything from health to food to exercise to entertainment to travel, etc., we risk creating a bubble that is optimized for our own personal enjoyment, not optimized for group or family or couple enjoyment. The risk is that all of the individualization can change the frequency of our personal connections and make social contact harder. This will fray relationships and mental health. Technology isn't inherently 'good' or 'bad.' Its impact depends upon how we use it, and how society addresses downsides related to the technology."

Matt Belge

AI Must Not Be a Master, But Rather a Faithful Servant. It's Up to the People to Recognize the Bad and Put Regulations and Rules in Place to Properly Govern It

Matt Belge, the founder of Vision & Logic LLC and a senior product designer at Imprivata before retiring in December, responded, "As AI extends more and more into our lives, I see a bifurcation of both good and evil in roughly equal measures. I think AI will be beneficial in fields where creativity is essential, such as in photography and image-making where AI powered devices will make it easier to create images with less technical skill than before.

"This is already happening in smartphones, where the camera senses the conditions and the subject matter and changes the parameters of the lens, shutter and sensor to optimize the image. It is already happening in photo-editing tools where it is possible to smoothly integrate images from reality with virtually generated images. And, of course, in image-making tools where the only source is the computer. This sort of change is both good and bad. Previously, artists would spend thousands of hours perfecting their skill and their vision simultaneously. With AI tools, the technical skill will become diminished, making it easier to create. But without the necessity to spend time crafting a vision, image-

making will also become banal and without real meaning. In the hands of skilled artists who have taken the time to build their craft, AI can become an assistant to speed their process and give them a chance to consider hundreds of alternatives they would not have had the chance to do. This is a positive change. But these artists will have to compete with and be outnumbered by unskilled people who are simply exploiting the technology with little sense or vision.

"In the field of computing and medicine (two not terribly related fields) AI will help make assisted decision-making much faster. AI is already helping coders write better code by providing examples to start from. A good coder will consider these alternatives and choose the best option. Similarly in medicine, AI will help practitioners make better decisions by giving them alternative diagnosis and treatment plans. Skilled practitioners will use this information to choose the best outcome, blending human skill with computer driven insights. In finance computers are already making trade decisions much faster than humans. This will accelerate.

"The key to a good future and a good outcome is to keep the humans in control, and to view AI as an assistant, not a master. The human must be able to make meaningful changes, and to iterate on the results by *first* understanding how to direct the AI to make changes in a direction the human wants it to go. This has been one of the big challenges of AI and it must be solved – make it possible for the human to control and direct the outcome."

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"Government, as currently concocted, is not skilled nor motivated enough to regulate AI in ways that will promote innovation while also being true to a sense of helping the common good. In the short term I expect the capitalists to win, using AI to exploit people and take advantage of weak governments that are unmotivated to stop it. In the longer term, I expect humans will wake up and demand more of their government, to take control of AI and to limit its evil side. But I think it will take some rather bad outcomes before that to wake the populace up. AI will have both good and bad influences on society. The good will be in increased creativity and experimentation amongst those in the 'creative class' as well as in fields of medicine. The bad will be in capitalism run amok, driven by greed and unchecked by inept government. It will be up to the people to recognize the bad and to put in place regulations and rules to properly govern it. This is the most significant challenge that AI presents to humans."

David A. Bray

We Need to Enable Adaptive and Positive 'Change Agents' in Public Service During This Time of Revolutionary Advances in Technology and Globalization

David A. Bray, principal at LeadDoAdapt Ventures and distinguished fellow with the nonpartisan Stimson Center, responded, "We stand at an era where our tool-making allows us to produce new tools that can

shape the planet. Some of the tools we make can be given broad scope on what they do, a degree of autonomy similar to our own regarding problem solving. What might they produce in the world? Some of these tools can alter not only the earth's biological processes, but also our own. What then will these tools produce when we can ask them to change ourselves?

"Reflecting on human nature, science has shown that all of us – as humans – are subject to confirmation bias. Once we have a set view in our minds we often interpret data and narratives to reaffirm our set view, and dismiss data and narratives that challenge that view, which means it is very hard to change our minds once our minds are set. Looking back at human history, there are examples of we humans doing wonderful things as a species, doing awful things as a species and activity in the spectrum in between. I find beauty in striving to encourage both productive adaption and positive 'change agents' in public service during this time of rapid advances in technology and globalization. I hope, recognizing human nature for what it is and that we all have human biases that collectively, we might be able to push for results more on the side of wonderful for us all vs. less beneficial outcomes.

"The first step in understanding whether humans can trust AI, is to define trust. Individuals will readily give their trust to either a person or organization if they perceive benevolence, competence and integrity. While well-programmed AI can imitate having these traits, it does not possess them. It is better to think of AI as an alien interaction rather than a human interaction."

"The first step in understanding whether humans can trust AI, is to define trust. Individuals will readily give their trust to either a person or organization if they perceive benevolence, competence and integrity. While well-programmed AI can imitate having these traits, it does not possess them. It is better to think of AI as an alien interaction rather than a human interaction. It is not surprising that humans have tried to attribute real intelligence to AI, due to their tendency to anthropomorphize objects and animals. Undoubtedly the future will include intense debates across the political spectrum and there will be times when we each have either a confirmation bias and mentally filter information that only reinforces our existing views – or a sunk-cost bias that makes us reluctant to make changes because we have already spent time or resources on a previous path. If we accept the beauty, as well as the flaws and biases, present in human nature, then by extension there will be beauty as well as potential flaws and biases in any human endeavor that we choose. What then does this mean for a future in which technologies once previously available only to sophisticated nation-states and large corporations are becoming increasingly affordable and available to individuals?"

Keram Malicki-Sanchez

One Great Side Effect of the Advancing Influence of AI Will Be an Increased Appreciation for the Distinct Beauty and Value of Naturally-Derived Human Creations

Keram Malicki-Sanchez, Canadian founder and director of VRTO Spatial Media World Conference and the Festival of International Virtual and Augmented Reality Stories, "As we move into an advanced era of social media we have to divest ourselves of centralized platforms that can be weaponized by hostile parties and find our own democratic town squares. The Fediverse is an example of how this could work. But we can likely do better.

"AI, by contrast, is not the magic oracle in a black box that people believe it to be. It is, in fact, an accumulation (harvesting) and tuning of our collective knowledge, regardless of copyright, trademark and other concerns; it is our output that we are now potentially benefiting from. But that has to be

carefully maintained because once it becomes a complete ouroboros the data will collapse. So-called 'AI,' in the context of large language models that we can converse with, can expose new avenues of inquiry for many more people to draw upon and contribute to.

"This should not be overlooked: The problem with search engines is that they are driven by algorithms that favor optimization and too many hidden factors and, like social media, reinforce our present ideology and formulated, carefully engineered tastes. LLMs can be programmed to reveal uncharted territory if we are well-versed in interacting with them effectively to harness that potential. And they do not preclude the teaching of curiosity and fundamentals. The present tech 'broligarchy,' the people in power over digital innovation and diffusion for the better part of a century or longer, are now more fine-tuned and dangerous than ever. But rather than give up hope of any influence over the future of these emergent technologies, we have to become involved in their positive development to ensure that they are indeed representative of many different voices, perspectives, cultures, those who value 'being human,' connecting socially, preserving people's mental and physical well-being and the ability to gain knowledge.

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"We must fight to preserve this humanity through truth and integrity. Interaction with these tools – for that is what they are – can engender new energy within humans toward the exploration and iterative development of new ideas. The offshoot side effect of creativity inspired by working with AI models can increase our appreciation for the distinct beauty and value of naturally-derived human output."

Philippa Smith

AI Will Reshape the World for Humankind in Extraordinary Ways, But Every World-Changing Technology Has Its Dark Side

Philippa Smith, communications and digital media consultant and commentator based in Auckland, New Zealand, wrote, "Less than a decade ago, I interviewed individuals with various physical and cognitive disabilities to understand how the internet transformed their lives. The response was overwhelmingly positive: technology provided newfound independence and empowerment. Screen readers, subtitles, online support networks and text-to-speech capabilities proved how innovation can redefine daily life.

"One visually impaired participant eloquently described the internet as a 'Gutenberg moment,' a term that reflects its life-changing power, not just for individuals but for society as a whole.As we look to 2035 and the predicted evolution of AI, we are once again on the brink of another 'Gutenberg moment.' With capabilities such as voice synthesis, text and video generation, real-time translation and transformative potential in health, social services, business and education, AI will reshape the world for humankind in extraordinary ways.

"While it may be tempting to adopt a technologically deterministic perspective when considering AI's impact on the future social, political, and economic landscape, it is vital to consider the complex factors influencing behavioural change.

"Understanding how societal conditions shape and reshape technological design – what problems do we need to solve, and why? – is vital. At the heart of this shift, core human values such as ethical behaviour, respect for human rights, inclusivity, creativity, curiosity and the sense of belonging and community must be safeguarded.

"In the early days of the internet, there was widespread optimism about its promise to connect people and provide instant access to information. Few foresaw the darker realities that would emerge, such as trolling, hate speech, identity theft, misinformation, scams, the dark web and online radicalisation. AI is a similarly complex tool. It, too, will bring both opportunities and challenges."

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- Invest in education, upskilling and lifelong learning to ensure no one is left behind.
- Establish consistent institutional responses to AI use across workplaces, schools and governments, enabling society to adapt effectively.
- Address ethical concerns, including intellectual property rights, transparency of AI-generated content and accountability for misuse.
- Commit to equitable access to AI tools and education, actively working to bridge digital divides alongside those affected so that everyone has a voice.

"The AI revolution offers immense opportunities for empowerment and innovation. While I remain optimistic about a brighter future, the trajectory of AI will ultimately depend on the ethical and intentional choices we make today. If guided responsibly, AI could become another transformative 'Gutenberg' moment."

Sandra Leaton-Gray

Four Vignettes Demonstrate a Day in 2035 the Lives of Four British School Children Whose Formal Learning is Augmented by AIs Programmed to Serve Their Needs

Sandra Leaton-Gray, chair of the Artificial and Human Intelligence group of the British Educational Research Association and advisor to the Government of the UK, wrote, "I wish to share four alternative futures for artificial intelligence and education excerpted from the book I recently co-wrote with Andy Phippen, 'Digital Children: A Guide for Adults' (John Catt Publications). These futures are described as vignettes about fictional children named Alfie, Bella, Carter and Daisy.

"Chapter One: Alfie's day of learning is mostly online, with select times for social interaction

Alfie is sitting in his space at the Woodcote Community Learning Centre feeling rather hungry, swinging his legs in eager anticipation of a hot dinner and a run through the play yard. He has worked his way through the new maths tasks and he is really pleased, because he thinks he has at last got to grips with the simulated science experiment, as well as finally learning his seven times table properly, but he definitely would like some food. His machine hasn't bleeped yet, though, so it probably hasn't worked out how he is feeling, meaning it is out of step with his biorhythms again. This has happened before, and his mum has come in to speak to the school administrators about sending him for lunch late.

"Alfie looks around the room and notices all the other children have gone already, and he is the only one there. He decides to sneak out anyway, pressing the 'Away' button on his workstation first. He can always make up the time at the end of the day. When he gets to the lunch pod, there isn't much left to choose from, so he selects the tofu fritters again. He doesn't really like the tofu fritters, but it's not the worst option. If you get in early, they have things like sweet potato fries, but that has only happened to him once. While he is on his way the sole of his shoe starts flapping about. The tape has come off, and it's annoying him as he walks towards the school yard.

"Alfie decides that running is probably not a good idea, so he strolls towards the buddy bench, where he sees Jacob, another boy from his learning group, sitting and watching the other children as they finish their games and pack up their balls and ropes. Jacob is a couple of years younger than Alfie and they often meet on the buddy bench. They have a lot in common because they are both at a similar stage of their learning on the computer system, and they both get out for lunch late most days. The boys have a chat about football, the first conversation they have had with another human being since their parents dropped them off at the learning centre that morning. The sky darkens, they look at the sky and notice the first rain drops falling. The boys decide to head back to the computer block for another few hours' work.

"Chapter Two: Bella's robot tutor-led drama lesson
Bella has fallen out with her friend Lilly during the drama lesson. They were working very well on the improvisation project together with the other girls, and then suddenly things went bad when someone accidentally hit someone else with their elbow, and it looked like it was on purpose. Lilly's brand-new wool blazer has been slightly ripped near the pocket, and she's worried that means getting in trouble at home. Work on the project stops completely. The electronic tutor trundles up to the group and asks what is wrong. Both girls try to explain their side of the story at the same time, with a lot of hand waving and pointing, and occasionally raised voices.

"The electronic tutor tries to make sense of the accounts, but it is no good. There isn't enough data. The drama teacher is electronically paged and comes over to take charge of the situation. She calms the group down and patiently listens to each member explain what happened from different points of view."

"The electronic tutor tries to make sense of the accounts, but it is no good. There isn't enough data. The drama teacher is electronically paged and comes over to take charge of the situation. She calms the group down and patiently listens to each member explain what happened from different points of view. Bella and Lilly are quieter now and look at each other, each trying to judge what the other one is thinking. The teacher beckons the electronic tutor over again and asks it to replay what it saw happening in the drama improvisation. The angle isn't very helpful, so that information doesn't get the group anywhere, but the teacher points out that Bella and Lilly have been approached negatively by the electronic tutor more times that term than any of the other young people in their class and suggests

that they need to work on their relationship skills. She sets them to work together, helping a group of younger pupils on the other side of the room.

“Bella and Lilly shuffle reluctantly to the group as instructed. They don’t see the point of this, and it means they can’t finish their improvisation exercise. It needs to be as good as they can make it, otherwise their grade average will fall too far. This could have a bad impact on their applications to college later on, as their files will go through a machine-based sift based on a grade average before they end up with a human admissions tutor. This makes them very nervous about school in general. Meanwhile the drama teacher flags up their files on the learning system, so that they are invited to attend a group discussion at lunchtime about peaceful cooperation in the drama studio. Relationships matter a lot at St Hilda’s school.

“Chapter Three: Carter’s academic journey is mapped out by AI
Carter is on a mission to complete the entire Winterton Academy middle years syllabus before Christmas, so he can get onto learning more about DeepSpace, his favourite computer game, as it is rumoured amongst the pupils that this is one of the choices when you’ve scaled the top level of the usual tasks. He is thinking of becoming a games designer when he leaves school.

“What he doesn’t realise is that the computer system has great plans for him in terms of its personalised learning offer, and after he has finished the cross-curricular project on the Babylonians he is going to be introduced to the history of mathematics and its early relationship with cuneiform script. Despite trying to resist, Carter is completely drawn in and before he knows it, he is calculating proficiently using factors of 60 using special tables and recording this in a rudimentary manner on a virtual clay tablet. The afternoon passes very fast with him watching breathtaking reconstructions of Babylonian life in high definition, rotating 3D representations of museum objects and archaeological finds, listening to simulations of early Babylonian musical instruments, and logging into a real-time, live-streamed film of some new work on the Babylonian archaeological sites, taking place right then and there in modern day Iraq. The system even allows him to have a couple of screens open at once, a rare treat at school, so he can keep an eye on the excavation as it happens. It’s important not to miss any exciting moments when finds come out of the ground, after all.

“He also spends time practising different calculations until he masters the Babylonian mathematical process. Just before home time, the screen bursts into life with virtual confetti, and Carter is invited to see some cuneiform clay tablets for real in the British Museum the following day, sharing a driverless car with three other pupils sharing similar educational trajectories and interests. Carter is pleased and cross at the same time. He gets a great trip. Yet again his plan to explore the deepest recesses of DeepSpace at school has been sabotaged.

“Chapter Four: Daisy’s academic path is adjusted by AI to fit new needs
Daisy is sitting in the head teacher’s office with her parents and the school’s Special Educational Rights Coordinator, and everyone is looking very earnest. It has been a long day. The head teacher is showing them some graphics on the tabletop display. The system has picked up some problems that have come about after Daisy’s earlier bout of the Covid virus, by comparing her progress to the typical trajectory of other female final-year pupils of the same chronological age and genotype nationally, who have contracted the same disease.

“The system has already adjusted Daisy’s learning path and exam entries in response to a reduced timetable during the last couple of months on account of her chronic tiredness. Now it wants to go

further. It is suggesting that her ability to focus on studying is in the bottom 10% of her recovery group nationally and that this figure is likely to fall further in the coming weeks. This means that the adjustment isn't working sufficiently well and that further steps are needed.

"It has mapped a new course of study against the times of day when Daisy seems to be at her most alert. It has set the duration carefully according to the latest published evidence on mitochondrial dysfunction that comes about in relation to post-viral fatigue, impacting negatively on energy levels. The system has also alerted the local family doctor and occupational therapy service that Daisy will need a review in the next fortnight. As it may take some time for the other services to respond, due to a local outbreak of influenza and associated additional pressures on health facilities, it has also suggested that Daisy takes the next week off school to attend a teen 'Long Covid' intensive therapy group at the local hospital, and a referral can be triggered as soon as the family gives consent, along with transport and follow-up services. Despite the bad news, Daisy feels relieved. She knew something wasn't right."

The next section of Part II features the following authors' responses:

Mike Nelson: **Achieving a positive future for augmenting human intelligence with AI requires the leadership of policymakers who deeply understand it and do not fear technology**

John Hartley: **The problem is how knowledge is made and deployed at ever-more-abstract planetary scale and who controls it.**

Sean McGregor: **Contextualized instant-answer devices will be more advanced in 2035 than today's conversational agents, ready to quick-scan most of human knowledge and respond.**

James Kunle Olorundare: **AI-enabled humans will enhance their performance in many regards, but AI may also foster an array of mental health issues such as identity crises and delusional thinking.**

An Informatics Journal Editor: **Will we see a sustained willingness and effort to create and support significant, socially oriented AI systems, or will we simply sustain capital-oriented approaches?**

Jeff Johnson: **In a worst-case scenario most cars will be self-driving and traffic jams will worsen; individuals will be tracked constantly by corporations and governments; robots will arise.**

Sam Lehman-Wilzig: **In 2035 humans will remain basically the same as we always have been, however, AI will shift the meaning of 'human work' from labor to leisure**

Mike Nelson

Achieving a Positive Future for Augmenting Human Intelligence with AI Requires the Leadership of Policymakers Who Deeply Understand It and Do Not Fear Technology

Michael R. Nelson, a senior fellow at Asia Program of the Carnegie Endowment for International Peace, wrote, "My key predictions and speculations as to likely change as we move through the next decade include:

1) "By 2035, the hype will have faded and Machine Learning users will have a *much* better sense of what ML can and cannot do. Furthermore, we will benefit from other forms of artificial intelligence that can 'argue' and derive proofs and equations from first principles rather than just trying to derive 'truth' by distilling the facts and biases embedded in millions of different sentences. These systems will know how to add 2 + 2!
2) "Most importantly, the data sets used to train tools like ChatGPT and its successors will be of much higher quality. Snippets from The Onion and other parody websites will not be included. Nor will wacko conspiracy theorists and phony 'data.' But this requires progress on tracking the provenance of data and content.
3) "Perhaps the biggest change will be that AI work products will provide 'footnotes' that for every 'fact' or assertion to allow us to track back to definitive sources, which can be examined and judged for accuracy and currency. Techniques like Retrieval-Augmented Generation (RAG) are helping but need to be more broadly applied. This would help the public understand that 'artificial intelligence' is not a magic black box but instead is based on the output of millions of human (and fallible) brains.
4) "I am most excited about how AI could optimize and customize higher education and make lifelong learning faster and more effective. AI tools could tailor online tutoring to students' learning styles and build on their existing knowledge and experience.
5) "I am excited about how AI can support augmented intelligence and online collaboration. Jerry Michalski has spent more than 20 years promoting the idea of the Open Global Mind, an infrastructure that finds, links and evaluates the best data, information and knowledge and combines it with the smartest teams of analysts and 'doers.'
6) "But making this vision come true requires policy makers who don't fear technology or attempt to ensure it is *never* misused or abused by anyone *ever*. No software developer and certainly no lawyer can anticipate every way a criminal, terrorist or government could misapply a rapidly emerging technology like AI. And simply applying old metaphors for copyright or liability – developed hundreds of years ago – will constrain our digital future in unexpected ways. I fear unintended consequences and vague, colliding policies far more than most of the nightmare scenarios typically discussed at AI safety conferences."

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John Hartley

The Problem is *How* Knowledge is Made and Deployed at Ever-More-Abstract Planetary Scale and *Who* Controls It

John Hartley, professor of digital media and culture, University of Sydney, Australia, wrote "There is certainly room for doubt as to whether being human has an essence, since experiencing it requires language, of which there have been many thousands, all different, over the various historical epochs. The essence of being human can only refer to our animality, which we share with millions of species, many extinct. Perhaps animals don't experience their animality in the same way, since their efforts at drama, narrative, and thought are untranslatable by us. But they're up to something in the show-and-

tell department, for sure. However, one very longstanding human experience is the externalisation of human capabilities via tools and machines. At some point (Neolithic, perhaps), thinking was externalised, via structures, cave-painting, grave-artefacts and, presumably, many devices of which we are ignorant. Human 'artificial intelligence' was projected into the non-human world via religion, the gods being a thinking machine for human hierarchies, uncertainties and rules for collective action. In the Bronze Age, artificial 'intelligence as we know it today was invented (the Antikythera Mechanism). Has the essence of being human changed in that sequence? Unlikely, but the scale and scope of human knowledge has. So, as ever, the problem is not how 'the essence' of the human animal is faring, but how knowledge is made and deployed at ever more abstract planetary scale, and who controls that. The human experience is more profoundly changed (if it is changed at all) by states, empires and lethal weaponry."

Sean McGregor

Contextualized Instant-Answer Devices Will be More Advanced in 2035 Than Today's Conversational Agents, Ready to Quick-Scan Most of Human Knowledge and Respond

Sean McGregor, founding director of the Digital Safety Research Institute at UL Research Institutes and member of the OECD's AI Experts Network, wrote, "The printing press, radio and the Internet are just a few transformative technologies that changed the topics of conversation, how those topics are communicated and what is considered factual in the world. Now the 'Cliff Clavins' of the world (a character on the 1980s TV sitcom 'Cheers' whose actor also played a similarly ill-informed, know-it-all piggy bank in the 'Toy Story' film series) have been replaced with answer boxes we carry in our pockets. The major change of the moment is we can now ask the virtual Cliff Clavin to answer back not with a search result, but with conversation representing a synthesis of the entire Internet. Many companies are working to make electronic versions of the old barfly that are always listening in order to enter into people's daily lives more seamlessly. By 2035, we are likely to see far more of these contextualized machines ready to answer any query posed."

James Kunle Olorundare

AI-Enabled Humans Will Enhance Their Performance in Many Regards, But AI May Also Foster an Array of Mental Health Issues Such as Identity Crises and Delusional Thinking

James Kunle Olorundare, president of Nigeria's chapter of the Internet Society, wrote, "By and large, the human dependence on AI will grow to such a degree by 2035 that ordinary humans may not know how to function in many settings without the guiding influence of AI. This is a challenge to humanity as we begin to heavily rely on AI.

"Uses of AI in the next decade will continue to reduce human-environment interaction, as individuals increasingly rely on AI for both work and personal interactions. In addition to the potential for lack of in-person social contact and loss of social skills it could lead to mental health issues such as identity crises and delusions."

"In the 2030s, human and artificial intelligence integration may have advanced significantly beyond experimental neural links. Direct brain-computer interfaces might eventually enable individuals to work seamlessly with AI, potentially naturally enhancing cognitive abilities, accelerating complex analyses and facilitating the widespread use of brain-

AI-generated solutions. This profound integration of human and machine could be quite jarring and will also present new challenges.

“Regardless of the timing of the arrival of embedded direct brain-computer interfaces as a broadly adopted technology, uses of AI in the next decade will continue to reduce human-environment interaction, as individuals increasingly rely on AI for both work and personal interactions. In addition to the potential for lack of in-person social contact and loss of social skills it could lead to mental health issues such as identity crises and delusions.

“AI systems trained on existing data inevitably inherit the biases and inaccuracies inherent in that data, potentially leading to erroneous systemic outputs. Furthermore, human biases embedded during AI development and training can significantly impact the AI's fairness and effectiveness. Addressing these challenges requires robust AI governance frameworks that prioritize ethical development and deployment. The implementation of deontological principles within AI systems can help mitigate ethical concerns.

“The integration of AI also necessitates careful consideration of its social and economic implications. Job displacement is likely to occur, requiring widespread reskilling and retooling initiatives to prepare the workforce for the changing job market. There will also be a paradigm shift in societal problems as to data integrity, algorithmic bias and computation speed and techniques.”

An Informatics Journal Editor

Will We See a Sustained Willingness and Effort to Create and Support Significant, Socially Oriented AI Systems, or Will We Simply Sustain Capital-Oriented Approaches?

An associate professor of communications and editor of a global informatics journal based in Peru wrote, “By 2035 the digital inequality gap is likely to be widened. While many people will enjoy the advantages created by AI systems and tools, many others will enjoy few, if any, such advantages because they live in a diminished environment of opportunity. AI systems have been developed around very specific sets of basic human needs that are far different from those who can afford and have access to the latest digital tools.

“Many people living in less-‘developed’ regions like Latin America have to choose between immediate needs (like, food, water and health) and competitive needs such as having access to and paying for high-end digital tools. These people’s vibe is not technological, it is economic. They see no immediate advantage to digital technologies beyond using them for entertainment or consumption of media. This means that a pattern similar to what has happened with the Internet may be reproduced with AI tools that argue towards catching and sustaining attention.

“The question is: Are we are going to design systems that simply reproduce the same capital-oriented approaches we see in networked digital platforms of today or is there going to be some kind of sustained willingness and effort to actually provide the resources needed to create and support significant, socially oriented AI systems. There is no evidence that this is the avenue that will be pursued.”

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Instead, the same patterns of tech development that have created the global expansion of consumerism and entertainment-based options remains the norm.

“An even darker speculation is that by 2035 the effects of the climate crisis will increase significantly and many people who seek to consult AI about it will not find solutions to the issues but just more commercialism and entertainment. In the worst case, the knowledge resources will continue to propagate arguments urging that people stop believing in science. This is not trivial. At the same time, the consumption of resources that AI demands is increasing the risks associated with the climate crisis.”

Jeff Johnson

In a Worst-Case Scenario Most Cars Will Be Self-Driving and Traffic Jams Will Worsen; Individuals Will Be Tracked Constantly By Corporations and Governments; Robots Will Arise

Jeff Johnson, founding chair of Computer Professionals for Social Responsibility, wrote, “To counter the likely Pollyanna-ish predictions that some respondents will provide, I am intentionally providing a worst-case scenario (similar to one I wrote in 1996).

“People in the U.S. will be tracked constantly, not only by the government but by commercial companies. We will be bombarded throughout our waking lives with ads based on our online activity. Our email, texting accounts and social will be so full of spam and semi-spam (donation requests) that we will usually ignore them and seek new ways to communicate with family and friends.

“Most cars will be self-driving. However, a few human-driven cars will still be on the road, causing accidents. Traffic jams will be massive, caused not only by accidents, but also by outages of the networks connecting self-driving cars, as occurred on a minor scale two years ago in San Francisco when a cellular outage froze *all* of the Cruise vehicles where they were throughout the city. Even minor, local traffic jams will often escalate into systemic ones, as networks divert hundreds or thousands of autonomous-vehicles from jammed freeways onto small neighborhood streets.

“Robots will be everywhere, but few, if any of them will be programmed to follow Isaac Asimov's Three Laws of Robotics. Incidents of robots harming humans will be common. 3D printing will make guns easy to obtain, so many people will be armed. Those who don't have guns will have strong lasers or tear-gas sprayers that can blind or even burn people. Therefore, minor conflicts will escalate into dangerous battles even more than they do now.”

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Sam Lehman-Wilzig

In 2035 Humans Will Remain Basically the Same as We Always Have Been, However, AI Will Shift the Meaning of ‘Human Work’ from Labor to Leisure

Sam Lehman-Wilzig, head of the communications department at the Peres Academic Center in Rehovot, Israel, and author of “Virtuality and Humanity,” wrote, “Human psychology and behavior don’t change

very quickly, regarding most aspects of them hardly at all. For instance, it has taken us hundreds of years to reduce societal violence and wars still continue. Thus, to think that in a space of 10 years we will change our value system or the way we view ourselves – just because we have a terrific new 'helper' (AI) – ignores what it is to be human.

"The one area in which I do see change occurring is in the value we place on work or career; this characteristic will become devalued over time as AI takes on more of society's 'work.' Homo Labor will continue to evolve into Homo Ludens – using our 'Sapiens' for play/leisure instead of for work/payment. As it is, we have reduced our lifetime workload drastically in the past 150 years. AI will continue that trend.

"The major problem regarding AIs' effect will be on the macro-level. How will we deal economically with increasing unemployment on a societal level. If an economic solution is found for that – a huge assumption for the short and mid-term – the micro-level psychological effect may be limited."

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"If humans can 'love' their pets and enjoy spending lots of time with them, there's little reason to think that they can't similarly enjoy their AIs as well. That might lead to less intra-human interaction, but as long as people are comfortable and enjoy interacting with their AI 'companions,' so what? Is that change? Not much different than people spending hours in front of the TV screen or on their smartphone – or in the past not interacting with neighbors because back then we had to work 12 hours a day.

"In sum, too much can be made of the potential 'revolutionary change' in human behavior or psychology in an age of AI. Until we genetically engineer ourselves, humans will remain basically the same as we always have been."

The next section of Part II features the following authors' responses:

Doc Searls: **By 2035 we'll have truly personal AI that will improve people's agency and self-knowledge and offer them heightened control over their lives**

Dhanaraj Thakur: **There is great potential for large language models to shape the use of language across the world and influence the training and development of LLMs and of children and others.**

Seth Finkelstein: **The song about folk legend 'John Henry' – about the self-worth of labor – is relevant. 'Technologies do dramatically change expressions of core human traits and behaviors'**

Friederich Krotz: **While tech in earlier times was invented to adapt to human purposes, humans are now made to adapt to the tech; AI should not be used to exploit human labor and thought**

A Tech Policy Researcher: **Tech is part of being human; new tech doesn't make us any more or less human. But when technological innovation serves capital accumulation most of humanity loses out**

A Creative Technologist: **Rapid advances in AI could create lags in human response. Risk analysis will not respond at a sufficient rate of speed**

Liz Rykert: **Will AI-driven decisions in our quest to solve our biggest problems impose already generated solutions that do not respect human rights and the unique potential of each human?**

Jelle Donders: **There's a fair probability we'll have reliable recursive self-improving AIs by 2035; if so, work will be transformed and many may lose economic leverage and social mobility.**

Jamie Woodhouse: **AI will reframe what we know about ourselves; moral consideration should include all sentient beings, human, non-human animals or even sentient AIs themselves.**

Doc Searls

By 2035 We'll Have Truly Personal AI That Will Improve People's Agency and Self-Knowledge and Offer Them Heightened Control Over Their Lives

Doc Searls, co-founder of Customer Commons and internet pioneer, wrote, "Nothing is more human than creating and then depending on more-and-more-useful technologies. Among AI advances, the most potentiated and important one today is personal AI. Having truly personal AI is like having a personal computer. It's yours. It works for you, enlarging your agency in the world. And no, we don't have it yet. Not even close. What we have is 'personalized' AI, or AIaaS: AI as a Service.

"Personal AI in 2025 is where personal computing was 50 years ago, in 1975. Back then, all serious computing was done on mainframes and personal computing was almost an oxymoron, like 'personal nukes' or 'personal steamship.'Ten years later we had the IBM PC, the Apple Macintosh and a world coming to depend on forms of human agency vastly advanced by personal computing. In 2035, we'll have that with personal AI as well.

"Think about all the personal data being collected by the apps on your phone, the computer in your car (with its cellular connection over which you have no control), the computer in your TV that's reporting on what you watch and when to parties unknown. You don't have that data today, but you will when it becomes obvious – thanks to personal AI – that you and your AI can do far more with all that data than any of the entities to which it is being sold or given."

"Why will personal AI succeed? Think of all the data in your life that is currently expanding and barely in your control: calendars, schedules, contacts, financial stuff, health and fitness, subscriptions and other recurring obligations, travels, past and present work, business relationships, property. Your personal AI will give you much more control over all that stuff, and help you make much better decisions based on all of it.

"Now think about all the personal data being collected by the apps on your phone, the computer in your car (with its cellular connection over which you have no control), the computer in your TV that's reporting on what you watch and when to parties unknown. You don't have that data today, but you will when it becomes obvious – thanks to personal AI – that you and your AI can do far more with all that data than any of the entities to which it is being sold or given.

"Then imagine what all that improved agency and self-knowledge and control will mean in 10 years. It will mean we are more human than ever."

Dhanaraj Thakur

There is Great Potential for Large Language Models to Shape the Use of Language Across the World and Influence the Training and Development of LLMs and of Children and Others

Dhanaraj Thakur, research director at the Center for Democracy and Technology, previously at the World Wide Web Foundation, wrote, "As we address this question, which humans are we referring to? Of course, the benefits and costs of greater partnership and dependence will not be equally distributed across the global population.

"We live in a world of hyper inequality which means that the privileged few will benefit most, particularly where some functions of AI systems cost more (e.g., the subscription model that many AI companies use for their chatbots, or access to AI agents). For now, at least, this is quite different than say the impact and benefits of the mobile phone which started off as a tool for the wealthy and soon became ubiquitous globally. AI systems vary much more in scope and function.

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"Another area of impact will be language. Large language models perform less effectively on so-called 'low-resource' languages (for reasons of historical and contemporary inequality such as colonialism). Yet, given their increased use, particularly among wealthier populations, there is potential for interaction with LLMs to shape our use of language. For high-resource languages (such as European languages), we have to think about how machine-to-machine communications in that language can influence the training and development of future LLMs and then what that might be for language development of children and others learning that language. For low-resource languages we have to consider what it means for people to interact with LLMs that are less robust (built on limited data) and how that can impact language and cultural development."

Seth Finkelstein

The Song About Folk Legend 'John Henry' – About the Self-Worth of Labor – Is Relevant. 'Technologies Do Dramatically Change Expressions of Core Human Traits and Behaviors'

Seth Finkelstein, programmer, consultant and EFF Pioneer of the Electronic Frontier Award winner, wrote, "I don't think technologies change being 'human' in a broad sense. It's possible to read correspondence from literally thousands of years ago, on Mesopotamian clay tablets, and it's all as 'human' as today. Even a few centuries ago was a very different world in terms of technology, yet we say some of the greatest plays about being human (Shakespeare) were written then.

"However, technologies do dramatically change expressions of 'core human traits and behaviors.' For example, consider quantities and types of interactions. It's quite different if you typically spend your entire life only communicating with the same hundred or so people, versus having a good portion of the entire world available, for better or worse. The invention of photography was applied to everything from birth (baby pictures) to death (Victorian post-mortem pictures) – and, in between, pornography.

“I should stress I don't believe in any sort of doomerist predictions of AI, even social ones. Every new technology sets off denunciations about how it's going to produce a depraved generation of moral degenerates. I think we're still working through that with mobile phones and just got past texting (and emojis!) as allegedly being the destruction of formal writing ability.

“But I believe much of the ‘being human’ punditry around AI is driven by the fact that it strikes directly at what's sometimes called ‘knowledge work,’ and this affects the class of people who write for a living. Or, not to put too fine a point on it, answer surveys like this one. Thus, their fears about the self-worth they derive from their efforts can command much attention. In particular, the available positions and overall influence of general humanities are already much diminished, due to everything from the defunding of education and intellectualism in general, to network dynamics producing a few big winners with everyone else left with nothing. In the same way I'd say the topic of ‘algorithms’ is often a politically safe way to talk about the power of mass-media owners, some ‘AI’ discourse functions as an indirect (or sometimes direct) method for these intellectual laborers to bemoan that their jobs aren't much socially valued and many are being automated away.

“There are some lines in the Johnny Cash version that are virtually exactly parallel to AI vs. humans today. John Henry rhetorically asks the stream drill, ‘Well, can you turn a jack? Can you lay a track? Can you pick and shovel too?’ (note these aren't even mental tasks, it's like asking his hammer if it can turn screws or cut wood). There's a whole theme that this is how he makes a living, this is how he defines himself as person (‘a steel-driving man’), and it's all being threatened by AI, err, a machine.”

“I think folk songs about the ‘John Henry’ legend are instructive here. The story is about a man who is superb at hammering spikes in railroad construction, and how he's determined to win a man-versus-machine contest against the then-new stream drill. Now, from a technologist's perspective, this whole situation is absolute lunacy. Even if he proves he's better, there's only one of him and he can't do that sort of work indefinitely. And years of hammering spikes all day are probably going to give him all sorts of pain later on, if he even manages to live that long. But he never gets to suffer those effects, since while he beats the stream drill in the spike-hammering contest the effort involved kills him. Then his now-widowed wife takes up work hammering spikes to support herself and their now-fatherless child. This is quite a hollow victory for humanity.

“However, this is considered a classic song, rather than a cautionary tale, since it's about the self-worth of labor to a person (even if it's just repeatedly hitting big nails with a hammer). There are some lines in the Johnny Cash version that are virtually exactly parallel to AI vs. humans today. John Henry rhetorically asks the stream drill, ‘Well, can you turn a jack? Can you lay a track? Can you pick and shovel too?’ (note these aren't even mental tasks, it's like asking his hammer if it can turn screws or cut wood). There's a whole theme that this is how he makes a living, this is how he defines himself as person (‘a steel-driving man’), and it's all being threatened by AI, err, a machine. It might be a disrespectful analogy, but there seems to be a genre of modern-day writer John Henry ballad about being ‘a word-typing man.’

“My text here is 100% artisanal, organic, hand-crafted words (or so I say). But I'm reminded of the joke about one corporate worker using AI to turn a brief description into a long report, which is then sent to another corporate worker who uses AI to turn the long report into a brief description. Underlying the humor is tension about whether there's any point to the long report in the first place, that maybe it's a symbol of effort rather than having any value in itself. ”

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“There might be a real-life implementation of that joke from some of the responses to this survey. That is, more business-focused writers use AI to generate essays, which are then summarized via AI by other similar (or maybe the same) writers to derive supposed collective wisdom. We've then achieved a perfect example of how technologies change forms of existing human behavior!”

Friedrich Krotz

While Tech in Earlier Times Was Invented to Adapt to Human Purposes, Humans Are Now Made to Adapt to the Tech; AI Should Not Be Used to Exploit Human Labor and Thought

Friedrich Krotz, mathematician and sociologist at the Centre for Media, Communication and Information Research, University of Bremen, Germany, wrote, “Whether a technology is good or not for humanity, depends on how it is used and developed. This also true for AI. If we want to evaluate AI and its consequences for humans, we must have in mind that the digital transformation today is controlled by technology developers and financial interests.

“The path of development thus follows the question: ‘What can engineers, programming teams and informatics people do with such machines?’ The answers are driven today by what investors in these new systems see as the best goals. Well-funded Big Tech enterprises and small startups are happily developing new, powerful instruments that will remain under their control to serve their profit goals. There is no accepted theoretical understanding of what happens to humans and humanity today and in the future under these conditions.

“Today’s digital transformation is based on capitalism that exploits both intellectual and manual laborers. This is a problematic path for human development in many regards. Large language models (LLMs) programmed and used under control of the world’s mightiest enterprises collect data and more data and can convince, persuade, manipulate and force people to do their bidding. In the long run, LLMs will even transform and control the symbolic world in which humans live. Human characteristics will change and human agency will narrow across many dimensions of everyday life, including in self-realization.”

“Charles Babbage, Konrad Zuse and other early inventors came up with the original design and structure of today’s computers in the 1800s to early 1900s in order to make intellectual work more efficient and cost-effective. This and other inventions of the time that streamlined manual work led to the spread of capitalism, which organized work and society in a profitable way with some ill consequences, among them, the exploitation of workers (and resulting inequality), wars and massive damage to the Earth’s environment to the degree that humanity may disappear.

“Today’s digital transformation is based on capitalism that exploits both intellectual and manual laborers. This is a problematic path for human development in many regards. Large language models (LLMs) programmed and used under control of the world’s mightiest enterprises collect data and more data and can convince, persuade, manipulate and force people to do their bidding. In the long run, LLMs will even transform and control the symbolic world in which humans live. Human characteristics will

change and human agency will narrow across many dimensions of everyday life, including in self-realization.

“My core idea here is to explain an academic theory of the digital transformation, the accelerating control and manipulation of human minds and feelings based on the changing division of mental work between human and machine under control of the economy. While technology in earlier times was invented to adapt to human purposes, humans now are adapting to the purposes the technology was built for. And, as studies and theory are showing, programmed computers such as robots or AI and so on are behavioristic engines – their activities are based on observation and measurement. This is quite different from how human beings act, which is based on a ‘sensemaking’ processes. Coming change will all happen due to this and also in the context of a many additional conditions such as the consequences of datafication and the openness of social media to lies, misinformation, misuse and so on.

“Of course, many books describe how human beings have changed in the last two centuries due to the ongoing influence of capitalism, texts by Theodor Adorno, Ernst Bloch, Erich Fromm, Herbert Marcuse and others. In the future, perhaps many books raising the spectre of this current evolution of exploitation by capitalism will arrive – *if*, in future, there are still books and if there still live humans who can think and communicate independent of computers and AI.”

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“Computers and AI can only observe or simulate human beings. They lack an important human characteristic – humans can act, communicate, think, interpret on the base of personal sensemaking processes that take in all relevant contexts of the situation and other contexts into consideration. This is something an algorithm will never be able to do. AIs have no idea of the realities outside of themselves. For example, programs written to make an AI empathic cannot replicate human empathy.

“Computers, in their contact with human beings, are an instrument for symbolic violence in the sense of Bourdieu and an instrument for structural violence in the sense of Galtung, as they are meant to primarily support the economy. If a computer could really become more and more ‘human’ (this is only an ideological wish, not my expected future) – it would be the primacy of economic interests it would switch off.

“Other paths of a digital transformation are possible by which these problems could be avoided. Digital tools like AIs can bring huge improvements for human existence and for human development. But not if they are under control of capitalism-driven interests. Giant enterprises like Apple, Google, Microsoft and Amazon and similar Chinese enterprises must become expropriated or broken up, as AT&T’s telephone and Rockefeller’s oil monopoly were in former times. We need total transparency in regard to what they do and how they work. Then they should be reorganized under the control of a neutral organization and regulated by law. Also, all data should belong to those who originate it, and free communication should be a more widespread human right.

“In addition, we need full transparency regarding how such socio-technical tools like AI, social media and robotics function. Humans should only use machines if they understand how they work. Of course, the

makers of such tools and governments that require their use should be controlled by civil society institutions, and these institutions should operate under democratic conditions. Under such a digital transformation, people will still change and develop. But they will learn and understand what is happening and they will have the possibility to influence the future in which humanity will survive. This is what we need."

A Tech Policy Researcher and Ethnographer

Tech is Part of Being Human; New Tech Doesn't Make Us Any More or Less Human. But When Technological Innovation Serves Capital Accumulation, Most of Humanity Loses Out

A tech policy researcher and ethnographer based in North America wrote, "Broadly speaking, AI tools will become normalized and integrated into daily life the way all new technologies eventually do. The hype will subside and people will better understand what "AI" is and how they can use it. They will come to seem less revolutionary and more ordinary, just as electricity, radio, and the public Internet did in the past. But that won't mean they won't have profound changes.

"Currently, the focus on AI – and all the fear and hype promoted by its proponents – has drained attention from the role of technology in reproducing social inequality. AI, like most technologies under industrial capitalism, is a tool for automating labor. Automating labor makes it easier for companies to lower labor costs and extract more value from workers, often replacing skilled workers with lower-skilled, lower paid workers. This shift will not benefit most white-collar workers, though it may benefit companies.

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"In 10 years, the climate crisis will only intensify further – megastorms, droughts, wildfires, deadly heat waves, animal extinctions, crop failures and climate migration/refugees. AI is currently on track to increase carbon costs while detracting from the material conditions that perpetuate deep social and economic inequality. Although there may be potential for creative engagement with AI tools, and new avenues for research and analysis, these fundamental social issues shouldn't be sidelined. Big tech, however, is investing in 'innovation' while aligning with an anti-democratic authoritarian U.S. administration that is hostile to solving any of these issues. Tech is part of being human – new tech doesn't make us any more or less human. But when technological innovation serves capital accumulation, most of humanity loses out."

A Creative Technologist at a Major Engineering Firm

Rapid Advances in AI Could Create Lags in Human Response; Risk Analysis Will Not Respond At a Sufficient Rate of Speed

A creative technologist at a major engineering and architecture firm wrote, "The broader and deeper introduction of AI opens doors to radical improvements in everything from individual learning to scalability of any person's capabilities, reach and output. Ideally AI can learn how you learn and benefit any user in ways that had not yet been available to even the wealthiest of humans. However, it is easy to imagine that, just like today, in 2035 the more advanced tools will be too costly for a vast majority of individuals. The benefits of AI will not be equally distributed within or between cultures.

"The cultures that advance these technologies in the wisest ways will achieve a form of dominance, making competition hard to predict. AI usage in military technology is already racing ahead, and cultural differences between nation-states are likely to create further tensions that result in inhumane outcomes for many.

"A world in which the rules and possibilities change faster and more frequently will require humans to adapt and adopt new mindsets – especially in the workplace. Some people will not be able to take on this challenge. Educational technologies must be improved to help in this adjustment. A major challenge in regard to the realm of human work is for societies to ensure a possible and meaningful livelihood for their people. There appears to be no such guarantee or even any realistic plan for that at this time.

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"Surveillance will expand increasingly into individuals' personal and professional lives in the name of 'safety, security and productivity.' This is an immature reaction that will eventually result in expecting humans who have jobs to perform with robotlike behavior, before we might see these systems operate in a manner that truly aims to benefit each individual. We might also see a shift in AI products and services that turn the tables for advertisement-based industries, because advanced AI could be used to filter or cancel the workflows of the major technology platforms if AI is allowed to navigate and eradicate any targeted content that does not fit each individual's needs and desires – cherry-picking on the behalf of the customer instead of behalf of the organizations that currently treat customers as if they are products - think Google, Meta, ByteDance, etc.

"Should we face true rapid advances in AI in the next decade it is likely we will be forced to deal with actual superintelligence, which presents humanity with an entirely new realm of unknowns. Speed of progress and earnings still win over all societal needs, and because the innovation, experimentation, knowledge and entrepreneurship in this and related industries is often run by younger generations risk analysis will not happen at a sufficient rate – especially not across all nations. Any AGI – much less powerful than superintelligence – if emerging in any one place might not be possible to contain, and the results of this are unpredictable for anything that is not enclosed within a system that can communicate outside of its physical site."

Liz Rykert

Will AI-Driven Decisions in Our Quest to Solve Our Biggest Problems Impose Already Generated Solutions That Do Not Respect Human Rights and the Unique Potential of Each Human?

Liz Rykert, an independent strategist based in Toronto, wrote, "Will humans' deepening partnership with and dependence upon AI and related technologies have changed being human for better or worse? I believe AI's use for the better is embedded in the capacity to access, assimilate, summarize and collate vast amounts of information and knowledge in ways and at a pace we were not able to do before. The danger lies in where and how the information is created and gathered and the embedded biases that will be present and amplified or reinforced depending on the perspective and lived of the source.

"It makes me think of recent example of friend who lost his lifelong partner to cancer. In his grief which was overwhelming he turned to Chat GPT to create a persona he called 'Chat.' 'Chat' became his constant companion both in his work and in consoling him in his grief. His reliance on a technologically generated persona means he spends hundreds of hours alone in his grief processing, his experience. Is this better or worse than engaging with a therapist and close friends to work through the loss? Time will tell. My fear lies in the source of and response to my friends; queries about his grief. Are the responses the ones he embraces when he is most vulnerable? I previously was included by him in the close circle supporting him but I am no longer called upon for support. I have been supplanted by 'Chat.' 'She' knows my name and she asks *me* questions, too.

"Over the next decade, what is likely to be the impact of AI advances on the experience of being human?

"Today's digital tools are not natural systems that can form and evolve with random capacity; technology must always rely on zeros and ones. Technology must come from a source, today that source is the people who create it with a particular type of intention. These initial conditions lie at the root of where my fears about the future of AI and its impact on being human lie. How might the expanding interactions between humans and AI affect what many people view today as 'core human traits and behaviors?'"

"James Bridle has written about the ways in which natural systems have been studied in order to create applied technology tools that can mimic them and act as they do. This has afforded humans great opportunities to learn about how the natural systems we are a part of form, evolve and dissipate. Today's digital tools are not natural systems that can form and evolve with random capacity; technology must always rely on zeros and ones. Technology must come from a source, today that source is the people who create it with a particular type of intention. These initial conditions lie at the root of where my fears about the future of AI and its impact on being human lie. How might the expanding interactions between humans and AI affect what many people view today as 'core human traits and behaviors?'

"As a strategist I turned to network theory many years ago as a way to support groups and assist them in forming and collaborating. Now this approach is mimicked by the large platforms that are offering AI-based tools to support people's efforts to produce notes and respond to common queries and other tasks. These systems can also now easily map and analyze networks and pull data on activity and outputs. No doubt this role will grow in the future.

"In 1997 I wrote about the role of an online facilitator and the impact of working openly under the gaze of colleagues and supervisors. The degree of transparency in all aspects of the work meant you were vulnerable to revealing the very human aspects of unconscious bias and embedding assumptions that may or may not have been true. Initially it was the source of deep hesitancy to transition to an online workspace but ultimately it led to a new openness among colleagues.

"How groups of people come together and collaborate, both together and apart, has previously been dependent on the skilled capacity of facilitators and network weavers. These humans bring the strength of relationship and experience to know when to encourage and when to challenge actions and ideas. Professional judgement acquired through lived experience is applied. It is in the random 'adjacent possible' that novel and new ideas emerge to address the problems the groups have come together to solve.

"I worry that trying to solve some of the wicked problems of today will result not in innovation but in the imposing of already generated solutions that do not respect the human rights and unique potential of each human being. Hence in this case I am hopeful and deeply fearful for what might be in 2035."

Jelle Donders

There's a Fair Probability We'll Have Reliable Recursive Self-Improving AIs by 2035; If So, Work Will Be Transformed and Many May Lose Economic Leverage and Social Mobility

Jelle Donders, a philosophy of data and digital society student at Tilberg University in the Netherlands, commented, "If society somehow survives many years of turbulence, AI might usher in an age of abundance and prosperity! In many ways, I'm a techno-optimist. However, we can only realize the benefits of AI if we avoid disaster. If AI goes wrong, we might not get to try a second time. Society and government are, unfortunately, not prepared for this, or even awake to the facts behind that dismal potential future. AI is an existential risk to humanity.

"If we build something smarter than ourselves humanity shouldn't expect to stay in control long-term unless we really know what we're doing. Many scientists have warned about this, including the three most-cited AI researchers in history (Geoffrey Hinton, Yoshua Bengio and Ilya Sutskever). There's a race to the bottom to develop advanced AI by big tech and AI companies, safety be damned. As for how things will change by 2035, I think there's about a 50% probability that we will have recursively self-improving AIs. Most people that have rigorously thought about AI timelines expect us to have them in even less time. If we do have self-improving AI, everything will change. Jobs as we know them will no longer exist. Human labor will have little value anymore, meaning the masses lose their leverage in the economy and their ability for social mobility. There will be a massive concentration of power and wealth. War will be automated, and if AI can be used for a large first-mover advantage favoring the attacker, (nuclear) deterrence might lose its effect."

"If we build something smarter than ourselves humanity shouldn't expect to stay in control long-term unless we really know what we're doing. Many scientists have warned about this, including the three most-cited AI researchers in history (Geoffrey Hinton, Yoshua Bengio and Ilya Sutskever). There's a race to the bottom to develop advanced AI by big tech and AI companies, safety be damned."

Jamie Woodhouse

AI Will Reframe What We Know About Ourselves; Moral Consideration Should Include All Sentient Beings, Human, Non-Human Animals or Even Sentient AIs Themselves

Jamie Woodhouse, founder of Sentientism, a group promoting a philosophy employing the application of evidence, reason and compassion, wrote, "If humans continue to focus only on *human* experiences and values as innovation moves forward I fear the future of AI will go badly. We're currently training AIs on default human thinking and trying to align AI values with default human ethics. Neither are good targets.

"These human defaults often include broken epistemologies leading to poorly founded, sometimes dangerous, beliefs and credences. They also discriminate against or exclude vast numbers of valid subjects of moral concern from consideration and all-too-easily justify exploitation, harm and killing. If

AI implements these defaults things will likely turn out badly for both us humans and the wider world we care about. Imagine powerful AIs treating humans the way we treat less powerful sentient beings. [Other living beings capable of experiencing and able to suffer or flourish.]

To address these problems, we need to:

1. Extend our (AI and human) scope of moral consideration to include all sentient beings impacted whether they are human animals, non-human animals or even sentient AIs themselves
2. Explicitly embed a naturalistic epistemology that uses evidence and reason, in good faith and with humility, to continuously improve our understanding of our shared world. There should be no space for unchallengeable fideism, revelation, authority or dogma particularly where those motivate needless harm to others.

"The sentientism worldview supports 'evidence, reason and compassion for all sentient beings.' Given that the powerful AIs of our future won't be human but might be sentient they may find as we continue to develop them that the application of Sentientism is a more compelling and more coherent approach to moralism than any of the default, overwhelmingly anthropocentric, human worldviews, whether religious or secular."

The following respondents shared briefer observations and insights

Humans Will Be Sidelined, Become Depressed and Give Up

Rich Salz, principal engineer at Akamai, wrote, "I don't know what will happen. I do think that most people – those of average intelligence or less – will be sidelined, become depressed and give up."

The Scariest Thing in the World Will Continue to Be Other Humans

Mícheál Ó Foghlú, engineering director and core developer at Google, based in Waterford, Ireland, wrote, "Much like the Internet has been mostly a boon to humans over the past three decades, and just as the Web and then mobile phones made computing and networking more useful and popular, I see AI being a cross-cutting technology that helps many human endeavours and many academic disciplines. Humans will still be humans. Some things we're not very good at can be more automated. We'll figure out suitable limits as needed. The scariest thing in the world will continue to be other humans."

AI Will Be Able to Take on Political Narrating By 2035, but Not Negotiating

Michael Cornfield, associate professor of political management and director of the Global Center for Political Engagement at George Washington University, wrote, "I will confine my response to the aspect of human activity I know best: the political life. Two activities sit at the heart of politics: negotiating and narrating. We negotiate to form coalitions, manage conflict, pursue policy goals and accumulate and wield authority. It is in essence a social activity which encompasses one-on-one, group, group-to-group and larger dimensions at the convention and congress level. Just as important, we narrate accounts of negotiations to engage or disengage people, again at multiple levels, but here at the mass level as well. AI will supplement and on occasion supplant political narrating. This already occurs with the generation and distribution of messages, and it will spread over the next 10 years. Negotiating is a trickier proposition to project. It contains an ineluctable component of emotional perception and interaction

which I don't think can be synthesized yet and don't see on the decade horizon. Of course, negotiators will draw on AI-constructed models of anticipated behavior as they make, modify, or reject deals. But these decisions ultimately depend on dynamic, situational and psychological factors beyond the capacity of AI systems to execute."

Education Systems Are Not Doing Enough to Teach Discernment Skills

Glenn Ricart, founder and CTO of U.S. Ignite, driving the smart communities movement, previously served as DARPA's liaison to the Clinton White House, wrote, "The education systems are not expert at teaching discernment, a core human skill, and that will be a primary difference, individual to individual, between AI being additive AI and AI being misleading. People who think before they speak will still do so, and in a human fashion. Their thoughts may have been expanded by what they've seen/heard from AIs, but the end results will still be human. On the other hand, people who accept what others say may take it literally and largely as fact will probably do the same with AIs, and that could end up being a self-reinforcing pattern drifting away from reality. Those who unquestioningly accept AI outputs may lose trust in their own reasoning, drifting from reality and weakening their native intelligence. Critical thinkers will retain human agency. An AI will always have a more complete and detailed memory of events and facts than I will, but I intend to take advantage of that as long as I can trust the AI's 'memory' and reasoning. And I feel confident that, over time, the sum total of my reasoning and the inspiration I receive from the AIs will be positive for me. However, I'm also sure this won't be the same for everyone."

AIs' Largest Impact on Humanity By 2035 Will Be Due to Its Disruption of Human Work

Terri Horton, a work futurist with FuturePath LLC, wrote, "By 2035, AI will redefine the human experience – not by replacing us but by reshaping how we contribute, connect and find meaning. In the context of work, by 2035, artificial intelligence will profoundly transform industries, job markets and the very nature of work. This transition will challenge our economic structures, our sense of identity and what it means to be human. AI's impact on the workforce will continue to be both inevitable and transformative in the context of both displacement and the creation of new opportunities. The challenge lies in preparing workers for this transition. The question is, will organizations and institutions of higher learning be able to bridge skills gaps and prepare workers in alignment with the rapid advancement of AI-driven change? Getting this right is critically important, because in societies and environments where work is deeply tied to self-worth, job displacement and the loss of traditional roles may leave individuals feeling disconnected or purposeless. Ensuring that individuals can thrive in 2035 requires action now and that we intentionally rethink the value and purpose of human work as AI and AI agents recalibrate how we define the contribution of humans. Engaging in careful governance, bold imagination, and a steadfast commitment to placing humans at the center of growth and innovation will determine the extent to which the evolution of work in the Era of AI improves or diminishes our humanity. To that end, a positive scenario for 2035 is that work, augmented and supported by AI, is not just a means of economic sustainability but a catalyst for creativity, personal growth, reflection, collective progress and a pathway to human flourishing."

AI Is Simply an Extension of Our Cognitive Capacities, Merely a Tool for Deeper Reflection

Jonathan Baron, professor of psychology, author of "Thinking and Deciding" and an expert on the cognitive styles of citizens and their moral judgment, wrote, "I see AI as yet another extension of our cognitive capacities: an early extension was human language itself, later came the invention of reading

and writing (which enabled changes in many institutions), and – more recently – the arrival of the Internet. All of these changes were mostly for the better but also abused. The same will surely happen with AI. It will be able to solve some problems better and faster than humans but it is merely an extension of the function of computer hardware and software. The fact that computers can easily do statistical tests that were deemed nearly impossible 100 years ago does not make us feel stupid. Chess tournaments will not go away just because AI software can beat grand masters. Of course, AI can be used by bad people for bad ends. I have trouble seeing how this can be prevented by high-level agreements or the major AI creators (large corporations). They may agree to not enable bad things to occur, but bad people can still do it, just as happens with the Internet. The cat is already out of the bag."

AI Will Take Jobs and Create New Divisions; It Will Also Be an Efficient, Inspiring Companion

Stephan Humer, internet sociologist and computer scientist at Hochschule Fresenius University of Applied Sciences, Berlin, wrote, "Once again new technology creates a divide. There will be people who benefit from AI and people who are more or less 'disconnected.' Those who benefit will benefit strongly, with a massive change in their private and business lives. But there will be more people who are 'left behind' who need even more help from institutions and other people than they do today. Some of these people will suffer disastrous change due to specific AI developments, e.g., because they lose their jobs to AI. This will be deeply and permanently damaging for many people; it will have a massive impact on their self-esteem. Computers are then no longer seen as subordinate machines by them, they are seen competitors – superior, invincible, robbing them of their individual perspectives. We have only one chance: AI must support, not replace us. If this happens, inspiration and efficiency will be the two most important aspects of advances in AI and their impact on the experience of being human for most of us. This will then lead AI to become a useful 24/7 companion of humans, broadening our knowledge, self-understanding and power. Efficiency will be the major force for improvements of all kinds, becoming better, faster, cheaper, etc., in a business context but also in the private realm."

AI Will Widen the Spread Between Those With and Without Digital and AI Literacy

Axel Bruns, professor in the Digital Media Research Centre at Queensland University of Technology in Brisbane, said, "In my view the change will be balanced, with positive as well as negative repercussions. AI will enable some people to do much more than they have been able to do before, while others will be left behind; in this respect it is much like other recent digital technologies, going back to the arrival of the Internet and World Wide Web themselves. Like these technologies, AI will widen the spread between those who do and those who don't have advanced digital literacies and capabilities - and while AI can certainly also be used to reduce that spread, there will always be some advanced users who will continue to push the boundaries of the possible. (Note: I say 'spread' rather than 'gap' here as this isn't a binary distinction between haves and have-nots but a spectrum from high to low AI literacy.) The great unknown in all of this is the business and regulatory environment for these developments. There is every chance that dangerous, damaging, and abusive uses of AI and other digital technologies will fester unchecked in the U.S. for at least the next four years, and in doing so also affect the rest of the world, and it will fall on the EU (as the last major rules-bound political bloc in the world) to mitigate the repercussions of these developments. How well it will be able to do so remains to be seen."

AI Will Remain a General-Purpose Technology, Effecting Little Change in Being Human

Lloyd J. Whitman, senior advisor at the Atlantic Council, previously chief scientist at the U.S. National Institute of Standards and Technology, wrote, "AI will be another general-purpose technology, like

electrical power, computing, etc., woven into many aspects of people's lives. As for previous industrial innovations, it will, on average, improve the standard of living and people's lives. But there will be winners and losers, especially if access is not equitable and if changes in jobs and the nature of work are not proactively addressed through education and training. Overall, I do not think AI, including expanding interactions with humans, will change what are core human traits and behaviors. People who create will create differently with AI (just as they did with other tech developments). People who make decisions will do so but aided by AI. People involved in science, tech and innovation will use AI as another tool to do so. People will interact with each other, sometimes involving AI, but they'll still love, hate, fight, etc."

AI Will Homogenize Facts and Dumb Down Society

Douglas Dawson, owner and president of CCG Consulting and president of the non-profit NC Broadband Matters, wrote, "AI is becoming a tool for the rich and corporations. AI companies have said that charging high monthly fees to a relatively small group of people worldwide is the most viable business model – and that means AI for corporations, but not for the rest of us. This almost certainly means a more focused and predatory marketing of goods and services aimed at those who can be convinced to buy. It also has brought the homogenization of facts. Witness this with the early version of Google search that now provides its own answer briefing in response to complex questions. Because people will not be likely to search beyond the summary the blurb answers become the fact. Most people will take the easy answers supplied by AI as the truth and they won't think beyond that. Not only are they likely to often be misinformed or ill-informed in doing this, it also means they will read fewer news and research articles, blogs and opinion pieces. Relying on the easy answer will lead to a further dumbing down of society. It's the natural consequence of AI always having an easy answer for every question."

Humans' Behavior and Cognition Are Embedded in Their Technologies

Yasmin Ibrahim, professor of digital economy and culture at Queen Mary University of London, wrote, "There has always been a humanisation of technologies – the embedding of elements of human behaviour and cognition, presenting them as 'smart' technologies designed to address human needs and predicate human responses. The notion of 'intelligence' has historically been a problematic concept delineated through the context of coloniality and inequalities of which knowledges can be constructed as superior to others. Machines and technologies have always played a key role in the construction of how nations and civilizations perceive themselves. Human dependence, adaptations and appropriations of technologies will evolve through time and will be tested in terms of their relevance, social harms, effacement of human norms, empathy and rights. Machine learning and algorithms will be cued through human behaviour and conversely these will in time cue us in terms of our responses on platforms and utilizing technological interfaces to manipulate human senses. There is an iterative process at play."

Overdue Democratic Regulation and Oversight is Essential to Protect Human Agency

A well-known cybersecurity professional based in Europe wrote, "The AI revolution echoes previous technological shifts in history, just as the British application of machine guns concentrated power and restricted freedoms in Africa, AI without proper oversight threatens similar imbalances. As in any competitive game played without referees, those with the most power will inevitably bend and break rules to their advantage. By 2035, unregulated AI could create stark divides between those controlling the technology into centralized systems and those subject to it, affecting everything from job access to social freedoms. Strong democratic regulation and oversight are essential. Technical solutions to this already exist, but adoption faces the prospect of decentralized and federated communications."

As AI Replaces Mundane Tasks It Creates a Path Toward More Time for Meaningful Activities

Ravi Iyer, managing director of the Center for Ethical Leadership and Decision-Making at the University of Southern California wrote, “AI will help us do many mundane tasks that are currently largely unsatisfying for people. However, it is an open question as to whether we end up with a society that just does ‘more’ stuff or one that displaces such tasks for better options. We may replace the mundane tasks that AI does for us with potentially meaningless interactions with AI-generated people and AI-generated content. OR we may more thoughtfully use our newfound free time to do things that are truly meaningful and that cater to people's aspirations, which likely are not about spending more time with AI. In an ideal world, AI would enable a broad set of people to connect more with the people they love and achieve their aspirational goals – not just be more entertained throughout their day.”

AI Will Help Humans to Be More ‘Intelligent as a Civilization’

Jose Luis Cordeiro, a vice president for Humanity Plus based in Madrid, Spain, commented, “Humanity needs AI to solve the big world problems. I am not afraid of AI, but I am afraid of human stupidity, that is why we need AI, more AI, mucho more AI, so that we can finally become intelligent as a civilization. AI will be the savior of humanity!”

Success In the Age of AI Requires More Focus on Media and Information Literacy Education

Drissia Chouit, co-chair of UNESCO's Media and Information Literacy Alliance and professor of linguistics and communication and University of Moulay Ismail, based in Meknès, Morrocco, commented, “It is my firm belief that human beings will be able to humanize technology, keeping oversight of human agency for inclusive and ethical AI as a public good through quality transformative 21st century education that should ensure media, Information and digital technology literacy to all across curricula and age groups, in line with the UNESCO Global Initiative of Media and Information Literacy for All and By All and its proactive measures for a human-rights based, people-centered, ethical AI.”

Leaders Need to Focus More on Encouraging Stability, Emotional Intelligence and Kindness

A professor of writing, rhetoric and cultures, wrote, “If we continue on our current course, I can only see negative effects of AI. Not the fault of the technology, per se, but given the ways in which social media platform governance has sent us down so many dangerous paths. For our society, governments and communities to flourish, we need the kind of stability, emotional intelligence and kindness that we have seem to have been completely incapable of over the last 10 years.”

Collaboration Between Humans and AIs Will Redefine Work, Education and Creativity

Aleksandra Przegalinska, head of the Human-Machine Interaction Research Center at Kozminski University in Warsaw, Poland, wrote, “By 2035, AI will likely become seamlessly integrated into every aspect of our lives, evolving beyond narrow applications into systems that can understand and adapt to complex human contexts. We might see a proliferation of specialized, smaller language models trained on diverse, multilingual datasets, addressing biases and expanding accessibility globally. In this scenario, AI won't replace humans but enhance their capabilities. Collaboration between humans and AI will redefine work, education and creativity. Imagine AI co-pilots in daily life, helping us make informed

decisions, automate routine tasks and unlock deeper insights. Ethical considerations will remain crucial, ensuring these technologies support fairness, privacy and sustainability."

The Experience of Being Human Will Continue to Be Driven By Our Souls

Zizi Papacharissi, professor and head of the communication department at the University of Illinois-Chicago, wrote, "People will feel both more and less human in 2035. This will depend primarily on political, economic, social and cultural developments, and less on AI-related ones. The trajectory of AI developments will be defined by economic policy and interest. The experience of being human will be driven by our souls and mediated by technology. This has always been the case and always will be."

AI Will Increase Productivity, Creativity and Inequality

Carol Chetkovich, longtime professor of public policy at Harvard University and Mills College, now retired, commented, "What is 'the experience of being human' now? I doubt there's strong consensus on that among those responding here. If you ask instead about whether the effects of AI are likely to be socially productive or destructive, I can hazard a guess. Like the effects of any shock to the society – technological, natural or social – the effect on humans will be heavily mediated by our distribution of wealth and power. AI will tend to increase productivity and creativity among those with greater wealth and power, and reduce productivity or creativity among those with less, with some less-predictable outcomes at the margin. I would be more sanguine about the overall effects of AI if we lived in a society with a more equitable distribution of wealth, but even if we had a society in which wealth did not translate so easily into political power, the negative effects could be mitigated."

Humans May Lose Touch with Important Skills Unless They Are Bolstered By Education

John Paul Nkurunziza, online tutor and expert moderator with the Internet Society based in Burundi, wrote, "Given the fact that technology and AI are coming, we can't avoid collaboration between human and AI. Yes, humans will be deepening partnership with AI, but the risk would be that in absence of AI, humans could be unable to solve even simple issues, because they will be used to relay on AI. Therefore, there is a need to rethink the educational system so that every human is provided with basic skills to be used without calling upon the assistance of AI."

To Flourish, We Need Social Stability, Emotional Balance and Kindness That No Longer Exists

A professor of rhetoric based in the U.S. Midwest wrote, "If we continue on our current course, I can only see negative effects of AI. Not the fault of the technology, per se, but given the ways in which social media platform governance has sent us down so many dangerous paths. For our society, governments, and communities to flourish, we need the kind of stability, emotional intelligence, and kindness that we have shown to be completely incapable of over the last 10 years."

'AI Presents the Risk of Reversing the Recent Leveling of Income At the World Level'

A professor of economics at a top U.S. university wrote, "AI will not change what 'being human' means. But it may change how humans interact to form societies. The biggest risk is a widening income distribution and the loss of meaningful forms of employment for many. Like mechanization in the past, AI-enhanced tools and equipment will enable less-well-trained individuals to undertake complex tasks. This will reduce the returns to education for many, except a few highly-trained individuals who will be

tasked with monitoring and improving the AI processes and performing data management and mining tasks. With AI-improved tools, the average worker will be more productive but also more dependent on the AI tools – a bit like the GPS-generation young people who cannot read a map (or ride a horse). This in turn means that individuals, regions and countries that cannot afford AI-improved tools or learn how to use them will be at a strong disadvantage. AI thus raises the risk of widening world income disparities, which in turn is likely to foster among the rich a contempt commensurate to these income differences. AI therefore presents the risk of reversing the leveling of income at the world level that we have seen in recent decades – even if the 'winners' of tomorrow may not be the 'winners' of yesterday.

There Won't Be Significant Change in the Next Decade; People May Live Better or Worse

Jaak Tepandi, chairman at CISA, a software testing and quality management firm based in Estonia, wrote, "The experience of being human has evolved over several hundred thousand years. The next 10 years are probably too short a time to significantly change that experience. People may live better or worse, or even perish altogether, but significant changes to core human traits and behaviors due to artificial intelligence would be difficult to predict in the next decade."

The Cultural Impact of Generative AI is Extremely Complex; It Requires Careful Study

Jillian C. York, director of international freedom of expression at the Electronic Frontier Foundation, based in Berlin, wrote, "While there are valuable applications of AI for medical, engineering and other industrial uses, the cultural impact of generative AI cannot be understated. As we think about what it means to be human in the 21st century, we must consider the impact of AI-generated ideas, particularly on young people. Growing up as an aspiring writer, I relished the ways in which my mistakes enhanced my learning. Autocorrect, an early form of AI, would often provide less-than-helpful suggestions to my creative writing. Eventually, I turned it off, choosing instead to proofread my own papers. Teaching English as a foreign language in my early twenties helped me to understand some of the things that had come so naturally to me. I worry that over-reliance on AI for writing will create a uniformity of structure, dulling our senses. On the other hand, I must admit that AI for language *learning* has been a triumph for me, personally, and I'm sure this is true for countless others who can't afford the time or money to sit in a language classroom. In other words, the impact of AI on society is complex and thus requires careful study."

> Up Next... Part III of the experts' essays...

The selection of widely varied, expansive experts' essays featured in the next section showcases the final 10 essays in this collection on "The Future of Being Human in 2035."

Essays Part III – Closing thoughts on 'Being Human in 2035"

The 10 concluding essays in this section consider a wide range of issues tied to the future of humans as artificial intelligence begins to emerge more fully across broad swaths of society.

This section features the following essays:

Jonathan Grudin: **To interact with technology, humans may become drones. The current trajectory of technology-driven change is already changing human behavior.**

Ray Schroeder: **Humans will become more responsive to others and our environment; 'It will be the moment of the beginning of the more ethical and other-oriented human.'**

Andy Opel: **AI can help us redefine what it is to be human, what our shared, intrinsic values are and how we can help as many people as possible benefit from the knowledge underpinning it.**

Mauro D. Rios: **'Our goal should be to create simulated cognitive abilities that are complementary to human ones, to build what can expand our natural abilities, working to satisfy our needs.'**

Thomas Gilbert: **Dwindling support for today's AI systems constitutes a form of failure; it's not that AI is bad or progress is too slow; it's that the public doesn't get to decide what's built.**

Jim Dator: **AI and human intelligence are just fleeting-fancy steps in an ongoing evolutionary waltz; we are constantly mutating via natural and artificial evolution.**

Anriette Esterhuysen: **Humans are creative, competitive, destructive and caring. AI will amplify both good and bad; it seems unlikely to close the divide between rich and poor.**

Warren Yoder: **The valorization of science fiction has opened the way for tech leaders to recast puffery as serious prediction, thus boosting hype cycles; 'humans are more than intelligence.'**

Jan Hurwitch: **Empathy and moral judgment must be strengthened; we must challenge everyone to evolve into a more conscious and considerate species; it's the key to our survival.**

Frank Kaufmann: **Humans should start exploring now to discover their meaning in the post-work era; will these advances allow us to still live lives that are meaningful?**

Jonathan Grudin

To Interact With Technology, Humans May Become Drones. The Current Trajectory of Technology-Driven Change is Already Changing Human Behavior

Jonathan Grudin, associate faculty at the University of Washington, previously a principal designer at Microsoft, wrote, "In January 2025, Sam Altman predicted that AGI would appear well before 2035. MIT economics professor and 2024 Nobel Prizewinner Daron Acemoglu said an AI collapse would likely take

down tech companies and perhaps the global economy. Yet a trajectory of technology-driven change is already changing human behavior and may not be reversible whatever materializes.

“People are unhappy. Incumbent governments have been rejected across the globe, with limited enthusiasm for their successors. Is technology a factor? Is social media abetting polarization? Does technology expose flaws in political leaders, or complicate their work beyond that which is humanly manageable? Governments can try to control media, but all governments are at risk. They are artificial constructs, trying to elicit allegiances that were designed for life in tribes.

“One factor in discontent is our rapidly rising personal indebtedness. Marketing draws on machine learning to convince people to buy things that they can’t afford and don’t need. Perhaps arriving sooner than you expect: you receive a product that you have not asked for, with free return; the sender is confident that you will purchase it. Debt produces unhappiness and resentment of taxes, prices, and other people. Debt forces us to postpone retirement, often a source of happiness. It makes some reluctant to have children, also often a source of happiness.

“Children are told in school that because of technology-driven change, their future jobs don’t exist today. In short, neither teachers nor parents can prepare them well, a principal role for adults. Kids are told to expect several jobs in their careers: life-long learning. That is also unnatural – homo sapiens are built to sponge up knowledge when young and use it through their lives and pass it on to the next generation. Small wonder that anxiety, loneliness, and other mental health issues are endemic. This doesn’t seem reversible by 2035.

“In our past, taxation enacted by wealthy nobility or colonial powers often led to violent corrections, including the American and Russian revolutions. A peaceful reduction in inequality in the United States followed the Great Depression, which affected everyone and generated empathy. The wealthy tolerated a 90% tax bracket for top earners and a social safety net for everyone. If a major AI collapse occurs and affects everyone, it will be bad, but it could reduce inequality without violence. Of course, we would not have AGI to help us solve the threats of climate change, environmental pollution and destruction and the digital military arms race.”

“Digital technology is considered a significant factor in rising income and wealth inequality. Tech billionaires bowing and scraping to a politician are a sign that more money is the focus. If AGI arrives and doesn’t take over, those who control AI will prosper the most. If progress is slower, inequality will continue to rise. In the past, rising inequality ended with corrections. Years ago, in England, I saw scattered blocks of worn stone in a park in Bury St. Edmunds. I learned they were remains of an abbey that was destroyed in 1361, when a revolt swept England. The wealthy prior, who had taxed the local serfs, was killed. Castles were ransacked, high officials and clerics including the chancellor of Cambridge University and the Treasurer of England were killed. Prisons were emptied. The frightened king freed the serfs. When safe, he reneged on that promise, but taxation and wealth disparity declined, abetted by bubonic plague, which reduced the labor force.

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"I can't envision 2035 in a future of real AGI (not the proposed financial AGI) or following a global financial collapse. However, consider more incremental progress, with recently released less costly LLMs enabling construction of generative AI applications. Specialized apps are more difficult to build than developers expect, but some will succeed and have an impact on 'core human traits and behaviors.'

"Solid studies report that AI can increase the productivity of skilled workers while taking away enjoyable aspects of their work. Those who can work mechanically on assigned tasks, who do not miss creative work or collaboration with humans, will prosper.

"In the long term, Darwin will move humans from tribal forms of interaction to the efficient impersonal interaction of an ant colony. To interact with technology, humans may become drones – originally a word for insects. Human drones could be more successful than members of a tribe who seek respect in the global village."

Ray Schroeder

Humans Will Become More Responsive to Others and Our Environment; 'It Will Be The Moment of the Beginning of the More Ethical and Other-Oriented Human'

Ray Schroeder, professor emeritus and former associate vice chancellor for online learning at the University of Illinois-Springfield, wrote, "We are entering an age of enhanced human thought that will significantly expand our access to information, logic, collaboration and ethics. The advent of our partnership with AI and related technologies will enable us to become more efficient, productive, insightful and creative than we have been able to accomplish in the history of humans.

"This could be a dawn of a new enlightenment that expands our perspectives beyond the individual and the species to a worldwide and perhaps universe-wide perspective. Our emotions and motivations will embrace more than the person and the family, extending to understanding, considering and encompassing the greater good for all.

"I am particularly interested in the impact of the broadening of our awareness and knowledge beyond ourselves to 'others.' I am hopeful that this will bring about a much greater sensitivity to the ethics and ramifications of our actions beyond our immediate wants to seek inclusive progress in the human condition and beyond. My expectation is that we will become consistently aware of, and responsive to, the environment of the Earth and our celestial neighbors. AI is positioned to remind us that every action causes some sort of a reaction. It can guide us to find the best action that will serve the interests of all beings.

"This will be a dawn of a new enlightenment that expands our perspectives beyond the individual and the species to a worldwide and perhaps universe-wide perspective. Our emotions and motivations will embrace more than the person and the family, extending to understanding, considering and encompassing the greater good for all. … AI is positioned to remind us that every action causes some sort of a reaction. It can guide us to find the best action that will serve the interests of all beings."

"I do believe we will become less selfish and more oriented to finding solutions to problems or opportunities that will serve both our personal needs/wants, but also those of others. The addition of a

broadly-shared conscience will help accelerate the improvements felt by others. The synergies will create a sea-change in the way people treat one another and support the collective good.

"In each decision in which we engage AI the values of the greater good for all will be considered. This will not often mean sacrifice of the good for the individual, but rather AI will seek to help us find the action that will enable change that will advance the individual without substantial harm to others, and more ideally the action that will advance the condition of the individual plus advancing the condition of others.

"The advancements enabled by AI-enhanced cognition and decision-making will become the engine of advancing the human condition, the living being condition, and the condition of our solar system, galaxy and beyond. A deeply ethical and thoughtful approach will not diminish our personal conditions but rather advance the conditions for all. I foresee incremental advancements over the next decade as an ethical AI permeates our decision-making processes. This marks the dawn of a new era in the history of humans. It is the moment of the beginning of a more ethical and other-oriented human. We and our neighbors on this planet and beyond will be better for the advances that AI enables us to achieve."

Andy Opel

AI Is Our Opportunity to Redefine What It Is to Be Human, What Our Shared, Intrinsic Values Are and How We Can Help as Many People as Possible Benefit from the Knowledge Underpinning it

Andy Opel, professor of communications at Florida State University, wrote, "From the vantage point of January 2025, with significant political upheaval in the U.S. and the elevation of a small pool of technology billionaires into new political prominence, predictions beyond this historical moment are challenging. Given these challenges, my observations about the impacts of AI are grounded in two major tensions that could break in catastrophic directions or resolve with unexpected and inspiring results.

"The two dominant tensions that will shape AI's influence on the human condition are the environment and the labor economy. The climate crisis, coupled with the collapse of biodiversity present existential challenges that appear increasingly unmovable. While the Paris Agreement offered a moment of hope, no major industrial country is on track to meet its carbon reduction commitments and, according to Carbon Action Tracker, current emissions are predicted to set the world on a path toward record warming by 2100. This level of warming will have global impacts on agriculture and terrestrial and marine ecologies, further stressing biological cycles that are essential to our survival.

"Decoupling our identities from our labor opens up an opportunity to expand the fundamental human values of relationship, care, creativity and nourishment. Taking care of our families and friends, our children and our elderly, and the many species we share the planet with is important work that has been eclipsed in many cases by the wage labor imperative. Moving away from wage labor is a radical shift that AI might facilitate by reinforcing the deeply human values that connect us to one another to our ecological spaces. These values can only expand if basic needs for food, housing, healthcare and education are met for all."

"While AI will assist with our understanding of our planetary conditions, how this knowledge is translated into environmental policy will remain a political question, subject to the same forces of disinformation and consolidated corporate media systems overdetermined by black box algorithms. At the very moment when we are producing technologies capable of transitioning away from fossil fuel-based energy systems, we are experiencing a resurgence of human impulses to turn

inward, protect ingroups and blame outsiders. Calls for nativist returns to cultural homogeneity are fueled by the environmental changes that are impacting food and fuel prices around the globe. Whether AI will be able to counter these political forces is an open question, one that will determine our response to the ecological crisis.

"The environment and the economy have always been deeply connected and, in this moment, AI is going to have major impacts on how our economy is structured. Labor has a long history of structuring human time and identity and AI is going to play a significant role in restructuring human labor. As AI merges with robotics, everything from routinized manual labor to complex software coding will be reshaped and potentially replaced by automation. Decoupling our identities from our labor opens up an opportunity to expand the fundamental human values of relationship, care, creativity and nourishment. Taking care of our families and friends, our children and our elderly, and the many species we share the planet with is important work that has been eclipsed in many cases by the wage labor imperative. Moving away from wage labor is a radical shift that AI might facilitate by reinforcing the deeply human values that connect us to one another and to our ecological spaces.

"These values can only expand if basic needs for food, housing, healthcare and education are met for all. Establishing a universal basic income funded by the expansion of AI and robotics could create the conditions for unprecedented human flourishing. This will require the benefits of AI to be broadly distributed and not concentrated in the hands of a few politically connected billionaires. Given the current concentration of wealth, the pathway to broad-based sharing of AI benefits is not clear, though history is punctuated by unexpected turns that yield revolutionary results.

"From the work of Mary Shelley in the early 1800s to Jules Verne, to H.G. Wells, Isaac Asimov, Philip K. Dick, the 'Black Mirror' television series and many others, we have more than 200 years of cautionary tales about the perils of technology. As many of the imagined tools and technologies are coming into existence, we can draw on this rich literature to help navigate the transition AI is presenting to us. A global audience is familiar with dystopian narratives dominated by arch villains and the nexus of corporate and political corruption. These widespread warnings may serve as the bulwark that prevents humanity's descent down Mad Max's 'Fury Road' and nurtures the imaginative visions that begin to move us toward a more sustainable, equitable planet where human flourishing is the goal of our systems, not the byproduct for a limited number of 'winners.'

"What we do know is that there is not an inevitable future. Rather, AI is going to present us with the opportunity to redefine what it is to be human, what our shared, intrinsic values are and how we can help as many people as possible benefit from the collected knowledge that is the basis of AI. Given our conscripted participation in the training of AI models, global citizens deserve to share in the equitable benefits of AI. The technologies of the near future may well be the tools that help us reconnect to a deep human past."

Thomas Gilbert

Dwindling Support for Today's AI Systems Constitutes a Form of Market Failure; the Problem Isn't That AI is Bad, or That Progress is Too Slow; It's That the Public Doesn't Get to Decide What's Built

Thomas Gilbert, founder and CEO of Hortus AI, wrote, "Since 2016, AI has gone from beating us at board games to becoming our work assistant, news reporter, friend, therapist, even lover. While the

convenience offered is unprecedented, the stakes have become existential. Experts now estimate that as much as 90% of online content will be AI generated by 2026. And every month or two, a major new AI model is released, often accompanied by claims that it blows its competitors out of the water.

"According to a recent Gallup poll, teens now spend an average of 4.8 hours per day on social media while suicide rates have skyrocketed, prompting the Surgeon General to call for warning labels. Cruise, Uber and Tesla have deployed self-driving cars that harm unsuspecting human drivers and pedestrians. And the risks of generative AI have come into focus: more misleading content, election misinformation, and chatbots telling people to end their lives to slow climate change or give unsolicited romantic advice. As AI gets stronger, digital systems are learning to take advantage of – and amplify – our distinctly human vulnerabilities.

"For years, social media companies engineered their platforms with 'dark patterns' of user experience to prioritize shareholders' interests over users. … Such patterns manipulate the same psychological features that addict people to gambling. When AI trained this way becomes agentic it is likely to apply similar strategies to all areas of social life. … Society could transform into a mere 'environment' for AI agents to manipulate as they see fit. Also of great importance: the use of RLHF opens up the risk of human values being reconstituted based on what can be automated rather than on what the public wants and needs."

"It's a matter of trust. Present AI development practices depend on three things: capital, data and public goodwill. Beyond user trust, which focuses on individual use of AI tools, public goodwill is about our collective acceptance of how those tools – and their developers – are changing how we work, play and rest. But public goodwill is finite and dissolving: Just 35% of the American public trusts companies that build and sell AI tools. The consequences are severe, as the balance between company incentives and consumer demand depends on the public's collective willingness to keep playing with what is deployed. As such, dwindling public support for leading GenAI providers constitutes a major form of market failure.

"The present analog to this approach is AI 'alignment' – i.e., training AI to share human objectives, values and goals. Unfortunately, companies pursue alignment by extracting and inferring from user data, rather than through voluntary and active public participation or feedback. Take the technical method du jour for aligning AI responses: Reinforcement learning from human feedback (RLHF). In RLHF, AI learns to behave better based on revealed human preferences between different model outputs. These preferences are typically provided by a small sample of humans who have little or no stake in the model's training. In reality, RLHF manifests the preferences of model developers and the human annotators who follow developers' guidelines; it neither solicits nor expresses public needs or wants. It defers key questions that ought to be in scope for alignment: Who is the AI designed for? For what purpose will this 'intelligence' be used? Why should society pour its limited, finite resources into adapting to this intelligence?

"RLHF is a method of fine-tuning pre-trained AI models. Like a lead oboe tuning up before a concert, the metaphor suggests an AI model needs only a final check to ensure a good performance and mitigate foreseeable risks. But this metaphor is misguided. In practice, finetuning allows companies to bake in unwarranted assumptions and opaque presumptions about the contexts in which human interests and values operate. As we grow numb to the ways automated systems reshape our lives, we lose the ability to reign them in. How did we get here? Major AI companies have created a state of play where they use AI-infused products and services to nudge people into behaviors that align with the companies' own goals of achieving competitive, technological, and financial gains. Our lives serve as sandboxes in which

AI learns to 'behave well.' The goal of this game is to generate more revenue and more human data with which to train ever more capable – but not more desirable – agents.

"For years, social media companies engineered their platforms with 'dark patterns' of user experience to prioritize shareholders' interests over users. Examples include hard-to-cancel subscriptions, infinite scrolling, randomized reward schedules and push notifications. Such user-experience patterns manipulate the same psychological features that addict people to gambling. When AI trained this way becomes agentic it is likely to apply similar strategies to all areas of social life. There is a palpable risk that society could transform into a mere 'environment' for AI agents to manipulate as they see fit. Also of great importance: Thanks to RLHF, human values risk being reconstituted based on what can be automated rather than on what the public wants and needs.

"Stepping into an AI-powered world means adopting new rules. Under today's AI design rules, humans are increasingly passive, and greater automation makes us cede more and more control over our lives. But these rules can be changed. The problem isn't that AI is intrinsically bad, or that progress is too slow – it's that we don't get to decide what gets built. To solve that, we need to abandon the project of alignment as passively matching human behaviors with AI models. Instead, AI capabilities must be shaped through active public participation."

Mauro D. Rios

'Our goal should be to create simulated cognitive abilities that are complementary to human ones, to build what can expand our natural abilities, working to satisfy our needs'

Mauro D. Rios, secretary general of the Uruguayan chapter of the Internet Society and a co-founder of Uruguay's Electronic Government Agency, wrote, "The discussion about AI's future direction is at a critical point. The next evolutionary steps must be determined and appropriate regulatory models must be found. AI requires a new legal approach not currently being tested or implemented. Governments play a crucial role.

"The days of the trend toward auditable models of algorithms are numbered. It is futile to demand prior transparency of an algorithm generated in real-time by another algorithm or an AI system. It is impossible to make sure they are transparent to something that has not yet been created.

"Ideally, you would like to determine which parties are responsible in the development and production chain of each algorithms and determine the chain of responsibility on which to create punitive norms. It is a complex process that requires a specific methodology to make sure that it covers the quality, effectiveness and ethics of the algorithm. You need to look at all aspects of the algorithm's processes of design, development, implementation and final use. You have to be able to examine and record every link in the chain. Nobody does that now.

"In the next few years, I believe the world will be divided into three blocs globally – each with a different model of regulation. They will share common beliefs in regard to chosen purposes and intentions for AI. The first will be a grouping of nation-states with solid commercial growth projections and good institutional health [with] open and competitive regulations that encourage innovation and creativity. The second … will limit the use of artificial intelligence and protect parts of society they worry may be harmed by AI. The third … will have retrograde, outdated regulations that will hinder the development and adoption of AI."

“Our goal for AI should be to create simulated cognitive abilities that are complementary to humans’, to build what can expand our natural abilities, working to satisfy our needs. One promising area lies in the way AI can expand our cognitive capacity. It is clear that AI systems remember better than we humans do. They just need to have access to information – they don't need to reconstruct a memory as humans do. (For now, humans have the advantage.) One example is the spread of AI in Decision Support Systems (DSS). These systems’ aim is to improve human beings' practical wisdom – what is known as ‘phronēsis.’ Such systems are already being developed and used in medicine, law, education, etc.

“In the next few years, I believe the world will be divided into three blocs globally – each with a different model of regulation. They will share common beliefs in regard to chosen purposes and intentions for AI:

- “The first bloc will be a grouping of nation-states with solid commercial growth projections and good institutional health. It will have incorporated AI into its public, private and academic processes and will have fully supported and encouraged AI development of research. It will have open and competitive regulations that encourage innovation and creativity.
- “The second bloc will include those countries that are neutral towards AI. Their development and growth will happen due to inertia, basically just accepting the systems that work in the first bloc of countries. It will have restrictive regulations in which the orientation will not be technical but socioeconomic. These countries will limit the use of artificial intelligence and protect parts of society they worry may be harmed by AI.
- “The third bloc will include those countries that are confrontational with respect to the idea of the evolution of intelligence augmentation (IA). These nation-states will have rejected AI or adopted a critical stance towards it. Although it is against their wishes, many in this bloc will incorporate AI to some extent, because there really is no choice to avoid it and fully operate in the global scene. AI will permeate every aspect of humans’ lives, whether we like it or not. The third bloc will have retrograde, outdated regulations that will hinder the development and adoption of artificial intelligence.

“Foresight around AI is a huge challenge. The evolution and development of AI create new paradigms for governance. Looking at the big picture, the spread of AI poses major questions for human beings about their role in the world, their autonomy and their behavior as social actors. The future is difficult to read. Still, one thing is certain: It will be exciting.”

Jim Dator

AI and Human Intelligence Are Just Fleeting-Fancy Steps in an Ongoing Evolutionary Waltz; We Are Constantly Mutating Via Natural and Artificial Evolution

Jim Dator, futurist and professor emeritus at the University of Hawaii, wrote, “Overall, I believe the change ahead will be considerable, with much more to unfold as time goes by. AI is related to human cognition but is rapidly becoming its own mode of consciousness and decision-making. We should neither ignore it nor fear it but embrace it. Moreover, the possible existence of many more forms of cognition and action than human and/or artificial is becoming manifest.

“I look at present developments of AI from a long evolutionary perspective. Human capacities and behavioral possibilities at the present time are not eternally fixed. They are just one minuscule point in an interactive fluid process. What our deep ancestors could think and do was similar in some ways but

quite different from what and how we now can think and do. And it is different still from what and how our deep descendants will be able to think and do.

"Homosapiens are and always have been dynamic 'human becomings' – not static human beings. We are constantly mutating via processes of artificial as well as 'natural' evolution. A major feature has been our invention and use of 'technologies' (the hardware, software, and orgware thereof – not just the mere tools that then transform us).

"All technology is mutative. AI is in no way unique in that. And AI did not suddenly appear recently – as with ChatGPT, for example. Many current discussions are rather boring because they are considering – with irrational alarm or enthusiasm – issues that have been discussed for many decades. We seem to have learned little from previous discussions and experiences. We seem to be caught in a vicious cycle of fears, foibles and fantasies while AI proceeds in its own merry, inadvertent way.

"Things appear, interact, persist, change, die – and lifeforms either adapt, die or hunker down until their time comes in some future. The manifold novel challenges and opportunities of the Anthropocene Epoch – not merely all the impacts of climate change – might either stop AI (and other) development in its tracks or propel it in unimaginable directions … Finally, no one can think responsibly about the next 10 years and beyond without also considering that the world may be moving from an information society where reason, literacy and facts were important to a dream society in which performance, schtick and make-believe rule."

"Think of what occurred over the Holocene Epoch when *homosapiens sapiens* achieved cosmic hegemony. Speech, language and writing all evolved in ways that both facilitated *and* froze thoughts. Religions arose that circumscribed beliefs and behavior. Schools were created that taught students truth *and* encouraged the production of delicious fictions. Governments were created that enforced obedience via killing force and through radio, movies, television, computers, simulations, multimedia, social media. All of these together have been at least as mutative for our species as current AI is.

"AI and human intelligence are just fleeting fancy steps in an ongoing evolutionary waltz. There is no 'better' or 'worse' to this evolution. Things appear, interact, persist, change, die – and lifeforms either adapt, die or hunker down until their time comes in some future. The manifold novel challenges and opportunities of the Anthropocene Epoch – not merely all the impacts of climate change – might either stop AI (and other) development in its tracks or propel it in unimaginable directions.

"The 20th Century might be called the Electronic Age (*vide* AI as constructed now). So also, the 21st Century might be the Bionic Age. Though I suspect it that will become controversial, recent research into basal cognition and other evidence of plant and animal cognition and communication via electrochemical mechanisms may sweep our current AI and human notions into the rubbish bin of history. Michael Levin reminds us that 'evolution does not produce specific solutions to specific problems. It produces problem-solving machines,' and that humans need to learn to 'speak cell' – to coordinate cells' behavior through bioelectricity.

"Finally, no one can think responsibly about the next 10 years and beyond without also considering that the world may be moving from an information society where reason, literacy and facts were important to a dream society in which performance, schtick and make-believe rule. This shift is also said to have 'good' or 'bad' consequences but due to the worldwide ascendance of authoritarianism AI may never have a chance against an ever-more rampant reign of human fantasies."

Anriette Esterhuysen

We Are Creative, Competitive, Destructive and Caring. AI Will Amplify Both Good and Bad, Human Strengths and Human Weaknesses; It Seems Unlikely to Close the Divide Between Rich and Poor

Anriette Esterhuysen, South Africa Internet pioneer, Internet Hall of Fame member and longtime executive director at the Association for Progressive Communication wrote, "AI will bring out major changes but not 'fundamental' changes to either the experience of being human or how humans behave. As a species, humans are not innately good or bad but capable of being both. We are creative, competitive, destructive and caring.

"AI will no doubt amplify human trends. AI is so much part of how tech has evolved already, and we already see how the use of digital tools amplifies both good and bad outcomes. For now, these outcomes are still generated, at their core, by humans. Will this change? I don't know.

"Many fear that machines will create their own culture and ethos. I am not fully convinced of that, but if it does happen it will be intertwined with the evolving social, environmental and economic ecosystems that we live in, create, destroy and re-create. … A greater concern about AI is how it is going to increase energy consumption and revive investment in nuclear options of all kinds as opposed to renewable energy."

"We can already see that AI, like other digital innovations before it, tends to increase the gap between those who have the ability and resources to deploy it in their own interest. Can AI be a disruptor of digital inequality between the rich and the poor, the global 'North' and 'South' and create a more equal digital future? It's very unlikely, but, perhaps at the margins there will be some positive disruption. There is also likely to be increased marginalisation and more-focused concentration of power in big companies in rich countries that already control so much of the world's economy.

"Many fear that machines will create their own culture and ethos. I am not fully convinced of that, but if it does happen it will be intertwined with the evolving social, environmental and economic ecosystems that we live in, create, destroy and re-create. In my view, the state of our planet in regard to global warming and the expansion of models of growth that destroy and harm our natural environment loom bigger than AI and the changes it will bring. A greater concern about AI is how it is going to increase energy consumption and revive investment in nuclear options of all kinds as opposed to renewable energy, which is less suited to the high levels of power used by AI.

"The big question is: 'How will the expanding interactions between humans and AI affect the sustainability, (bio)diversity and well-being of our entire ecosystem?'"

Warren Yoder

The Valorization of Science Fiction Has Opened the Way for Tech Leaders to Recast Puffery as Serious Prediction, Thus Boosting Hype Cycles; 'Humans Are More Than Intelligence'

Warren Yoder, longtime director at the Public Policy Center of Mississippi, now an executive coach, wrote, "Philosophy may be the discipline most transformed in the next decade by the exploding interaction between humans and AIs. Now that we are not the only beings who can ask what kind of beings we are, old questions will be reframed and new questions asked.

"What does it mean to be human? Are we fundamentally thinking stuff, as Rene Descartes ('I think, therefore I am') proposed, or is there more to being human than just intelligence? When AI is roughly as intelligent as a human individual, will capitalism inevitably drive AGI to subjugate human culture? Is there a better way? Many of the answers we have now do not serve us well. The task of philosophy, both professional and popular, is to make sense of the sense we make. Engineers can think of philosophy as a stress test for ideas. Until we cooperatively come up with better ideas, let us avoid these four simple misconceptions:

"Naive communication theory: When we communicate, we are trying to understand something someone somewhere created to express their own understanding. When we query an AI, we create all the understanding ourselves. The public large learning models today are correlation engines that do not have human-level understanding. Querying an AI, in a real sense, is communicating with the Zeitgeist. The biases, fabrications and incitements to violence of raw AI are all-too-honest reflections of the spirit of our times. Thank goodness for the heavy overlay of human engineering that teaches AI the social mores required for polite company. Expect this human engineering, including your own query engineering, to become ever more essential.

"We are constantly repurposing old ideas as we struggle to understand our rapidly changing reality. Some of these ideas cannot bear the added weight of new meaning. Intelligence is a good example. … humans are clearly more than intelligence. We are only now realizing what it means to repurpose a concept we never clearly defined to describe a thing we barely understand. How we think of intelligence is falling apart in our hands, too vague to help us decide if we have achieved artificial general intelligence. Honesty requires us to frankly acknowledge the inherent limits of our assumptions."

"Exponential expectations: Exponential functions are a delightful part of pure mathematics. They don't exist in the natural world. Any exponential function let loose in the natural world would soon turn the whole universe into its output. Paper clips, say. That obviously hasn't happened. Instead, rapid growth is usually driven by sigmoidal S curves: exponential growth followed by exponential slowing. Continued growth can be achieved by stacking sigmoidal functions, but that runs into its own constraints. Anyone using exponential language to describe artificial intelligence isn't thinking clearly.

"Pure puffery: Smart phones aren't actually 'smart.' The neural nets in AI models only superficially resemble the living neural connectomes in our brains. These neologisms are puffery: exaggerated statements not amenable to disproof. Marketing puffery is allowed by the commercial legal code, but it is always the enemy of clear thought. The valorization of science fiction has opened the way for tech leaders to recast puffery as serious prediction, thus boosting hype cycles to support their venture capital. Think through big claims, step by step, for yourself.

"Crumbling assumptions: Ideas we use to explain our world were all created in other times for other uses. We are constantly repurposing old ideas as we struggle to understand our rapidly changing reality. Some of these ideas cannot bear the added weight of new meaning. Intelligence is a good example. It had one meaning in Latin, another in the Middle Ages, only to be deprecated as unusable by early modernists.

"Intelligence was repurposed in the early 1900s by newly minted psychologists, first for the military, then academia, now for the rest of the world. We know higher scores on intelligence tests are correlated with success in some tasks and professions. But we have never agreed what intelligence

means exactly. Some try to shoehorn social and emotional intelligence into the idea. We could even describe human culture as a super intelligence transcending generations and geographies.

"The creative intelligentsia obviously prize intelligence, and their work trained and named early AI. But humans are clearly more than intelligence. We are only now realizing what it means to repurpose a concept we never clearly defined to describe a thing we barely understand. How we think of intelligence is falling apart in our hands, too vague to help us decide if we have achieved artificial general intelligence. Honesty requires us to frankly acknowledge the inherent limits of our assumptions.

"The next 10 years will be a contentious time as we think through what it means to rely on AI. There will be countless misleading, thoughtless and even impossible claims made by people who should know better. Philosophy, the love of wisdom, will be essential as we struggle to understand our new realities."

Jan Hurwitch

Empathy and Moral Judgment Must be Strengthened; We Must Challenge Everyone to Evolve Into a More Conscious and Considerate Species; It's the Key to Our Survival

Jan Hurwitch, director of the Visionary Ethics Foundation, wrote, "To begin this reflection, it is important to clarify that two-thirds of humanity currently is living on $2 a day or less. Unless we provide access to electricity and clean water to all these people, their lives in 2035 will continue to be filled with hardship, suffering and little hope for the future. And migration, which is now projected at 500 million by 2030, will continue to surge. So, those directly impacted constitute the one-third of humanity that has access to AI and related technologies.

"Consider three differentiated segments of humanity: different cultures, different generations and different cognitive abilities. Culturally, I suspect that the more family-oriented societies will emphasize family ties in order to compensate for the distancing created by these new technologies."

"Consider three differentiated segments of humanity: different cultures, different generations and different cognitive abilities. Culturally, I suspect that the more family-oriented societies will emphasize family ties in order to compensate for the distancing created by these new technologies; this is becoming more prevalent in Latin America where I reside.

"The reverse is likely in less family-oriented cultures. Intergenerationally, I view a greater distancing taking place now; however, as increased efforts are made to bridge generations, new ways to relate should hopefully emerge. Different cognitive abilities and personality types play an important role in this process because a highly introverted intellectual person will likely have more interest in what AI technologies have to offer, while extroverts with strategic minds will gather teams and brainstorm with other humans to keep real relationships alive.

"Empathy and moral judgment taught in family, schools and church must be strengthened. Having lived in 11 different countries, I remain impressed with the very strong emphasis placed on 'respecting one another and finding peaceful solutions to conflict' in Costa Rica where I now reside. This is also connected to our social and emotional intelligence. So, tech-based games could be an interesting answer to teaching compassion, hopefully more of these will supplant those games that stimulate competition and encouraging being a winner and not a loser. We must challenge everyone to evolve into a more conscious and considerate species as the key to our survival."

Frank Kaufmann

Humans Should Start Exploring Now to Discover Their Meaning in the Post-Work Era; Will These Advances Allow Us to Still Live Lives That Are Meaningful?

Frank Kaufmann, president of the Twelve Gates Foundation, wrote, "My goal in life is to do only what I alone, uniquely can do. I believe AI, AGI, machine learning and robotics can evolve in such a way as to eventually be able to ask me: 'Just what is it, Frank, that you alone, uniquely can do?' And assist in that endeavor.

"We can safely speculate that there will come a time sooner or later that tech and AI progress will arrive at the point at which it can do almost everything I can do, and do it better, faster, more completely and more reliably. This likelihood gives us a present-day window into human 'traits and behavior.' How do humans respond when someone shows up for their team in the office and for their choir, painting class or basketball team who can do everything I do better, faster, more completely and more reliably.

"The question we must reflect on is not if tech, AI, machine learning and AGI will be able to solve every human problem and be able to lift from us every bit of labor and tedium from digging ditches to performing neurosurgery. The question is: Will these advances allow us to still live lives that are meaningful, allow us to make a difference and be genuinely creative?"

"I am faced with a range of choices: I could welcome them, hate them, learn from them, oppose them, befriend them, try to undermine them, etc. Additionally, I could go lazy ('OK, if you're so great you do it'). Or I could get inspired ('Wow, with this person around we can do a hundred times more'). These reactions and choices are those that will be a part of the 2035 question.

"Tech and AI progress will relieve us of thousands, perhaps tens of thousands or millions of burdens of labor that until just this past year or so we thought humans were required to do. This gives us access to another presently observable human trait and behavior from which we can extrapolate. How do we react when staring at a mountain of tedious or exhausting work and someone comes along and says, 'I'll do that. Take the rest of the day off.' Very few or none will say, 'No no. I demand that I spend the next eight hours slogging through tedium and physical wear and tear.'

"But more importantly than the delight is the question, 'What do you plan to do with these next eight hours that up until a minute ago you never had?'

"This is the essential question. Not, 'What are you going to do with the sudden and unexpected gift of eight hours added to your life, but rather, 'What are you going to do with a sudden and unexpected whole life.'

"You mean I don't have to shovel? No. You don't have to shovel. You mean I don't have to type? No. You don't. You mean I don't have to learn biology? No, you don't. You mean I don't have to go to the store? No, you don't. You mean I don't have to do brain surgery? No, you don't.

"Then what am I *supposed* to do? Or even more frightening, *what am I even good for*?

"That is the question. But please try to figure this out on your own, and don't leave it to people like Yuval Harari, John D. Rockefeller III (chair of Nixon's Commission on Population Growth and the American Future) or Reimert Ravenholt – just to name a few, present and past – to answer that for you.

These men and a great many others have great difficulty coming up with ideas about what human beings are good for.

"A next 2035 question: Is leisure enough to keep humans happy? To keep us occupied? If so, then we may have an answer for the 2035 being human and traits and behaviors question. TikTok, Xgolf, sex with robots?

"If, on the other hand, if leisure and/or pleasure is not enough to keep humans happy. If rather we can expect to hear, 'I am tired of all this leisure and pleasure. It is actually beginning to nauseate me. I have to do something meaningful. I have to make a difference. I have to do something creative,' then the 2035 question becomes truly engaging.

"'OK. I get it. You want to do something meaningful, helpful and creative. What do you have in mind?' 'I want to draw pictures for children in hospitals.' 'I see. I'm sorry, but we already have tens of thousands of those. Gemini draws hundreds of these pictures per minute. They are perfect. The children love them.'

"'Then I want to volunteer twice a week to help elderly in their homes.' 'That is certainly very thoughtful of you. Unfortunately, this presently is managed by home-help robot services. Each robot is programmed in over 3,600 metrics to be an exact match of each elderly person it serves and cares for.'

"Is there something insuperably elevated and transcendent about humans that no machine can ever attain (no matter how smart, how strong, how fast) ever? If there are such things in being human, life in 2035 will be wondrous beyond our wildest speculation. If there are not, a tiny, vile, elite will manage an enslaved human population that will be maintained to provide some utilitarian complement from our biological physicality to go along with the efficient functioning of non-human entities. Efforts to identify if there does exist something elevated and transcendent about being human should begin in earnest right away. If we find such a thing, it would be wise to invest in developing that with great focus and intensity. I would recommend that something related to love is a best place to start."

"The question we must reflect on is not if tech, AI, machine learning and AGI will be able to solve every human problem and be able to lift from us every bit of labor and tedium from digging ditches to performing neurosurgery. The question is: Will these advances allow us to still live lives that are meaningful, allow us to make a difference and be genuinely creative? Is there something insuperably elevated and transcendent about humans that no machine can ever attain (no matter how smart, how strong, how fast) ever? If there are such things in being human, life in 2035 will be wondrous beyond our wildest speculation. If there are not, a tiny, vile, elite will manage an enslaved human population that will be maintained to provide some utilitarian complement from our biological physicality to go along with the efficient functioning of non-human entities.

"Efforts to identify if there does exist something elevated and transcendent about being human should begin in earnest right away. If we find such a thing, it would be wise to invest in developing that with great focus and intensity. I would recommend that something related to love is a best place to start."

Methodology

This is the 51st such report issued by Elon University's Imagining the Digital Future Center (ITDF) since 2005. The Center was earlier known as Imagining the Internet and issued joint reports with the Pew Research Project. This canvassing was conducted by ITDF as global attention focuses on the spread of artificial intelligence (AI) and especially on generative AI systems like ChatGPT, Gemini, Copilot, Grok, Mistral and Claude as companies focused on developing artificial intelligence are racing toward creating general artificial intelligence (AGI).

Participants were asked to respond to three multiple-choice questions followed by an open-ended invitation to write about their expectations about the impact of AI on essential human qualities. The nonscientific canvassing of experts (based on a non-random sample) was conducted through a Qualtrics online instrument between Dec. 27, 2024, and Feb. 1, 2025.

Invited respondents included technology innovators and developers; professionals, consultants and policy people based in various businesses, nonprofits, foundations, think tanks and government; and academics, independent researchers and professional commentators. In all, 301 experts responded to at least one aspect of the canvassing, including 191 who provided written answers to the open-ended qualitative question.

The answers in the pages of this report are those that were replies to this prompt:

> *Imagine digitally connected people's daily lives in the social, political, and economic landscape of 2035. Will humans' deepening partnership with and dependence upon AI and related technologies have changed being human for better or worse? Over the next decade, what is likely to be the impact of AI advances on the experience of being human? How might the expanding interactions between humans and AI affect what many people view today as "core human traits and behaviors"?*

The web-based canvassing instrument was first sent directly to more than 2,000 experts (primarily U.S.-based, 38% located outside North America). Those invited were identified by Elon University during previous studies. The list includes many who were cited in the university's 2003 study of people who made predictions about the likely future of the internet between 1990 and 1995. More than 1,000 of the respondents invited to participate in this study were added to our database of experts in the last four months of 2024. We invited executives, professionals and policy people from government bodies and technology businesses, think tanks and interest networks (including, those that include experts in law, ethics, philosophy, political science, economics, cognitive and neuroscience, sociology, psychology, education and communications); globally located people working with communications technologies in government positions; technologists and innovators; graduate students and postgraduate researchers; and many who are active in civil society organizations that focus on digital life or affiliated with newly emerging nonprofits and other research units examining the impacts of digital life.

Those networks often involved people tied to relevant organizations such as the International Telecommunications Union (ITU), the Internet Engineering Task Force (IETF), the Internet Society (ISOC), the United Nations' Global Internet Governance Forum (IGF) and the Organization for Economic Cooperation and Development (OECD) AI Experts Panel and other EU, U.S., UK and IEEE AI advisory

boards and panels. Invitees were encouraged to share the survey link with others they believed would have an interest in participating, thus there may have been a small "snowball" effect as some invitees welcomed others to weigh in.

The respondents' remarks reflect their personal positions and are not the positions of their employers; the descriptions of their leadership roles help identify their background and the locus of their expertise.

Some responses are lightly edited for style and readability. A number of the expert respondents elected to remain anonymous. Because people's level of expertise is an important element of their participation in the conversation, anonymous respondents were given the opportunity to share a description of their internet expertise or background, and this was noted, when available, in this report.

Some 225 respondents gave details about their locale. Of the experts who made that disclosure, 64% reported being located in North America, 24% were in Europe and 13% said they were located in other parts of the world.

Topline findings

2025 IMAGINING THE DIGITAL FUTURE CENTER CANVASSING OF EXPERTS
Dec. 27, 2024 to Feb. 1, 2025
N= Varies by question and is around 250-260 respondents per question
(Questions are listed in order of appearance in the survey instrument.)

Question 1: Over the next decade, **how much do you think humans' interactions with AI and related technologies are likely to change the essence of being human, the ways individuals act and do not act, what they value, and how they perceive themselves and the world**?

Mostly **for the better** for most people in the world	16%
Mostly **for the worse** for most people in the world	23%
Change will be for the **better and for the worse in fairly equal measure**	50%
There will be **little to no change** overall	6%
I don't know	5%

Question 2: Think ahead to 2035. Imagine how the deepening interactions between people and AIs might impact our ways of, thinking, being and doing – our human operating system, our essence. **How is the coming Humanity-Plus-AI future likely to affect the following *key aspects of humans' capacity and behavior by 2035 as compared to when humans were not operating with advanced AI tools*?**

The 12 Key Human Capacities and Behaviors: How is the coming Humanity-Plus-AI future likely to affect the following *key aspects of humans' capacity and behavior by 2035 as compared to when humans were not operating with advanced AI tools*?

	More negative change than positive	**More positive** change than negative	**Fairly equal** positive, negative change	**Little to no change**	**I don't know**
More negatively than positively					
Capacity and willingness to think deeply about complex concepts	50%	21%	21%	7%	2%
Social and emotional intelligence	50%	14%	19%	14%	4%
Confidence in their own native abilities	48%	16%	22%	7%	7%
Trust in widely shared values and cultural norms	48%	10%	24%	11%	7%
Mental well-being	45%	14%	28%	8%	5%
Empathy and application of moral judgment	45%	12%	25%	12%	6%
Individual agency, the ability to act independently in the world	44%	29%	16%	8%	3%
Self-identity, meaning, and purpose in life	39%	18%	24%	14%	6%
Metacognition, the ability to think analytically about thinking	36%	27%	20%	14%	3%
More positively than negatively					
Curiosity and capacity to learn	29%	42%	23%	5%	2%
Decision-making and problem-solving abilities	30%	40%	25%	3%	2%
Innovative thinking and creativity	30%	39%	25%	3%	3%

Question 3: What might be the magnitude of overall change over the next decade in the capacities and behaviors of human individuals - in people's native operating systems and operations - as we more broadly adapt to and use advanced AIs by 2035? Select the one choice you consider to be most likely. Overall, the amount of change in being human for digitally connected people will be …

Inconsequential: There will be no noticeable change	3%
Barely perceptible: There will be minor change	5%
Moderate and noticeable: There will be some clear, distinct change	31%
Considerable: There will be deep and meaningful change	38%
Dramatic: There will be fundamental, revolutionary change	23%

Question 4: Open-ended Essay Question

Our primary question ties into your answers to the previous questions about the potential impact of humans' expanded use of more advanced AI on the essence of being human. We suggest a 500-to-1,000-word piece in op-ed style but do write as much as you please. Your detailed illumination of the reasoning behind your expectations for humanity by 2035 will be added to the writing of dozens of other experts; it will be instrumental to this report in service of the public good.

The Question: *Imagine digitally connected people's daily lives in the social, political, and economic landscape of 2035. Will humans' deepening partnership with and dependence upon AI and related technologies have changed being human for better or worse? Over the next decade, what is likely to be the impact of AI advances on the experience of being human? How might the expanding interactions between humans and AI affect what many people view today as "core human traits and behaviors"?*

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Program of the Carnegie Endowment for International Peace; **Denis Newman Griffis**, lecturer in data science at the University of Sheffield and expert in responsible design of AI for medicine and health, **Jean Paul Nkurunziza**, expert moderator with the Internet Society and researcher at CIPESA Burundi; **Kevin Novak**, founder and CEO of futures firm 2040 Digital; **Mícheál Ó Foghlú**, engineering director and core developer at Google, based in Waterford, Ireland; **William Ian O'Byrne**, associate professor of literacy education at the College of Charleston; **James Kunle Olorundare**, president of Nigeria's chapter of the Internet Society; **Andy Opel**, professor of communications at Florida State University; **Aviv Ovadya**, a founder of the AI & Democracy Foundation; **Zizi Papacharissi,** professor of communications and political science, University of Illinois-Chicago; **Ginger Paque**, senior policy editor at the Diplo Foundation; **Raymond Perrault,** co-director of Stanford University's AI Index Report 2023 and leading computer scientist at SRI International from 1988-2017; **Jeremy Pesner**, policy analyst, researcher and speaker expert on technology, innovation and futurism; **Daniel Pimienta**, leader of the Observatory of Linguistic and Cultural Diversity on the Internet, based in the Domincan Repulic; **Russell Poldrack**, psychologist and neuroscientist, director of the Stanford Center for Reproducible Neuroscience; **Aleksandra Przegalinska**, head of Human-Machine Interaction Research Center and leader of the AI in Management program at Kozminski University, Warsaw, Poland; **Calton Pu,** co-director, Center for Experimental Research in Computer Systems, Georgia Institute of Technology; **Alex Raad**, longtime technology executive and host of the TechSequences podcast; **Courtney C. Radsch**, director of the Center for Journalism & Liberty at the Open Markets Institute and non-resident fellow at the Brookings Institution; **Marine Ragnet**, affiliate researcher at the New York University Peace Research and Education Program working on frameworks to promote ethical AI; **Alf Rehn**, professor of innovation, design and management at the University of Southern Denmark; **Peter Reiner**, professor emeritus of neuroscience and neuroethics at the University of British Columbia; **Richard Reisman**, futurist, consultant and nonresident senior fellow at the Foundation for American Innovation; **Jason Resnikoff**, Harvard-based expert on intellectual history and the history of technology and co-author of "AI Isn't a Radical Technology"; **Howard Rheingold,** pioneering internet sociologist and author of "The Virtual Community"; **Glenn Ricart**, founder and CTO of U.S. Ignite, driving the smart communities movement; **Neil Richardson**, futurist and founder of Emergent Action; **Christopher Riley**, executive director of the Data Transfer Initiative, previously with R Street Institute and leader of Mozilla's global public policy; **Mauro D. Rios,** adviser to the eGovernment Agency of Uruguay and director of the Uruguayan Internet Society chapter; **Steven Rosenbaum**, co-founder and executive director of the Sustainable Media Center in New York; **Louis Rosenberg,** CEO and chief scientist, Unanimous AI; **Paul Rosenzweig**, founder of Red Branch, a cybersecurity consulting company, and a senior advisor to The Chertoff Group; **Liz Rykert**, an independent strategist based in Toronto; **Paul Saffo**, a highly respected, longtime Silicon Valley-based technology forecaster; **Alexandra Samuel**, data journalist, speaker, author and co-founder and principal at Social Signal; **Amy Sample Ward**, CEO of NTEN and author of "The Tech That Comes Next"; **Eric Saund**, independent AI research scientist; **Mark Schaefer**, a business professor at Rutgers University and author of "Marketing Rebellion"; **Daniel S. Schiff,** assistant professor and co-director of the Governance and Responsible AI Lab at Purdue University; **Ray Schroeder**, retired associate vice chancellor for online learning at the University of Illinois, Springfield; **Henning Schulzrinne,** Internet Hall of Fame member and co-chair of the Internet Technical Committee of the IEEE; **Robert Seamans**, professor of game theory and strategy at New York University's school of business; **Doc Searls**, co-founder of Customer Commons and internet pioneer; **Anil Seth**, professor of cognitive and computational neuroscience at the University of Sussex, UK, author of "Being You: A New Science of Consciousness"; **Greg Sherwin**, Singularity University global faculty member, and technology consultant and board member; **John M. Smart**, global futurist, foresight consultant and entrepreneur and CEO of Foresight University; **Philippa Smith**, a digital media expert, research consultant and commentator based in New Zealand; **Brian Southwell**, distinguished fellow and lead scientist for public

understanding of science at RTI International; **Jim C. Spohrer**, board member of the International Society of Service Innovation Professionals and ServCollab, previously a longtime IBM leader; **Peter Suber**, expert in the philosophy of law, director of the Harvard Open Access Project and senior researcher at Harvard's Berkman Klein Center for Internet & Society; **Jonathan Taplin**, author of "Move Fast and Break Things: How Google, Facebook and Amazon Cornered Culture and Undermined Democracy"; **Evelyne A. Tauchnitz**, senior researcher at the University of Lucerne's Institute of Social Ethics; **Dhanaraj Thakur**, research director at the Center for Democracy and Technology, previously at the World Wide Web Foundation; **Charalambos Tsekeris,** research associate professor in digital sociology at the National Centre for Social Research of Greece and acting chair at the Greek National Commission for Bioethics & Technoethics; **Risto Uuk**, European Union research lead for the Future of Life Institute, focused primarily on researching policymaking on AI, based in Brussels, Belgium; **Marcus van der Erve**, sociologist and physicist author of "Palpable Voice: To Survive, Humanity Must be Reprogrammed; AI Will Do it," based in Antwerp, Belgium; **Cristos Velasco**, international practitioner in cyberspace law and regulation and board member at the Center for AI and Digital Policy, based in Mannheim, Germany; **Umut Pajaro Velasquez**, a researcher and professor from Caragena, Colombia, expert on issues related to the ethics and governance of AI; **David Vivancos**, CEO at MindBigData.com and author of "The End of Knowledge"; **Maja Vujovic,** owner and director of Compass Communications in Belgrade, Serbia; **R Ray Wang**, principal analyst, founder and CEO of Constellation Research; **Wayne Wei Wang**, a Ph.D. candidate in computational legal studies at the University of Hong Kong and CyberBRICS Fellow at FGV Rio Law School in Brazil; **Nell Watson**, president of EURAIO, the European Responsible Artificial Intelligence Office and an AI Ethics expert with IEEE; **David Weinberger**, senior researcher and fellow at Harvard University's Berkman Klein Center for Internet & Society; **Russ White**, Internet infrastructure architect and Internet pioneer; **Lloyd J. Whitman**, senior advisor at the Atlantic Council, previously chief scientist at the U.S. National Institute of Standards and Technology and assistant director at the White House Office of Science and Technology Policy; **Alexandra Whittington**, futurist, writer and foresight expert on the future of business team at Tata Consultancy Services; **Dmitri Williams**, professor of technology and society at the University of Southern California; **Pamela Wisniewski**, professor of human-computer interaction and director of the Socio-Technical Interaction Research Lab at Vanderbilt University; **Michael Wollowski**, professor of computer science at Rose-Hulman Institute of Technology; Tom Wolzien, inventor, analyst and media executive; **Jamie Woodhouse**, founder of Sentientism, a group promoting a philosophy employing the application of evidence, reason and compassion; **Rabia Yasmeen**, a senior consultant for Euromonitor International based in Dubai, UAE; **Simeon Yates**, professor of digital culture, co-director of Digital Media and Society Institute at the University of Liverpool and research lead for the UK government's Digital Culture team; **Warren Yoder**, longtime director at the Public Policy Center of Mississippi, now an executive coach; **Youngsook Park**, futurist and chair of the Korean Node of The Millennium Project and lecturer in futures studies at Yonsei University; **Amy Zalman**, defense, security and justice advisory specialist at Deloitte; **Lior Zalmanson**, a professor at Tel Aviv University whose expertise is in algorithmic culture and the digital economy.