

SPRING 2023

# THE MAVVEN REPORT

## Buckle up, Alice

If you think generative AI  
is disruptive, just wait for the  
next rabbit hole.

### ALSO IN THIS ISSUE:

Michio Kaku on how AI and quantum  
convergence will change everything

Mayo Clinic's exponentially  
life-changing advancements

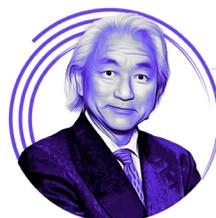
Trust through transparency:  
Managing brand risk in the age of AI



# THE MAVEN REPORT

The Maven Report provides pragmatic, actionable advice from industry experts who have led large teams through periods of serious disruption. Our Mavens believe no business problem is insurmountable if you leverage smart people who know how to harness the power of better technologies.

## Meet the Mavens



**Michio Kaku**

**STREET CRED:**

50+ years as a leading global authority on theoretical physics.

Co-founder of string field theory. World-renowned futurist. Acclaimed speaker and *New York Times* bestselling author. Henry Semat Professor of Theoretical Physics at CUNY.

Formerly Princeton, NYU.



**Jonathan Bumba**

**STREET CRED:**

25+ years leading technology organizations' go-to-market including sales, marketing and strategy.

First worldwide sales lead for Azure; first global sales director for Rackspace Private Cloud.

Formerly ThreatWarrior, CTP, EMC, Microsoft.



**Jeff Wile**

**STREET CRED:**

15+ years leading global teams to design and implement mission-critical systems and services for retail, consumers, cloud technologies and enterprise applications.

Formerly Starbucks, The Walt Disney Company, Savvis.



**Chris Zobler**

**STREET CRED:**

20+ years leading global teams and executing strategic business initiatives across numerous IBM industry verticals and target regions.

IBM Sales Eminence Team Leadership and IBM Cloud Power of You award winner.



**Mandy Long**

**STREET CRED:**

15+ years recruiting, developing and supporting high-performing teams to empower organizational excellence. PHP, SHRM-CP, USF Diversity, Equity and Inclusion in the Workplace certified.

Formerly Excellence Innovators, The Club at Ibis.



**Sheila Lothian**

**STREET CRED:**

25+ years supporting and leading content and marketing programs, messaging, and thought leadership initiatives across a range of B2B and B2C organizations.

Formerly Mattersight, Alludo.



**DIGITAL EXCLUSIVE**

Join Ensono DEI Ambassadors **Emma Fenwick, Mandy Long and Tina Oxford** for an insightful roundtable discussion of the AI/DEI intersection, **ONLY** at [themavenreport.com](https://themavenreport.com)



**Emma Fenwick**  
Digital Maven



**Tina Oxford**  
Digital Maven

Our Mavens come from diverse backgrounds and organizations, and are not compensated in any way for thought leadership contributions to this publication.

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FOREWORD

**Buckle up, Alice—you ain't seen nothing yet!**

All the recent furor around artificial intelligence can feel overwhelming. While AI has been progressing for over a decade, very few people foresaw where we'd be today, with well over 100 million users of ChatGPT and hundreds of millions more using other generative AI tools. And just when you thought you were getting your head around its impact—BOOM!—you realize that generative AI is not a singular event. In fact, AI and other exponential technologies, like quantum computing, CRISPR gene editing, nanotechnologies, 3D printing and robotics are converging in ways that will change everything.

How, exactly? At a recent Maven Live event in New York City, we turned to one of the greatest minds on planet Earth to give us a glimpse into the future. Professor Michio Kaku, theoretical physicist, futurist and co-founder of string field theory, gave mind-blowing answers to questions like, "Has the first person to live to 1,000 years old already been born?", "Are we approaching the singularity?", and, "What will a day in the life be like in the year 2050?" You can get a taste of our conversation on page 3, but I highly recommend you watch the full interview at [themavenreport.com](https://themavenreport.com) (it's a subscriber exclusive, so scan the QR code on this page to subscribe if you haven't yet). Believe me, you don't want to miss a word of what he has to say!

If you're more inclined to seek a better understanding of where we're at *today*, check out how Mayo Clinic is creating an "immaculate convergence" of these technologies to dramatically improve both the collective lifespans and quality of life

for all of us on page 12. Another incredible AI breakthrough in healthcare from King's College London is profiled on page 23. The question on that article is, "An AI breakthrough put to the (Turing) test" Take a read, then cast your vote in our own "Turing test" at [themavenreport.com](https://themavenreport.com)!

Trust is top of mind for everyone in this new era, and it's a topic we address throughout this issue, from my own thoughts on brand stewardship (page 8), to Mandy Long's take on AI-supported DEI initiatives (page 32), to sage guidance on appropriate and ethical AI usage from Chris Zobler of the original AI company, IBM (page 28). And, on page 19, our Editorial Director, Sheila Lothian, contemplates what life will be like for her and other content creators facing off against generative AI.

The Maven team recognizes that the trust of our audience is paramount. That's why, on page 2, we make a formal commitment to full transparency when using generative AI—or any future disruptive technology—across our content, including text, images, and video. For a start, how do you like the front cover? It was largely done with the assistance of generative AI! We sought to make it 100 percent AI-generated, but, in full candor, the technology is not quite ready—it still needed a human touch to put it all together. On behalf of our Mavens everywhere, we are committed to trust and confidence through honesty, transparency and the relentless pursuit of knowledge. If you ever have any concerns, please contact us at [hello@themavenreport.com](mailto:hello@themavenreport.com).

All the best! *jb*



**Jonathan Bumba,**  
Editor-in-chief

Subscribe:





## Generative AI Commitment

An open letter to our readers, disclosing our guiding principles for the appropriate use of generative AI.

At *The Maven Report*, we recognize the transformative potential of generative AI technology in all aspects of the enterprise. As a thought-leadership platform, we are committed not only to exploring the power of this innovation in our content, but also to harnessing it ourselves—while remaining true to our core values, upholding the trust our audience has placed in us, and preserving the tenets of our mandate and integrity of our brand.

Our commitment to responsible AI usage—expressed in the following guidelines—reflects our dedication to the highest ethical standards and our determination to build a legacy of trust, innovation and excellence in our industry:

**Embrace of the Future:** *The Maven Report* will responsibly embrace and adopt generative AI technologies to be more productive and effective in how we develop thought leadership content.

**Accountability & Brand Alignment:** *The Maven Report* contributors and editors are responsible for their work, even if they employ assistance from AI tools. Any content we publish will align with these guiding principles, *The Maven Report's* mandate, values, brand tenets, style and tone.

**Transparency:** We commit to being transparent about our use of generative AI in *The Maven Report*. We will openly communicate the role of AI in our content (including text, imagery, audio and video) and ensure that our audience is aware of its application via the following categorizations:

-  **Human-generated content:** that which has been completely created by a human without AI assistance will bear this symbol (or in some cases no symbol).
-  **Human + AI-generated content:** that which contains AI-generated elements but with substantial human contribution or editing will bear this symbol.
-  **AI-generated content:** that which has been entirely created by AI with little-to-no human editing will bear this symbol.

**"In this brave new world, trust means everything. *The Maven Report* strives to be the preeminent source for pragmatic and actionable business advice. Our readers deserve to know how seriously we take our commitment to both the accuracy and credibility of our content; it is central to our brand."**

– Jonathan Bumba, Editor-in-chief

You can read our complete, up-to-date Generative AI Use Guidelines and Principles at [themavenreport.com](https://themavenreport.com).



## What the coming

# QUANTUM SUPREMACY

## means for you

Renowned physicist and string field theory co-founder, Professor Michio Kaku, predicts the convergence of quantum computing, advanced AI and other exponential technologies will change life as we know it—sooner and in more amazing ways than you may think.



**DIGITAL EXCLUSIVE**

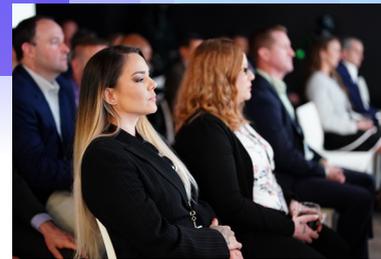
Watch the full interview with Michio Kaku at [themavenreport.com](https://themavenreport.com)



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**The public release of ChatGPT, on November 30, 2022, instantly drew what may be looked back on as one of the most meaningful demarcation lines in modern human history.**

**Overnight, millions of people gained immediate and direct access to spectacularly powerful AI tools that had previously been the domain of a select, trained few—with all the good, bad and unknowns that came along with them. The event sparked thrill, terror and broader questions about the potential and proximity of other exponential technologies. The implications of quantum computing, once believed by many to be a distant concern, now felt unsettlingly close.**



DIGITAL EXCLUSIVE

Watch the full interview with Michio Kaku at [themavenreport.com](http://themavenreport.com)

There are few people alive as qualified to explain the significance of this inflection point, and what lies beyond, than Professor Michio Kaku. Co-founder of string field theory (a subset of string theory), renowned professor of theoretical physics at the City University of New York, and one of *Science* magazine's "10 Most Influential Scientists on the Planet," Professor Kaku is also the bestselling author of six books, including his latest, *Quantum Supremacy: How the Quantum Computer Revolution Will Change Everything*.

At a recent Maven Live event in New York City, this legendary science luminary sat down with *The Maven Report* editor-in-chief Jonathan Bumba and a packed audience of business and IT leaders—many of

them lifelong followers of his work—to share his perspectives, observations and predictions on some of the most urgent technological and philosophical questions of our time.

In a wide-ranging conversation that touched on everything from halting the aging process and solving the climate crisis to making alien contact and reading the mind of God, Professor Kaku awed, inspired, alarmed—then reassured—and definitely raised a few eyebrows.<sup>1</sup>

The following article contains brief excerpts that offer a glimpse of this vitally relevant discussion that attendees called "amazing," "memorable" and "mind-opening". The full interview is an experience you don't want to miss—and you don't have to! **Watch it at [themavenreport.com](http://themavenreport.com).**

<sup>1</sup>"Michio Kaku: Silicon Valley Will Become a Rust Belt in Quantum's Wake," Joao-Pierre S. Ruth, [informationweek.com](http://informationweek.com), May 2023.

On his early inspirations and career origins...

"It all started when I was eight years old. The newspapers declared that a great scientist had just died. There was a picture of his desk and on it was an unfinished book, with a caption that said, 'The greatest scientist of our time could not finish this book.' I had to know what was in that unfinished book. I went to the library and found out the man's name: Albert Einstein. And that book was to be the *Theory of Everything*—an equation, perhaps no more than one inch long, that would allow us to, 'read the mind of God.' I was hooked. I had to know what this theory was...

"Today, the leading candidate, in fact, the only candidate, is called string theory<sup>2</sup>... We have the equations. I helped to write many of them. But we can't solve them. And that's how I got interested in quantum computers.

"I think quantum computers could be the missing link, powerful enough to give us the 'Big Bang' to explain why the universe is the way it is. Einstein said, 'Did God have a choice in making the universe?' A quantum computer may give us the answer to that."

On what "quantum supremacy" really means...

"'Quantum supremacy' is the point at which a quantum computer can exceed the capabilities of a digital computer on certain well-defined tasks. That point was reached three years ago. The Chinese and Google already exceeded the capabilities of a digital computer by a factor of millions of times, but not for general purpose uses yet... That's the next step: to create an all-purpose quantum computer that can solve any problem millions of times faster than a digital computer. We haven't reached that point yet, but it's a horse race... Because what's at stake is the future of the world economy..."

**"'Quantum supremacy' is the point at which a quantum computer can exceed the capabilities of a digital computer on certain well-defined tasks. That point was reached three years ago."**

— Michio Kaku

<sup>2</sup>"Michio Kaku Explains String Theory," [youtube.com/watch?v=kYAdwS5MFjQ](https://www.youtube.com/watch?v=kYAdwS5MFjQ), December 2011.



MAVEN  
LIVE

**On whether generative AI has passed the Turing test...**

"Let's ask a computer the following two questions: first, 'Have you ever been kissed?' and second, 'What did you have for dinner last night?' The most advanced chatbot would go berserk.

It can't answer these two simple questions because the chatbot, no matter how sophisticated it is, mines the entire internet like a tape recorder. It simply regurgitates what was already written by somebody else and packages it and passes it off as its own... the Turing test has not yet been surpassed by a sophisticated tape recorder."

**Who wrote it: Human or AI? Read the article on page 23, then take *The Maven Report's* own Turing test.**

**On combating the dark side of technological advancement...**

"A quantum computer, in principle, has enough power, once it's fully operational, to break any known digital code. It would take hundreds of years for a digital computer to do that. A quantum computer could just do it like that, which means that the crown jewels of any nation, any security agency, the secrets, the nuclear codes, everything is susceptible to being cracked... We have to make sure there are safeguards so the technology doesn't go crazy..."

**On which is more likely to happen first: AI overtaking human intelligence, or humans encountering alien life...**

"Every time we think we have a machine that can do a lot of tasks the brain does, we find more things the brain does that the computer cannot... Perhaps we'll get robots that are comparable to human intelligence in all aspects within this century, but it may take a few centuries before we make contact with intelligent life in the universe."



MAVEN  
LIVE

**On what life might look like in the year 2050...**

"Your bathroom will be your basic laboratory. Every time you use a toilet, it'll be flushed and analyzed by a quantum computer, and your quantum computer will say, 'You have cancer; you've got ten years to do something about it...' You will get a medical checkup three times a day without even thinking about it."

**On the potential of science and technology to enable human immortality...**

"We have leads now, solid leads. It's not speculation like it was. We now know where aging takes place in a cell.<sup>3</sup> If we can then reverse the aging process in the mitochondria, we can live forever. I'm not saying we can do that yet. We can't. Otherwise, there'd be advertisements everywhere for immortality. But we're hot on the trail..." \ \ \

**Learn what Mayo Clinic is already doing with life-enhancing, exponential technologies in "The immaculate convergence," on page 12.**



<sup>3</sup>"The Nobel Prize in Physiology or Medicine 2009," NobelPrize.org, 2009.



# Leveraging your brand as you dive into the technological unknown



**Jonathan Bumba**  
Chief Marketing Officer,  
Ensono

CMOs and other brand leaders play a pivotal role in shaping and guiding their organizations' first-line response to the generative AI revolution. The steps taken today will have brand implications for years to come... tread thoughtfully.

While addressing the graduating class at Rice University in 1962, President John F. Kennedy made a statement for the ages: "We choose to go to the moon in this decade, and do the other things, not because they are easy, but because they are hard."

The centerpiece of what is now commonly referred to as the "moonshot speech," these inspiring words have been lifted by just about every enterprise in modern history to describe their own big bets on technology. While it is certainly understandable that the president's reference to the moon got all the attention at the time, I believe the five

words that followed—"and do the other things"—are the ones that will define us going forward. Fast forward to 2023, and one of the most significant "other things," whose potential we are all attempting to fathom, is inarguably generative AI. Now, as then, we find ourselves faced with an urgent question—**what are we going to do about it?**

## The troika of technological disruption

Like it did so many others, the arrival and impact of ChatGPT caught me completely off guard. It's not that I didn't know it was coming—I've been tracking OpenAI for several years. But what I hadn't considered was the unprecedented disruption that would be caused by the convergence of three specific dynamics:

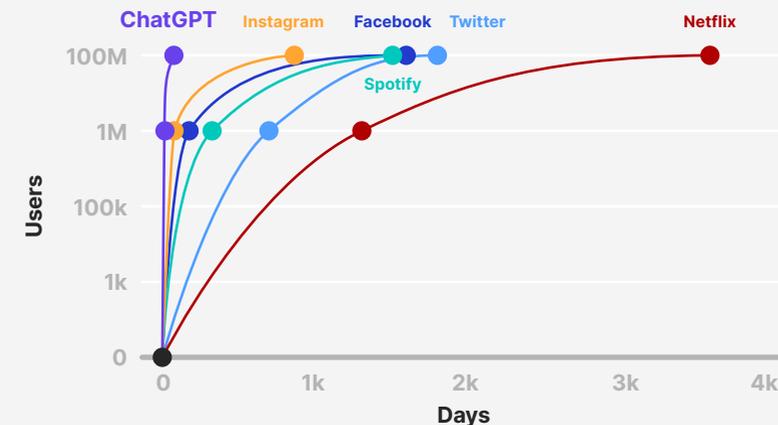
- **Democratization of AI:** Until November 30, 2022, the overwhelming majority of people were only consumers of AI through capabilities embedded in other technologies, like Amazon's Alexa or the Apple iPhone's Siri. These capabilities were largely created by a select few, who had the training and skills to leverage AI properly—and even they were known to fail spectacularly (see Microsoft's early foray into AI, where it took less than 24 hours for it to turn into a sex-crazed, neo-Nazi racist<sup>1</sup>). Then, seemingly overnight, and for the first time,

millions had the ability to not just consume AI, but create with it. The response was unprecedented. Within five days, ChatGPT had one million users; within 60 days, that number surged to over 100 million—the fastest that any company or platform has ever achieved that milestone.

- **Proliferation:** The democratization doesn't stop with ChatGPT. There are now several hundred unique generative-AI tools available to the masses, offering a growing inventory of capabilities. By now, most people are familiar with capabilities like content, image, video and code creation, but new capabilities and use cases are spawning at what seems like an exponential rate. From instant conversation starters to 30-second website builds to record-time cell-factory design<sup>2</sup>, we are careening toward a point where no human activity, however mundane or complex, is beyond AI's reach.

I hadn't considered the unprecedented disruption that would be caused by the convergence of three specific dynamics: democratization, proliferation and pace.

Growth by technology (days to 1M and 100M users)



<sup>1</sup> "Microsoft's neo-Nazi sexbot was a great lesson for makers of AI assistants," *MIT Technology Review*, Rachel Metz, March 2018.

<sup>2</sup> thekeys.ai; durable.co/ai-website-builder; cradle.bio

- **Pace:** Perhaps the most disruptive of these dynamics is the pace at which these tools are evolving. ChatGPT 3.5 was released on November 30, 2022. ChatGPT 4.0 was released on March 14, 2023. Within three and a half months, it had become multi-modal. This is quite a step up in function in so short a timeframe. This pace is not unique to ChatGPT, which means that new, unexpected capabilities will continue to launch at a pace which is nearly impossible to manage.

### Welcome to the world of the “unknown unknowns”

Individually, any one of these dynamics would be relatively easy to get my head around. Taken in combination, however, they represent an event horizon for CMOs everywhere past which it is impossible to predict how they will impact our respective brands. To paraphrase former U.S. Secretary of Defense, Donald Rumsfeld, there are the “known unknowns,” (for example, not knowing who in your company is using what tools and how they’re using them), and then there are the “unknown unknowns” (not knowing what capability or tool is coming next, or what the impact might be).

## Humble recommendations for CMOs everywhere

**Embrace the change.** Lean into the excitement, possibility and, yes, the uncertainty of this moment and you will be rewarded!

**Do not act alone.** The CMO is a key player in the enterprise theatre, but we are not the only actors in this play. Get out in front of your organization’s AI usage by aligning with other key functional leaders, such as Product, Legal, HR and IT. Share your perspective on the potential impact to the brand and understand their take. Set a goal of establishing unified guiding principles that apply to and work for all. You can turn these into more formal policies and governance structures over time.

**Survey your teams.** Learn and document how your organization is using what tools, for what reasons, and the value they receive from them.

**Build your business case to move even faster.** Turn those survey results into the beginning of a board-quality business case, complete with the entire enterprise-wide virtue of wide adoption.

**TRUST is your currency.** In this climate of confusion and uncertainty, the value of trust to your customers, employees, and shareholders will only become more essential to your success moving forward. Once you’ve synthesized the outputs of the above into a defined set of guiding principles for acceptable use, publish them in a place that’s visible and accessible to all (see *The Maven Report’s* guiding principles on page 2). In addition to building public trust, being transparent with your AI usage should be viewed as thoughtful and responsible, which will have the added benefit of helping to insulate your brand in the event of any future missteps.

CMOs are typically chartered with corporate communications, including crisis management. We contemplate the possible but finite number of scenarios that would need immediate intervention in order to have responses and solutions at the ready—data breaches, data center outages or cyberattacks are common considerations. But when you think about the growing number of large language models (LLMs), the opaque nature of their algorithms, and the fact that even their creators don’t know exactly how their tools may act once their underlying datasets grow past a tipping point<sup>3</sup>, the potential danger appears limitless. What could possibly go wrong, right? At this point, it seems like just about anything.

### When determining the path forward, let the brand be your compass

Given that generative AI platforms for content and imagery have been some of the first ones launched, it makes sense that marketing departments have been among the first to dip their toes into this brave new world. I’ll admit, it was tempting to hit the pause button and declare a “no-fly zone” for these tools until we could better understand all the risks and benefits, create policies for acceptable usage, and build the technical guardrails to ensure we save ourselves from ourselves. Tempting... but just saying “no” is untenable. It did not take long to realize why turning away from these technologies would be a fool’s errand:

**Innovation defines our brand; fear defies it** – At Ensono, our customers overwhelmingly tell us that they choose to do business with us for a combination of three distinct reasons: our expertise, our flexibility and our culture. In terms of our

expertise, they have every expectation that we will help them be more strategic and navigate through times of technical disruption. We cannot deliver on that expectation if we aren’t sailing our own ship through the same waters.

**Speed matters** – In this new, agile world, perfection is the enemy of progress. Mistakes will be made...period. But in the world of AI, those who learn first, win! We have seen this play out (admittedly much more slowly) over the last decade, with organizations who moved from waterfall to agile operating models—often as part of their digital modernization efforts. Those who moved first went through significant pain, in terms of organizational change, but came out stronger on the other side. Today, these are the companies best situated to capitalize on the generative AI wave. Those who did not take the plunge are now being left behind.

**A compass will always point north** – Embracing what’s next is part of the human condition—especially for top talent. If we don’t move with today’s currents of change, our best team members will gravitate to organizations that do.

Make no mistake, there will a next “other thing.” Look no further than merging AI with quantum computing (see page 3 for Professor Michio Kaku’s take on going down that next rabbit hole).

As his historic speech did more than half a century ago, JFK’s words offer courage and inspiration for this moment and the next, calling us to meet each new challenge—each “other thing”—as “one that we are willing to accept, one we are unwilling to postpone, and one we intend to win.” 

**It was tempting to hit the pause button and declare a “no-fly zone” for these tools until we could better understand all the risks and benefits... but just saying “no” is untenable.**

<sup>3</sup> “Geoffrey Hinton tells us why he’s now scared of the tech he helped build,” *MIT Technology Review*, Will Douglas Heaven, May 2023.



## The immaculate convergence

### How the convergence of exponential technologies is helping Mayo Clinic improve and extend life—exponentially.



Jeff Wile  
EVP, Ensono Digital

In a 2008 television interview, Dr. Aubrey de Grey caused quite a stir when he hypothesized that the first person to live to 1,000 years old had already been born. He then doubled down by adding that he or she “might even be between 50 and 60 years old already.”<sup>1</sup>

Most people who heard his declaration dismissed it as hyperbole or the rantings of someone desperate for audience attention. Yet Dr. de Grey was not some unknown researcher or discredited hack. He was a Cambridge PhD and, at the time, a renowned expert in senescence—the science of biological aging—who went on to serve as the

first Chief Research Scientist at SENS Research Foundation in 2009. Whether you believe de Grey’s claims were well founded, simple exaggeration or the outright delusions of someone who spent too much time in the lab largely depends on how closely you are paying attention. While most credible medical researchers and doctors try to tone

<sup>1</sup> *Aux frontières de l’immortalité*, dir. Gerald Caillat, 2008.

down de Grey’s passion, they also take the science surrounding life enhancement and extension very seriously.

One such researcher is James Kirkland of Mayo Clinic. An MD and PhD senescence researcher and the former Director of the Robert and Arlene Kogod Center on Aging at Mayo Clinic, Dr. Kirkland articulated the circumspection shared by many of his peers in an October 2022 interview with MIT Technology Review<sup>2</sup>: “Most of these trials are going to fail. Most trials do. People should try to be dispassionate, even though everyone has a stake in this game. I mean, every living person does.”

Kirkland’s fitting and measured remarks suggest that while the science is certainly exciting, we shouldn’t go making New Year’s Eve 2999 plans anytime soon. Yet his leveling of expectations aside, one could argue that no organization is doing more than his own in the application of exponential technologies to realize the dream of this radical healthcare evolution—both the quality of life as we age and our lifespan itself.

### 159 years at the cutting edge of healthcare innovation

Founded in Rochester, Minnesota in 1864 by Dr. William Worrall Mayo and his sons William and Charles, Mayo Clinic is today a world-renowned center of medical advancement and innovation dedicated to solving the world’s toughest medical challenges and, in their own words, “make the impossible POSSIBLE.”

Each year, more than a million people from nearly 140 countries arrive at Mayo Clinic, from esteemed heads of state and glittering media stars to ordinary folks from every walk of life. They’re all drawn by its unequalled breadth and depth of expertise and experience, its relentless pursuit of progress, and the deeply patient-centered approach it pioneered at its founding and has been evolving and enriching ever since—perfectly encapsulated in its stated mission to “inspire hope, while promoting health through integrated clinical practice, education and research.”

**“The glory of medicine is that it is constantly moving forward.”**

– Dr. William Mayo

### Mayo Clinic: Exponential innovation by the numbers

MAYO CLINIC



**#1**  
ranked hospital in the U.S.

**\$660M**  
spent on medical research annually

**1.2M**  
patients across 50 states and 138 countries

**10K**  
ongoing human research studies

**5K+**  
full-time research personnel

**750+**  
physicians actively involved in research

**250+**  
full-time scientific faculty

Source: “About Mayo Clinic,” mayoclinic.org; “About Mayo Clinic Research,” mayo.edu.

<sup>2</sup> “The bird is fine, the bird is fine, the bird is fine, it’s dead,” *MIT Technology Review*, Jonathan Weiner, October 2022.

In 2020, Mayo Clinic launched the Mayo Innovation Exchange, a membership-based collective to “bring health care entrepreneurs, startups, and industry experts together to bring breakthrough innovations to market, all for one shared mission—to benefit patients.” Members have access to the expertise of Mayo Clinic scientists and clinicians, state-of-the-art labs and facilities, funding opportunities and more.

Source: [innovationexchange.mayoclinic.org](https://innovationexchange.mayoclinic.org)

In service of that mission, Mayo Clinic has always forged fearlessly and headlong into the medical unknown—and emerged with profoundly life- and world-changing breakthroughs. Its staggering list of “firsts” includes performing the first successful open-heart surgery in 1955, developing and opening the first ICU in 1956, bringing the first CT scanning device to the U.S. in 1973, and the list goes on.<sup>3</sup>

### Exponential tech: The key to unlocking better health outcomes

It comes as no surprise that today, Mayo Clinic is at the vanguard of exploration, discovery and application of AI-based tools and other exponential technologies to ignite the next revolution in healthcare. While most of us are just trying to catch up with and process the head-spinning pace of technological change and its

<sup>3</sup> “Contributions to Medicine,” [history.mayoclinic.org](https://history.mayoclinic.org).

implications, Mayo Clinic is already light-years ahead. In its labs, institutes, exam rooms and operating theaters, the stuff of science fiction and futurist fantasy is transforming the experience and outcomes of healthcare right now.

Here are five key areas where Mayo Clinic’s application of exponential technologies is making the future of healthcare a present-day reality:

#### #1) Stopping stroke in its tracks with robotics

The use of robots in medicine is widespread and goes far beyond the cliched image of spindly-limbed machines poking at a body on an operating table. As just one example of a pioneering innovation on the robotics front, Mayo Clinic’s Center for Innovation (CFI) supported the development and launch of a “stroke robot” that enables Mayo physicians to consult with patients from a remote location at the first possible signs of a

stroke, enabling evaluation, assessment and diagnosis within the brief critical window when treatment can still be effective. This advancement presaged the now-mainstream practice of telemedicine; today, it is an integral part of Mayo Clinic’s telestroke care.<sup>4</sup>

#### #2) Advancing surgical precision with 3D printing

3D printing has proven a revolutionary force across the field of medicine, offering groundbreaking solutions from custom-fitted prosthetic limbs and orthopedic implants to scaffolding that enables the creation of artificial tissue and organs. Mayo Clinic has taken the application of 3D printing technology to new levels, producing life-size, patient-customized models of organs that enable physicians to improve the accuracy, efficacy, and minimally invasive nature of complex surgeries and map out intricate surgical procedures in advance, with far greater precision.<sup>5</sup>

#### #3) Destroying disease with CRISPR gene editing

From eliminating heritable diseases to neutering the impact of cancer, gene therapy using CRISPR (Clustered Regularly Interspaced Short Palindromic Repeats) technology—effectively cutting and pasting genes to remove or inhibit disease-causing mutations—holds incredible promise. In practice, its application remains limited. In the U.S., gene therapy is only available in clinical trials, some of which have shown meaningful success in treating diseases including leukemia, hemophilia and certain types of blindness. More research is needed to overcome the ethical, technical and knowledge-gap

<sup>4</sup> “Stroke robot,” [mayoclinic.org](https://mayoclinic.org), January 2014.

<sup>5</sup> “How 3D printing improves medical care,” [mcpres.mayoclinic.org](https://mcpres.mayoclinic.org), June 2022.

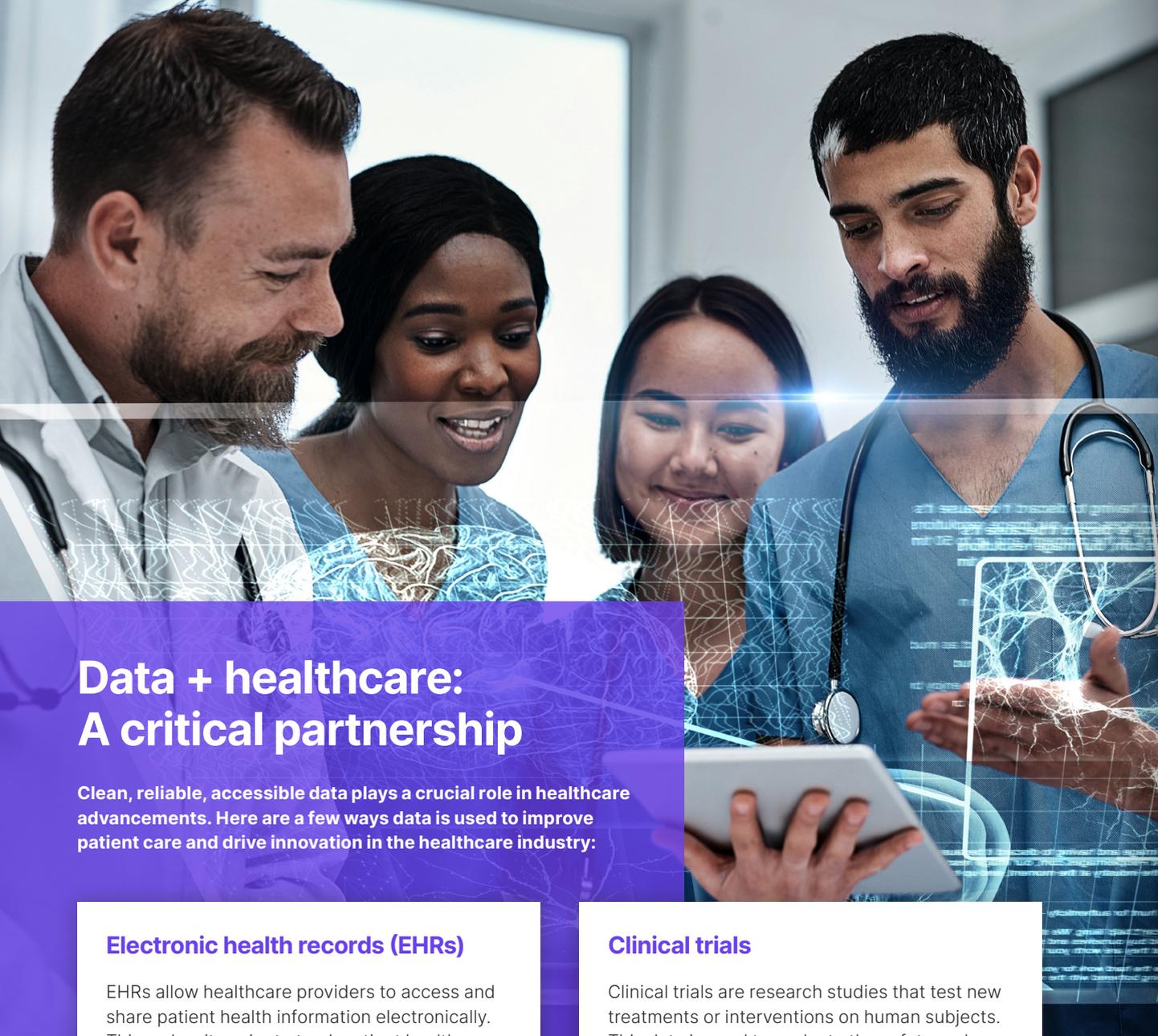
<sup>6</sup> “Gene Therapy Overview,” [mayoclinic.org](https://mayoclinic.org), December 2017.

<sup>7</sup> “First startup blooms from Mayo Clinic cell and gene therapy accelerator with \$750 million Collectis partnership,” [fiercebitech.com](https://fiercebitech.com), January 2023.

challenges surrounding gene editing, and Mayo Clinic is at the forefront of this pursuit, with researchers actively studying its appropriate and effective application<sup>6</sup>, including:

- **Replacing and fixing mutated genes:** Genes that are defective or non-functional can cause some cells to become diseased. A gene called “p53,” for instance, normally prevents tumor growth; several types of cancer have been linked to problems with it. Replacing a defective p53 gene could trigger the cancer cells to die off. Similarly, turning mutated disease-causing genes “off,” or healthy, disease-preventing genes “on,” could have the potential to inhibit certain diseases. Mayo Clinic’s gene and cell therapy accelerator, Mayflower Bioventures, recently launched a new biotech startup focused on gene editing therapies for mitochondrial diseases, a devastating group of disorders which currently have no effective treatments and often result in early childhood death.<sup>7</sup>
- **Training the immune system:** Some cancer cells fly under the radar of the immune system: because it doesn’t recognize them as intruders, it doesn’t attack them and therefore doesn’t emit the biochemical markers that would show up as red flags in blood work, leading to potentially fatal delays in detection and treatment. Gene therapy, specifically immunotherapy, has the potential to train the immune system to recognize and respond to these stealth threats—and quantum computing has the potential to take this even further.

**It’s no surprise that today, Mayo Clinic is at the vanguard of exploration, discovery and application of AI-based tools and other exponential technologies to unlock better health outcomes.**



## Data + healthcare: A critical partnership

Clean, reliable, accessible data plays a crucial role in healthcare advancements. Here are a few ways data is used to improve patient care and drive innovation in the healthcare industry:

### Electronic health records (EHRs)

EHRs allow healthcare providers to access and share patient health information electronically. This makes it easier to track patient health outcomes, identify patterns and trends in patient data, and improve the accuracy and speed of diagnoses and treatments.

### Precision medicine

Precision medicine is an approach to healthcare that uses data about a patient's genes, environment, and lifestyle to tailor treatments to their unique needs. This approach relies heavily on data analytics and machine learning to identify patterns in large datasets and develop personalized treatment plans.

### Clinical trials

Clinical trials are research studies that test new treatments or interventions on human subjects. This data is used to evaluate the safety and efficacy of new treatments and to inform future research and development.

### Public health initiatives

Data is also used to track and prevent the spread of diseases and to improve population health outcomes. Public health agencies use data to monitor disease outbreaks, identify high-risk populations, and develop targeted interventions to prevent the spread of infectious diseases.

### #4) Crushing cancer with nanotechnology

The manipulation of matter on a nanoscale level has significant potential benefits in the field of medicine. The Translational Nanomedicine Program at Mayo Clinic is carrying out research that facilitates the progress of nanoparticle theory and technology, with an eye toward application in cancer diagnosis and treatment.<sup>8</sup> The program is currently engaged in several projects aimed at creating a nanobiosensor as well as nanoplatforms to administer drugs and track results. Mayo Clinic anticipates that the completed research will help to:

- Facilitate earlier diagnosis of pancreatic cancer—one of the most difficult cancers to detect in early stages.
- Offer drug delivery for the treatment of breast cancer, hepatocellular carcinoma, melanoma, pancreatic cancer and renal cancer.
- Enable improved monitoring of patient outcomes following cancer treatment.

### #5) Decoding neural conversations with BCI

Brain-computer interface (BCI) technology establishes a direct connection between the brain and an external device, enabling individuals to interact with their environment via brain activity (think controlling prosthetic limbs or communicating thoughts to a screen) and empowering clinicians and researchers to more effectively study and understand brain function. Leveraging advanced electrocorticographic (EEG) and stereoencephalographic (SEEG) brain signal monitoring technology while observing patients perform tasks

involving speech, language and music, researchers hope to gain a better understanding of how the brain functions in these areas, with the ultimate goal of improving treatment for patients with neurological conditions.

Mayo Clinic is currently utilizing this technology in a clinical trial with advanced epilepsy patients, designed to enhance comprehension of how different parts of the human brain communicate with each other and work together to process information.<sup>9</sup> (Even Elon Musk has gotten into the game—see the next page for more details).

Any one of these technologies and areas of exploration will, by itself, deliver breakthrough improvements to health and longevity that our predecessors could have only imagined—the “impossible made possible.” But it is the promise of their ultimate convergence that’s most thrilling. In combination, the potential impact is unquantifiable. In other words, if you find these advancements inspiring, perhaps even shocking, just wait!

### Cloudy with a chance of immortality

What’s true of nearly all organizations today is urgently so for Mayo Clinic: their work is driven by data. And the cleaner, more accurate, accessible, reliable and integrated that data is, the faster they can achieve better health outcomes for their patients and ultimately, humanity.

Mayo Clinic cites its work related to the IBIS breast cancer risk scoring tool as just one example of how maintaining patient data in the cloud, versus on-premise repositories, directly impacts health

**Any one of these technologies will deliver breakthrough improvements to health and longevity that our predecessors could have only imagined.**

<sup>8</sup> “Translational Nanomedicine Program,” mayo.edu.

<sup>9</sup> “A Study to Evaluate Brain Computer Interface (BCI) and Electrococtography (ECoG)- based Mapping of Sensori-motor and Language Modalities Utilizing Subdural Electrodes in the Human Brain,” mayo.edu.



## More exponential tech on the healthcare horizon: Elon Musk makes BCI history



Elon Musk's neuro-tech startup Neuralink received the first-ever FDA approval for an in-human BCI clinical study in May 2023. Currently in development, the company's Link brain implant aims to restore communication ability to patients with severe paralysis or degenerative diseases by connecting their neural signals directly to external technologies.

Source: "Elon Musk's brain implant company Neuralink announces FDA approval of in-human clinical study," CNBC, May 2023.

outcomes. This web-based calculator estimates an individual's risk of developing breast cancer over the next ten years, based on a variety of factors including age and family history. In combination with other assessments, it can provide critical healthcare and treatment guidance to both individuals and providers. But its effectiveness has historically been hampered by its heavy reliance on data inputs that are often scattered across multiple locations and records, which requires significant computing power to collect and synthesize.

Mayo Clinic has deployed a team to automate this tool using advanced Google AI tools that can extract the relevant up-to-the-minute data points from wherever they reside, so physicians can provide patients with their risk score bedside, in real time, and shift quickly to informed discussions and decision-making—a task that would be nearly impossible without the speed, agility and compute power of a cloud platform.

To get to an optimal data state, Mayo Clinic plans to migrate more than ten million anonymized patient records from

its current data repository to the Google Cloud Platform (GCP) over the coming years. When complete, the organization anticipates a host of benefits including simplified training of machine learning models, and a significant shortening of the time from hypothesis to analysis to AI-based tool deployment—plus system maintenance and cybersecurity—all at a lower cost.<sup>10</sup>

### A better, longer, healthier tomorrow—TODAY

Simply put, it is hard not to get excited about the improvements to both the length and quality of life we will experience in the coming decades. Whether or not the first person to live to 1,000 already walks among us is beside the point. Right now—today—we all have the potential to live longer, healthier, more productive and fulfilling lives than any generation before us. And just as they have for a century and a half, Mayo Clinic will be leading the charge into the once impossible. \ \ 🌀

<sup>10</sup> "Why Mayo Clinic Is Embracing the Cloud and What This Means for Clinicians and Researchers," ncbi.nlm.nih.gov, September 29, 2021.



## Is this the end of the story?

### Generative AI can't infuse a piece of writing with passion, experience, authenticity or soul. One writer wonders: What if it doesn't matter?

**Did I panic when I first found out? Of course I did. Maybe you panicked too. A lot of people did—and not without reason.<sup>1</sup> But I maintain that my initial ChatGPT-induced panic was particularly valid.**

I'm a professional writer. For the better part of 25 years, I have made my living creating written content on demand. So when I heard there was now an available-to-the-masses online tool that could do exactly what I do—have always done, have forged my identity and supported my family doing—AND do

it not in frenzied *can-you-fix-this-real-quick* minutes, stressful *do-you-have-it-yet* hours, painful *it's-due-in-two-weeks* days or torturous *we-go-live-next-quarter* weeks... but in a matter of calm, robotic, unemotional seconds? For free?

*Reader, my blood ran cold.*



**Sheila Lothian**  
Content Strategist & Editorial Director

<sup>1</sup> "Here's how many U.S. workers ChatGPT says it could replace," CBS News, April 2023.



**“These are the days of miracle and wonder... don’t cry.”**

– Paul Simon

I expressed my anxiety on a group call not long after the news of OpenAI’s bomb hit. The objections were immediate and absolute: “What?”, “No way!”, “NEVER.”, “No machine could replace you!” They were SO nice. They were so encouraging! I really wanted to believe them. But I heard the ring of panic in their voices, too. I realized we were all just sitting frozen in the headlights of this speeding AI train, not knowing how far away it was, when the moment of impact would come or what it would feel like, only that one way or another, it was careening straight toward our livelihoods.

But one of my colleagues on the call didn’t join the chorus. He simply gave me a calm, knowing smile from his little corner of the screen, and quietly popped a message into our one-on-one chat thread: “I’ll call you after this.”

Minutes later, he and I were engaged in a combination generative-AI crash course/talk therapy session. “So, you’re worried this thing is going to eliminate your job.” I was. “Have you tried it yet?” I hadn’t. He explained that ChatGPT, while an incredible technological milestone and enormously powerful tool, was only as good as the human-generated prompts it’s given and human-generated information it draws on. That it was prone to bias, inaccuracy and error. That it might function like a kind of intern or junior copywriter for me, even a brainstorming partner, something that could spark ideas or get a piece of content off the starting block. But it wasn’t going to replace me, with all my talent and training and experience. At least, not anytime soon.

“Try it,” he said, “You’ll see.”

## From acute threat to existential dread

It didn’t take long to realize he was right. As I punched in prompts and absorbed paragraph after paragraph of perfectly coherent, articulate, digestible responses, the bone-chilling fear for my professional survival started to dissipate. This was not ready-for-prime-time material. This stuff needed help. Craft. Expertise. Starting point, maybe, but not a finished product fit for public consumption—not on my watch, anyway.

But as the fear faded, another feeling started to seep into its place. One that grew in the weeks ahead, as more people began to dip their toes in OpenAI’s glittering waters. Microsoft Teams chats pinged with personal examples: a website landing page written in the style of Eminem... a sales talk track rendered in iambic pentameter... a picture of someone’s labradoodle fused with Vegas-era Elvis. Links started flying around with real-world use cases: creating delicious recipes out of random refrigerator contents... planning detailed European vacation itineraries.

It was cool. It was AMAZING. And yet. Something about it made me feel... sad. Empty. Like my brain was being drained; my soul sucked out and suffocated.

The feeling soon crystallized into a new, more universally existential kind of panic. Was this new tool the beginning of the end of originality? Authenticity? Creativity? Thinking? The end, even, of storytelling as we know it?

## Love in the time of AI

As a corporate writer, the subject of my writing has never been myself, nor has my foundational source material and motivation been my own ideas or experiences. My projects originate in strategic plans and product launches, downloads from managers and requests from colleagues. I scour resources to support claims. I interview subject matter experts for facts, details and insight.

I’ve always believed, however, that any piece of writing should strive to be genuinely enjoyable to read, within the parameters of its genre. Of course, someone does not come to a set of release notes with the same expectations of entertainment and enlightenment they bring to a bestselling novel. And a technical whitepaper packed with inside jokes and ironic asides would completely detract from the purpose. But people are people. We want and, frankly, deserve to have reading be a pleasant experience, even—maybe especially—when we’re reading for something other than pleasure.

Whenever someone prefaces critical feedback of something I’ve written with an apology, I interrupt them: “Don’t worry about hurting my feelings: this isn’t my memoir.” Yet there’s an element of my writing process that’s ineffable. An alchemy that ties all the disparate external data, facts and perspectives I’ve gathered into a story that’s not only clear and cohesive but also, hopefully, delightful. Whether from superstition, lack of necessity or both, I’d never interrogated that process before. But contemplating what was missing from the AI-generated content I was reading forced me to think about what was present in mine.

The simplest, the only answer, was *me*. Any act of writing, however small or straightforward, involves some amount of sifting through a subconscious basket searching for an ingredient I know I’ll recognize when I find it, by that magical inner “a-ha!” that tells me, YES, this is it—you nailed it.

Maybe all those whitepapers and product sheets and email campaigns and web pages actually have, in a way, been my memoirs: suffused with materials completely unique to me, drawn from archives of knowledge and experience only I have access to, worked into the soil of facts, figures, data and citations with blood, sweat, tears and love to produce something special. Great. Sometimes even beautiful. Those four human elements are ones no AI tool possesses. Which brought me to one last, devastating question: *Does it matter?*

**Blood, sweat, tears and love—those four human elements are ones no AI tool possesses. Which brought me to one last, devastating question: *Does it matter?***

## The right friend for the journey

A few months into the generative-AI revolution, and I don’t have the answer. Maybe machine synthesis and regurgitation will ultimately be a good-enough substitute for human thought and creativity across a critical mass of content types and my contributions won’t be needed. Maybe the love I’ve poured into my writing all these years, and joy I’ve derived from it, will prove, in the end, to have been for my personal gratification alone, objectively elevating the quality of the writing, but ultimately unnecessary for achieving its intended purpose.

**Through trial and error, I've confirmed that I can do the things with this incredible tool that have been promised—without losing my brain or soul to it.**

Still, I'm feeling better.

I have seen it posited that, in a world where trustworthiness is increasingly suspect, authentically human-crafted content will become a premium product, like bespoke suits or handmade furniture. I'll admit it's a prediction that keeps me warm at night.

But I've also embraced the fact that the day-to-day job I love is changing, just as countless jobs over the course of human history have changed in the face of innovation. And like everyone else, then and now, I need to adapt. "Prompt engineering" doesn't involve precisely the same creative and intellectual muscles as from-scratch writing, but they're adjacent. If that's what I need to get great at next, I've got the chops. It's a new skill to learn, hone and master, not a mortal threat to hide from or conquer.

Zero generative AI was used in the writing of this piece. But through trial and error, I've confirmed that I can do the things with this incredible tool that have been promised—kick-start ideas, accelerate output, do more in less time—without losing my brain or soul to it. While I have no plans to hand over the whole of my work to ChatGPT, I do find myself tapping it most days for one purpose or another, and will continue to do so.

The advent of ChatGPT has predictably given rise to an ever-expanding army of people offering tips, tricks, formulas and strategies for harnessing its power. Of the seemingly thousands that have come across my LinkedIn feed, the one that has resonated most is: *Talk to it like you would a friend*. The best outputs I've gotten from ChatGPT have come from inputs crafted through that lens. "So, listen, Chat, I need to bounce something off you. Here's what I'm trying to accomplish. Here are a bunch of details about it. Don't solve it for me, don't do it for me, but give me some feedback; tell me what you think."

Like it or not, we're all headed into a brave new world, with no choice but to move forward. An invisible, unfathomable, career-killing, soul-crushing machine isn't the partner I want for that journey. A friend, I'll take. I can't predict our destination. But who knows? Maybe together, we'll end up somewhere better than either of us could have imagined. [\](#) [a](#)



## An AI breakthrough put to the (Turing) test

**The following story details an extraordinary scientific achievement by King's College London and King's College Hospital. Only we are presenting two versions—one written by a person and one generated by AI. The current ability of generative AI to replicate human behavior may surprise you.**

**Proposed by the renowned mathematician and computer scientist Alan Turing in 1950, the Turing test was designed to determine a machine's ability to exhibit intelligent behavior indistinguishable from that of a human. The test involves a human evaluator interacting with a machine and a human through a text-based interface, attempting to determine which one is the machine.**

To conduct our own Turing test, we provided a real writer and ChatGPT with the same prompt: "Synthesize these two articles<sup>1</sup> into a 750-word article for a magazine issue focused on the impact of exponential technologies on healthcare,

aimed at an audience of CTOs, CIOs, CEOs and other business and technology leaders. Include a clever headline, a quote from Dr. Nilesh Pareek pulled from one of the articles, and three bullet points articulating the outcomes of the technology."

**KING'S**  
*College*  
**LONDON**

**NHS**  
King's College Hospital  
NHS Foundation Trust

Can you tell which of the following two articles was written by a human and which was 100% AI generated?

Vote now at [themavenreport.com](https://themavenreport.com)

VERSION 1



Human or AI?

## Revolutionizing cardiac arrest care

### How exponential technologies are transforming out-of-hospital treatment

**In the rapidly advancing world of healthcare, exponential technologies are driving remarkable transformations in patient care. One such groundbreaking development is a prototype app co-created by King's College Hospital and King's College London, in collaboration with Ensono Digital, a business practice specializing in cloud-native consultancy.**

This app aims to revolutionize the care provided to out-of-hospital cardiac arrest patients, ultimately saving lives and improving health outcomes. Dr. Nilesh Pareek, a renowned expert in the field, believes that "this innovative app has the potential to revolutionize the way we provide care for out-of-hospital cardiac arrest patients, improving their chances of survival and long-term outcomes."

The new prototype app brings together the expertise of clinicians and technology leaders, leveraging state-of-the-art tools and methodologies to deliver enhanced care for cardiac arrest patients. By leveraging the power of artificial intelligence (AI) and machine learning, the app provides real-time analysis and personalized recommendations to emergency

<sup>1</sup> "King's clinicians help develop new app that transforms care for out-of-hospital cardiac arrest patients," [kcl.ac.uk](https://www.kcl.ac.uk), January 2023, and "King's College co-create prototype app for better cardiac arrest care," [Digitalhealth.net](https://www.digitalth.net), January 2023.

responders, enabling them to make more informed decisions during critical situations. This advanced decision support system can significantly improve the outcomes for patients in need of immediate medical attention.

The app's user-friendly interface and intuitive design offer quick access to critical patient information, including medical history, allergies and previous treatments. Leveraging cloud computing and secure data storage, the app seamlessly integrates with various healthcare systems, ensuring real-time data synchronization and reducing the risk of errors. This integration allows emergency responders to provide a more personalized and accurate response, tailored to the unique needs of each patient.

Through its integration with Internet of Things (IoT) devices, the app enables real-time monitoring and tracking of vital signs, such as heart rate and blood pressure. These connected devices provide continuous updates to healthcare professionals, facilitating timely interventions and reducing the risk of complications. By harnessing the power of IoT, the app empowers emergency responders with crucial data, enabling them to make well-informed decisions and deliver personalized care, even before the patient reaches the hospital.

The outcomes of this technology-driven solution are both profound and lifesaving:

- **Improved survival rates** – By providing emergency responders with real-time analysis and personalized recommendations, the app increases the chances of survival for out-of-hospital cardiac arrest patients. The integration of AI and machine learning algorithms enhances decision-making, allowing for faster and more accurate interventions.

- **Enhanced long-term outcomes** – The app's seamless integration with healthcare systems and IoT devices ensures continuous monitoring and tracking of vital signs. This holistic approach to care facilitates personalized treatment plans and ongoing management, resulting in improved long-term outcomes for patients.

- **Streamlined healthcare workflow** – Through its user-friendly interface and secure data integration, the app optimizes the flow of information among healthcare professionals, reducing errors and improving collaboration. This streamlined workflow leads to more efficient care delivery and better allocation of resources.

As we stand at the forefront of the exponential technology revolution, the co-created prototype app by King's College Hospital, King's College London, and Ensono Digital is a testament to the transformative power of collaboration between healthcare and technology experts. With its potential to revolutionize out-of-hospital cardiac arrest care, this innovative solution has the capacity to save lives, enhance long-term outcomes, and streamline healthcare workflows. By embracing and harnessing exponential technologies, we have the opportunity to shape a future where patient care is truly transformative, making a lasting impact on the health and well-being of individuals worldwide.

END V1



Human or AI?

## Good vibrations

### New app promises hope, personalized care for cardiac arrest patients

During a Monday Night Football game in January 2023, 24-year-old Buffalo Bills safety Damar Hamlin suffered cardiac arrest after making a tackle on the field. He remained hospitalized for almost a week, but ultimately survived with minimal long-term damage. By May he was participating in team practice again.<sup>2</sup>

Hamlin's experience is an anomaly for many reasons—primarily the fact that he beat such extreme odds. In the U.S. and the UK, less than ten percent of out-of-hospital cardiac arrest (OHCA) patients survive to hospital discharge.<sup>3,4</sup>

As recent innovations in digital health and telemedicine demonstrate, delivering truly patient-centered care and improving health outcomes starts with meeting people where they are, whenever they need support. Exponential technologies are not simply a means to making care more convenient—they're also a conduit to saving lives. One new prototype currently under development in the UK aims to make cases like Hamlin's the rule rather than the exception.

#### Microsoft Hackathon collaboration offers a path toward medical miracles

Over 40 percent of executives, technology leaders and clinicians report that clinical

decision support technologies will have the greatest impact on their organizations in the next few years, according to HIMSS research.<sup>5</sup> Pairing predictive capabilities with mobile tools has the potential to significantly maximize that impact.

This premise was at the heart of a collaboration between King's College Hospital (KCH), King's College London (KCL) and Ensono Digital (a business practice specializing in cloud-native consultancy) at a recent Microsoft Hackathon event. Over three days, a team of clinicians and consultants developed a prototype for an app to help emergency responders and other healthcare workers triage OHCA patients.

Powered by the MIRACLE2 algorithm, the app calculates a patient's neurological risk level based on specific data such as age, ECG score and heart rhythm. Clinicians can use that risk profile to make more targeted decisions about a patient's short- and long-term treatment plan.

<sup>2</sup> "Bills safety Damar Hamlin eases back into practice 5 months since near-death experience," Reuters, May 2023.

<sup>3</sup> "CPR Facts & Stats," American Heart Association.

<sup>4</sup> "Out-of-hospital Cardiac Arrests," British Heart Foundation.

<sup>5</sup> "2022 HIMSS Healthcare Leadership Survey," HIMSS.

"In that critical first 72 hours after an incident, care currently looks very similar for most patients, potentially missing the chance for vital investigations into the wider impacts of cardiac arrests on the human body," said Dr. Nilesh Pareek, Consultant Intervention Cardiologist at King's College Hospital and Adjunct Senior Lecturer at King's College London. "[This app] is there to potentially support the decision-making of every healthcare professional, from the paramedics who first treat a cardiac arrest patient to the clinicians who receive them at the hospital."

#### For survival and success, speed matters

Partnerships like this between medical professionals, academia and technology experts will be essential to shaping the future of healthcare. On one hand, innovations like the MIRACLE2 app solve for the healthcare industry's number one goal: patient wellness. But they also stand to address organizations' most pressing labor and operational challenges.

• **Improving survival rates** – Though still in development, the app built by King's College and Ensono has the potential to radically improve OHCA patient outcomes. Although similar frameworks already exist for guiding OHCA treatment, emergency departments have not widely adopted them due to their complexity.<sup>6</sup> The power of exponential technologies does not always lie in their novelty—but in their ability to transform, or accelerate, the familiar.

• **Overcoming workforce shortages** – The U.S. alone faces a shortage of more than 100,000 physicians by 2024.<sup>7</sup> To mitigate the impact of this gap, more than half of healthcare leaders are using or plan to use digital health solutions.<sup>8</sup> With fewer hands on deck, in and outside of traditional care settings, healthcare organizations need to invest in tools that empower staff with the accurate, accessible data they need to act faster and with precision.

• **Pushing the limits of what care delivery can be** – All signs point to the permanence of virtual care: 68 percent of healthcare leaders say it is among the technologies that have already or will have the biggest impact on improving care in the next three years.<sup>9</sup> But the industry-wide conversation about moving care outside of the hospital setting has largely centered on treating patients in their homes or online. But cardiac arrest can happen anywhere, anytime. Continued advancements in mobile technology will open up new possibilities for both care delivery and emergency response.

It's not possible to predict exactly when and where cardiac arrest will occur. But predictive technology like the MIRACLE2 app can help healthcare organizations more confidently support patients when it does. Professional athlete or not, that's a game changer. \

END V2

<sup>6</sup> "MIRACLE2 Risk Score for Early Prediction of Neurologic Outcome in Out-of-Hospital Cardiac Arrest," REBEL EM., January 2021.

<sup>7</sup> "Lawmakers stress urgency of healthcare worker shortage," Healthcare Dive, February 2023.

<sup>8,9</sup> "Future Health Index 2023: Taking healthcare everywhere," Philips.

Think you know which version was written by a human and which was AI generated?

Cast your vote and discover the answer at [themavenreport.com!](https://themavenreport.com)

# IBM's Chris Zabler on navigating the appropriate use of AI tools

**The sudden, overwhelming proliferation and democratization of AI tools, and the mind-boggling pace at which they're being developed and evolved, have formed a juggernaut of technological advancement that individuals and businesses alike are struggling to fully understand, let alone keep up with.**

**In its 100-plus-year history at the forefront of innovation, the path into the technological unknown is one IBM has walked many times before. *The Maven Report's* Sheila Lothian recently sat down with Chris Zabler, Vice President of Sales, Data & AI at IBM to get an insider's take on our current moment from the world's OG AI company.**

Sheila and Chris discussed the opportunities, risks and questions presented by AI-based innovation, as well as the steps organizations navigating these uncharted waters need to take to ensure they're using these

disruptive technologies appropriately, intelligently, and in ways that align with their business differentiators, strategic goals and company values. What follows is their conversation, condensed and lightly edited for clarity.

**Sheila Lothian:** Chris, how is the democratization of AI, through the emergence of generative AI tools, impacting your role at IBM? Is this moment fundamentally different somehow from what has come before?

**Chris Zabler:** Given the commercial availability now of generative systems, the biggest change to date has been the lowering of the bar for who can actually participate in the exploration of the power of AI. Our collective focus on using AI to drive automation and optimization of human tasks, combined with the ability to make better predictions, has been the driver behind the perceived value of AI. However, only those who were comfortable with leveraging techniques and languages like Python, Scala and R could participate in "dreaming big."

Today, those barriers to entry have been drastically lowered, which has empowered non-technical advocates to look to generative AI to accelerate the delivery of business value without the overhead of complexity of writing code.

Ironically, the same challenges that we have been working at solving for over a decade with machine learning models are now becoming the focus of generative AI platform. Trust, transparency, data privacy, data quality and how to best use AI to build and maintain competitive advantage when everyone is using the same platforms, data and techniques has become a critical part of the narrative.

So, while the audience of participants in the conversation has expanded, the gating factors that have limited enterprise deployment of AI at scale are the same.

**SL:** How do you define appropriate usage of AI, and how is it different from ethical usage?

**CZ:** Intent is a critical decision point for me in distinguishing appropriate AI usage. At IBM, for example, augmentation of human intelligence—not replacement—is the primary focus of AI. The power of AI to tackle problems at a scale never before thought possible now allows us to make better decisions around business strategies, as well as how to support acceleration of everyday human tasks that tend to be the most time consuming across our enterprises. It also unlocks our ability to reach and connect with customers and employees on an entirely different level.



**"At IBM, augmentation of human intelligence—not replacement—is the primary focus of AI... the ethical element has to do with HOW you are leveraging your existing data."**

**— Chris Zabler, Vice President of Sales, Data & AI, IBM**

The use cases that support and augment how we make business decisions around supply chain optimization and hyper personalized customer support are great examples of how organizations are leveraging AI for good. If that same technology gets applied to target or exclude certain demographics or consumers, then very quickly the intent for which we are using AI is drastically altered.

The ethical element has to do with HOW you are leveraging your existing data to make many of these kinds of critical decisions. How we identify both conscious and unconscious bias, for example, becomes a key element which needs to be addressed in the data sets we are using to train any of our models. Aside from the process by which we build AI, its application to business

Learn more about IBM's new watsonx AI and data platform at [ibm.com/watsonx](https://ibm.com/watsonx)

and societal problems is where the distinction of HOW we use AI comes into the picture.

As organizations mature in their usage of AI for all use cases, checks and balances will clearly be needed. At IBM we have instituted an Ethics by Design framework as part of our core principles, with the goal of integrating technical ethics into everything we do in the AI space. The central mission of this framework is to enable AI as a "force for good" by embedding the principles of transparency, fairness, robustness, explainability and privacy as the foundational pillars of trust. Enabling AI workflows built with these principles is also one of the key components of our watsonx AI and data platform, which was announced at IBM's Think conference in May.

**SL:** Everyone wants "in" on AI, and the available tools seem to be multiplying exponentially. What business functions or units should be the highest priority for investing in or implementing AI-based solutions, and what does that evaluation process look like?

**CZ:** Employee efficiency and productivity, personalized customer experience and supporting sustainability efforts have quickly shot to the top of the list of where clients are investing. Not only are these areas with tremendous visibility and impact on an organization's ability to differentiate their products and services with their end consumers, they are also the areas that tend to have the highest fragmentation of data, spread across multiple clouds and SaaS applications.

Evaluating where to start is usually a combination of two things. The first is, where do I think I can have the biggest impact on changing the experience for both the way my clients interact with my organization, and how my employees are supported in building and delivering exceptional personalized experiences?

The second core factor is, where do I have a solid foundation of data to build from? While generative AI tools have accelerated an organization's ability to build new models at scale and speed, access to trusted, governed data of high quality is often the barrier to entry for tuning and customizing new models with domain specific data.

**SL:** What are the risks associated with even the appropriate uses of AI tools and what controls, policies, guidelines and best practices should organizations implement to mitigate them?

**CZ:** The three Rs, as I like to call them, that cause the biggest concern around the usage of AI are: Reputation, Regulation and Revenue.

Every week, we see new use cases of the lack of visibility and control over what AI systems produce on the covers of newspapers and magazines all over the world. The damage caused when trust has been breached is often irreversible, and the impacts can be seen almost immediately. Combined with the rapidly evolving regulation, proving that you are building and deploying AI with trust, will also have an immediate impact on the speed at which organizations feel comfortable deploying new models.

The requirements around providing what, why, to whom and where models live have already become part of the narrative in the same way we saw data privacy regulation soar with the introduction of GDPR. In totality, how we manage and govern data as well as how we leverage that trusted data within the organization has quickly become a dinner table conversation, not one taking place in boardrooms only. (See also, "Leveraging your brand as you dive into the technological unknown", page 8.)

**SL:** Given the potentially catastrophic consequences of a misstep, should enterprises try to manage the adoption of these technologies in-house or use an external partner?

**CZ:** The skills conversation has always been a driver for when and where to source external resources to support leveraging of new technologies. We will continue to see an evolution of business user driven tools to augment the developer-codified view of the world, the kinds of skills that organizations will need will change.

In the short term, I anticipate the need to combine both the skills and business acumen of internal teams and resources with external expertise in emerging technologies. Ensuring there is alignment around corporate values, a focus on social justice and equality, as well as a shared mission around building AI using the core pillars of trust, is the best way to mitigate any additional risk when expanding the sets of skills and personas you will need to bring these technologies into the enterprise.

(See also, "Ensuring humanity and equity in an AI-driven workplace", page 32.)

**SL:** Finally Chris, how do you see the use of generative AI and other advanced AI tools evolving in the near term?

**CZ:** I expect to see a "slow down to go fast" approach really take hold in the coming weeks and months. While the whole world has seen the power of generative AI to use large language models to create beautifully written text-focused material, the risks and concerns around what may actually be produced, and the lack of visibility and transparency around how those models have been trained, is causing a lot of hesitation and pause.

As organizations build out their own AI governance practices, it will come down to balancing the promise of AI against the need for oversight, risk management and investment decisions. The only way I see this being possible is to build and deploy a framework with ethics at its core, with a focus on using technology as a force for good. \ \ \



### 3 core principles for maximizing AI impact and value across the organization

IBM has been managing issues relating to the trustworthy use of AI for decades. *The Maven Report* asked Chris to share the timeless lessons IBM has learned over the years that every enterprise must now learn... fast.

- 1) There is no AI without IA (Information Architecture)** – Your models will only be as good as the foundation of the data that you are using to build from.
- 2) Prioritize constant vigilance** – Real-time, proactive monitoring of model accuracy and bias is the only way to reduce the risk of reputational, revenue and regulatory impact.
- 3) Respect the ML/AI twins: MLOps and AI governance** – The way you build, deploy, manage and monitor both are two sides of the same coin and are explicitly linked.



# Ensuring humanity and equity in an AI-driven workplace



**Mandy Long**  
Manager, Culture & People Experience, Ensono

**The use of AI within HR can aid in DEI initiatives—but it can't create an inclusive workplace on its own. To achieve meaningful progress, HR organizations must partner AI solutions with diverse human experiences and expertise.**

**In February 2023, Tesla recalled over 300,000 vehicles due to bugs in its driver assistance software, which could result in crashes.<sup>1</sup> The buzz around artificial intelligence (AI) and its potential for every industry and business function has never been more palpable. But, as the Tesla example illustrates, AI is not perfect—even when it's trying to help us.**

When we completely hand over the keys (literally and figuratively) to intelligent machines, the repercussions can be problematic. Much like self-driving cars, corporate diversity, equity and inclusion efforts are still evolving.

There is a lot of potential for AI to help, to compensate for human flaws and make manual or minor tasks easier. But used incorrectly, or prematurely, it can do material damage.

<sup>1</sup>“Tesla recalls 362,758 vehicles, says Full Self-Driving Beta Software may cause crashes,” CNBC, February 2023.

In a year marked by mass layoffs, constrained hiring budgets and faltering employee engagement, it's inevitable that HR departments will look to technology to win back time and focus. It's even more likely that the tools they evaluate will have some degree of AI functionality. As both realities come to a head, the onus falls on businesses to ensure these tools are thoughtfully selected, implemented and managed.

Employees and the technology they use must be held to the same ethical standards to ensure that innovation doesn't come at the expense of progress toward your diversity, equity and inclusion (DEI) goals.

## AI's potential to positively transform HR

HR and people departments manage an exorbitant amount of data, more than any human team alone can feasibly parse, analyze and act on. Generative AI and predictive analytics platforms can take on the cumbersome work of filtering signals from noise, giving employees the context (and time) they need to build more effective programs. They might also be the key to creating a true performance mindset around their DEI efforts.

For some businesses, progress against diversity commitments is measured by the availability of specific programs rather than their results, according to Deloitte research.<sup>2</sup> Few respondents reported that their organizations align DEI progress to business outcomes like revenue.

More accessible AI solutions can help HR teams both expand the scope of their DEI work and connect it to overarching recruitment, engagement and retention goals. For example:

- **Recruiting:** AI tools can draw on reams of internal and third-party data to create more objective job descriptions and interview questions.
- **Coaching:** Similarly, generative AI tools can be a font of inspiration for team meeting prompts or check-in questions to guide employee/manager one-on-ones.
- **Pay and benefits:** They could analyze compensation sources in and outside an organization, highlighting opportunities to recalibrate salaries with market benchmarks or flagging pay inequities across employees of a particular level or department.
- **Performance management:** AI can aggregate review data, documented feedback, corporate training and test scores to identify the most pressing learning and development needs across an organization.
- **Employee engagement:** It's not unreasonable to imagine AI scraping a variety of internal data sources (e.g., PTO requests, all-hands Q&As, documented feedback) to keep a real-time pulse on employee morale.

The possibilities are promising, but true innovation doesn't come without a few speed bumps.

## Use with caution: Confronting the reality and repercussions of AI bias

Humans and machines both bring biases to their day-to-day—the difference is that AI can reinforce bias at scale. The algorithms that underpin AI technology learn from massive datasets. When AI is trained on historical information, it runs the risk of perpetuating patterns of ethnic, racial and gender discrimination (as has already been the case with online

<sup>2</sup>“Taking bold action for equitable outcomes,” Deloitte, January 2023.

**Human and machine both bring biases to their day-to-day. The difference is that AI can reinforce bias at scale.**

## HR teams cannot control how technology vendors build their AI. But they are accountable for ensuring the tools they invest in don't expose their organizations to injustice or inequity.

mortgage lending and facial recognition software). And despite advances in natural language processing and sentiment analysis, much of the information AI learns from and acts on is quantitative. But any HR expert would admit that the work of people operations requires qualitative inputs as well. How many strong candidates or high performers might be passed over because their application data didn't match an AI-generated "ideal" profile?

Even more problematically, AI can be manipulated to make decisions that reflect the prejudices of its human managers. In 2022, the U.S. Equal Employment Opportunity Commission (EEOC) sued the China-based iTutorGroup for allegedly programming its employee recruitment software to automatically reject applicants over a certain age.<sup>3</sup> Examples like this prove how fast hastily implemented technology can undo an organization's DEI progress. On top of reputation and brand risk, businesses that adopt AI without robust vetting and oversight may increasingly be subject to regulatory penalties.

The EEOC released a draft enforcement plan in January 2023, detailing its intentions to hold automated recruiting systems accountable to federal nondiscrimination laws.<sup>4</sup> Beginning in July 2023, the New York City Department of Consumer and Worker Protection will enforce a new rule making it illegal for city employers to rely on automated employment decision tools unless they are regularly audited for bias.<sup>5</sup> The UK government has also signaled toward forthcoming regulations to ensure the fair, transparent use of AI.<sup>6</sup>

<sup>3</sup> "EEOC Sues iTutor Group for Age Discrimination," U.S. Equal Employment Opportunity Commission, May 2022.

<sup>4</sup> "EEOC Targets AI-based Hiring Bias in Draft Enforcement Plan," Bloomberg Law, January 2023.

<sup>5</sup> "NYC Finalizes Regulations on AI Employment Tools and Will Begin Enforcement on July 5, 2023," JD Supra, April 2023.

<sup>6</sup> "UK unveils world-leading approach to innovation in first AI white paper to turbocharge growth," Gov.uk, March 2023.

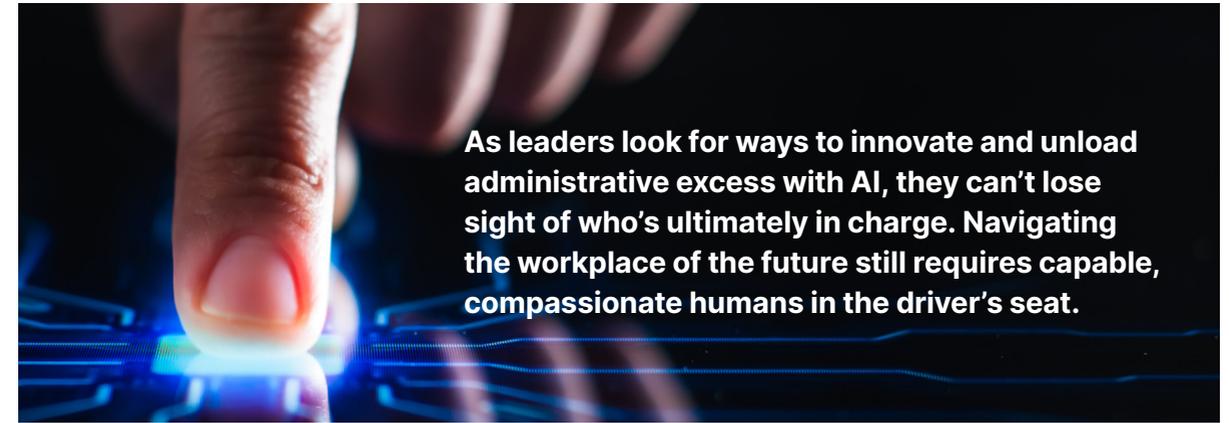
<sup>7</sup> "What's vaulting into the C-suite? Trends changed fast in 2022," LinkedIn Workforce Insights, February 2023.

<sup>8</sup> "Fresh SHRM Explores Use of Automation and AI in HR," SHRM, April 2022.

## What a responsible approach to AI use looks like

The potential for bias exists in phases of the AI lifecycle, from product conception and design to implementation and ongoing management. How technology vendors build their AI capabilities is beyond any HR team's control. But they are accountable for ensuring the tools they invest in don't expose their organizations to injustice or inequity. HR leaders must consider these four steps as they navigate the AI-driven workplace:

- **Acknowledge that human expertise and AI are not an "either/or" dynamic.** Despite being the C-suite title with the fastest growth between 2020 and 2021, chief diversity and inclusion officer hiring declined more than four percent in 2022.<sup>7</sup> Amid this trend, AI should not be viewed as a replacement for capable leaders. Software can quickly analyze massive datasets, but it can't necessarily communicate recommendations to busy executives or develop a cohesive strategy for tying DEI programs to business objectives.
- **Develop an airtight due diligence process.** Of organizations that currently use automation or AI to support HR functions, only two in five say the vendors they partner with are very transparent about what they do to prevent bias in their tools.<sup>8</sup> HR teams will need to work even more closely with their IT and legal colleagues to develop clear requirements and evaluation criteria for assessing any new solution. Be prepared with specific questions that dig into how vendors develop and train their AI, and what checks and balances are built into their systems to mitigate bias.



**As leaders look for ways to innovate and unload administrative excess with AI, they can't lose sight of who's ultimately in charge. Navigating the workplace of the future still requires capable, compassionate humans in the driver's seat.**

- **Prioritize small experiments.** With many enterprise technologies, early adoption can be a competitive advantage. But with AI, in particular, pressure testing tools through controlled pilot programs can help mitigate risk (and other unintended consequences). Today, more than 70 percent of U.S. adults oppose businesses using AI to make final employment decisions—a strong indicator not to go all-in on outsourcing the hiring process to machines.<sup>9</sup> HR leaders should look for tedious steps within existing workflows that can be safe candidates for experimentation. Whether these tests impact internal operations or external applicants, organizations must be transparent and specific about how they're using AI.
- **Audit your AI, regularly.** Especially with instances of self-learning AI, the technology you implement today may not operate the same tomorrow. HR teams need to institute a routine cadence for reviewing AI systems to ensure they're not making inequitable recommendations or inferences. As more government authorities establish frameworks for regulating AI, audits are likely to become a requirement (as documented in New York City's recent rule) rather than simply an extra layer of protection.

Diversity, equity and inclusion are human issues—in other words, nuanced. No technology alone, even AI that can pick up on sentiment or mimic natural language, is capable of "fixing" these challenges. But left unchecked or unattended, it may exacerbate them. As leaders look for ways to innovate and unload administrative excess with AI, they can't lose sight of who's ultimately in charge. Technology can help teams accelerate their efforts and shift gears as needed, but navigating the workplace of the future still requires capable, compassionate humans in the driver's seat. \ \ \



### DIGITAL EXCLUSIVE

**Join author Mandy Long and fellow Ensono DEI Ambassadors Emma Fenwick and Tina Oxford for an insightful roundtable discussion of the AI/DEI intersection, ONLY at [themavenreport.com](https://themavenreport.com).**

<sup>9</sup> "AI in Hiring and Evaluating Workers: What Americans think," Pew Research Center, April 2023.



# Contemplating the impact of exponential technologies

For this issue, our editorial director Sheila Lothian picked up the virtual audience mic to get the Mavens' thoughts on our current technological moment and what today's advances portend for tomorrow's world.

Dear Mavens,

What is something that excites and/or concerns you about exponential technologies, and are you willing to make any predictions about their future impacts? (Don't worry, I won't hold you to them!)

Sheila in Chicago



### Possibilities that excite

"For a number of years, well-meaning compliance policies will get in the way, but eventually AI will be able to safely and confidentially access large amounts of medical information and make an extraordinary impact on human health

and well-being. At every doctor's appointment you have, your symptoms, vital signs, any blood work and data from wearables will be uploaded to a common database allowing AI to do pattern recognition and early identification of problems."

– Brian Klingbeil,  
Chief Strategy Officer, Ensono

"The promise of AI personal assistants coming true. Many of us agree that assistants at work help us all accomplish more, provide higher quality outputs and organize our businesses. The promise of Siri, Alexa, Google Assistant and Cortana was that we were getting an assistant for our personal lives. While we've seen routines and transactional tasks like adding calendar invites, creating reminders or playing music get easier, the promise has largely remained in the future. With generative AI, we are much closer to the 2013 movie "Her" than we ever were. Although falling in love with my AI assistant is not in the cards, I am SO EXCITED for the AI future!"

– Sean Mahoney  
Vice President, Ensono Digital

"The potential to increase the velocity of new discoveries, increase production and so free up people's time to explore personal projects, be that research, art or social."

– Claire Connor  
Senior Mainframe Solution Architect, Ensono



### Potential for concern

"Generative AI is a dangerous step towards anonymous thought. Attribution of source data, authors and content origination are washed away, calling into question the legitimacy of the content."

– Robert Christiansen,  
Founder & CEO, Motive for Life and The Durable Innovator

"Self-driving vehicles have been a hot topic because millions of people in the U.S.—as much as nine percent of the population in some regions<sup>1</sup>—make all or some of their income based on driving. If self-driving vehicles were proven to

be safe and governments allowed this technology to be leveraged, it would represent the biggest job displacement in the history of the U.S. But generative AI, I believe, would have a far greater impact on our job market than self-driving vehicles ever would.

"Currently there are 2.78 million administrative professionals, 6.68 million finance and insurance professionals, roughly 3 million legal professionals, and many other industries that would see significant productivity boosts out of 132 million total full-time employees. My estimate is that 30–40 percent of people could see their jobs replaced by these two converging forces in the long term. Critics would argue that computers were supposed to do the same thing, but that people created new jobs related to computers that helped bolster our job market. While accurate, the computers that have been around in the last 50 years have required supervision, development and maintenance. Generative AI can be configured to self-heal, self-train, learn and contribute in new ways constantly."

– Sean Mahoney

"It has the ability to increase the social divide, concentrating power and wealth in an ever-shrinking group of individuals."

– Claire Connor

"My main concern is the most common one—many jobs will be automated away, affecting many people. Throughout human history this has always happened—advancements in technology have eliminated jobs, everything from telephone operators to factory workers, and even film projectionists and bowling alley pinsetters. History has shown us that technology always creates new jobs as well, but the temporary disruption is painful for some and with AI it might be the most painful transition yet."

– Brian Klingbeil

<sup>1</sup>"Driverless cars will kill the most jobs in select U.S. states," Mark Fahey, CNBC, September 2016.



## Predictions for the future

“There have been several trials of a four-day work week around the world. The AI revolution will be the thing that pushes that into a universal reality. With AI supplementing so many of our everyday tasks, we’ll all be able to get more done in less time.”

– **Gordon McKenna**,  
Chief Technology Officer, Ensono

“AI is and will continue to redefine the ‘superwoman’: It will be the working mom’s sidekick, helping to optimize calendars and task assignments, manage email and, most importantly, prioritize personal commitments alongside professional responsibilities. This will hopefully (and finally) give us working moms more control over time and achieving the elusive work/life balance.”

– **Violette Siczka**  
Managing Editor, *The Maven Report*

“The convergence of quantum computing and artificial intelligence will dramatically reshape our world—potentially leading to 100 percent unemployment by 2060, redefining the very essence of what it means to contribute to society as we start raising children not for purpose, but for passion.”

– **whurley**,  
Founder and CEO, Strangeworks

“We take for granted so much technology that makes our lives better. For example, the idea of watching a movie on your phone or getting real-time, traffic-avoidance instructions was incredibly far-fetched 20 years ago and is now very normal. I predict that the unpredictable will happen. There will be a use case for AI that we have not even conceived of yet that will have a very positive impact on our day-to-day lives—and then will immediately be taken for granted.”

– **Brian Klingbeil**

“The most-talked-about advertisement at the 2024 Superbowl will be written and recorded by generative AI, will include people interacting and look real. We’re already seeing images and videos being created by DALL-E that defy our senses, showing images that look real but never existed in reality. This year will bring new capabilities in generating people and scenes in video form that will also make us all do a double-take and say ‘Wow, no human was involved in creating this advertisement.’”

– **Sean Mahoney**

### Pose a question to our Mavens today!

Submitting a question to Ask a Maven is quick and easy. Just send us an email at [askamaven@themavenreport.com](mailto:askamaven@themavenreport.com). Include your question and let us know how you’d like to be identified (provide your name, company and/or industry) or if you’d prefer to remain anonymous.

Our Mavens personally review and consider each reader submission. If yours is featured in an upcoming issue, you’ll receive a special Maven gift—our way of saying thanks for asking a Maven.

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