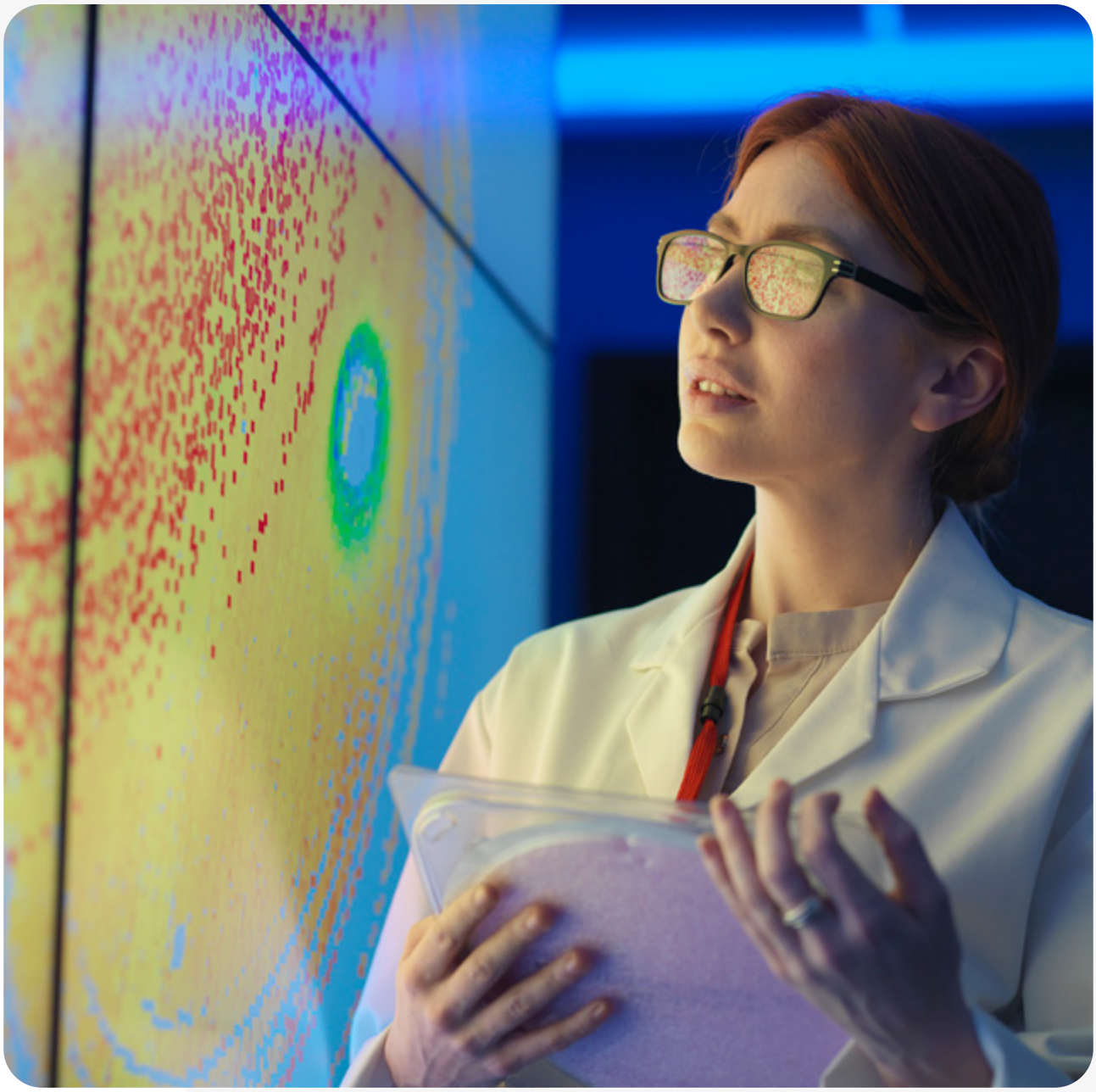
Insights 2024:
Attitudes toward AI



Key Findings

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Contents

Introduction

> "The development of AI is as fundamental as the creation of the microprocessor, the personal computer, the Internet, and the mobile phone. It will change the way people work, learn, travel, get health care, and communicate with each other."

Bill Gates[1]

Generative artificial intelligence (GenAI) has entered the market at an unprecedented pace, with most researchers and clinicians aware of its biggest applications, following their emergence in late 2022.

What is GenAI?

GenAI, short for generative artificial intelligence, refers to a category of artificial intelligence systems and models that have the ability to generate data, content, or other outputs that are similar to those created by humans. These AI systems are designed to produce new and original content rather than simply process or analyze existing data.[2]

The artificial intelligence (AI) landscape is changing rapidly, and in order to ensure the technology has a positive impact on research and healthcare, it's important to monitor the views of those who could be using it.

The Insights 2024: Attitudes toward AI research aimed to do this, by surveying nearly 3,000 people working in research (including leaders and corporate researchers) and in health (clinicians) from around the world.

The research examines the attitudes of researchers and clinicians toward artificial intelligence, including generative AI, covering its attractiveness, perceived impact, the benefits to them and wider society, the degree of transparency to be comfortable using tools that capitalize on the technology, and the challenges they see with AI. It also looks at the current usage, and what respondents think would help them trust AI tools.

The main report explores these themes across three chapters. You can read summaries of them here.

Online survey

Insights 2024:

Attitudes toward AI

When: December 2023 to February 2024
What: 15-minute online quantitative survey
Who: 2,999 respondents from across 123 countries

- 2,284 researchers
- 1,007 clinicians

(of whom 292 are also included as researchers)

Results: To improve representativeness we weighted responses by region, based on OECD and Pharma Factbook population data, and to equally represent researchers and clinicians in totals. Clinicians are weighted equally by doctors and nurses.

Highlights

Awareness of AI is high, but usage is lower, with expectations that this will grow. Institutions have not yet clearly conveyed their AI usage restrictions, or their preparations for increased use of AI, to researchers and clinicians.

96% Have heard of AI (including GenAI) - subsequent statistics exclude the 4% not familiar with AI

54% Have used AI (including GenAI)

31% Have used it for work purposes

11% Are very familiar with AI and have used it a lot

67% Of those not already using AI, expect to use it within two to five years

Caution is evident in many areas, highlighting points of attention for developers and institutions believe it has the potential to...

94% Be used for misinformation

86% Make critical errors or mishaps

81% Erode critical thinking skills

79% Cause disruption to society

The outlook is optimistic: researchers and clinicians foresee a range of benefits from AI. They believe it will help...

95% Accelerate knowledge discovery

94% Rapidly increase the volume of scholarly and medical research

92% Provide cost savings to institutions and businesses

87% Increase work quality overall

72% Also think it will have a transformative or significant impact on their area of work

Specific actions can help increase trust, and by taking and communicating them, providers of AI tools can increase users' comfort.

81% Expect to be told whether the tools they are using depend on generative AI

71% Expect generative AI dependent tools' results bebased on high quality trusted sources only

Future uses of trusted AI tools amongst those who believe AI can benefit their work: likelihood of using a reliable and secure AI assistant to...

Generate a synthesis of research articles in a specific area
– 89% of researchers

Review prior studies, identify gaps in knowledge and generate a new research hypothesis for testing
– 94% of researchers and clinicians

Assess symptoms and identify possible conditions or diseases
– 94% of clinicians

Chapter 1:

The current AI landscape

Explore the awareness, perceptions and usage of AI (including GenAI) among researchers and clinicians around the world.

- 96% have heard of AI (including GenAI) – subsequent statistics exclude the 4% not familiar with AI
- 54% have used AI (including GenAI); 31% have used it for work purposes, this is higher in China (39%) than in the USA (30%) and India (22%)
- 11% are very familiar with AI (including GenAI), i.e. they've used it a lot
- ChatGPT is by far the most well-known AI product (89%)
- 25% have used ChatGPT for work purposes
- 49% of those who have not used AI cite a lack of time as the reason
- 42% of those who have ethical concerns about AI cite as a top disadvantage that it is unable to replace human creativity, judgement and/or empathy

Researchers and clinicians are on a journey from awareness to usage to benefit when it comes to AI. Awareness of AI in general is high among both researchers and clinicians, but relatively few say they are currently very familiar, having used AI a lot. Over half of both groups who are aware of AI have used it, and almost one-third have used it for a specific work-related purpose; this is highest in China (40%). A lack of time to investigate such tools is the main reason for not using AI.

Awareness of GenAI tools

In the current survey, almost all (96%) have heard of or used AI. Awareness is highest in China, at 99% (see accompanying databook for full details). Globally, only 11% are very familiar with AI, having used it a lot. This is higher among researchers (14%) than it is clinicians (8%).

ChatGPT is by far the most well-known AI product, with 89% of survey respondents globally being familiar with it. Researchers (94%) are more likely than clinicians (84%) to have heard of it.

The next most familiar GenAI tool is Bard (40% overall), followed by Bing Chat (39%), Gemini (22%) and MS Copilot (22%). Lesser-known tools are Semantic Scholar (17%), ChatPDF.ai (13%) and OpenEvidence (8%). In all cases, researchers are more likely than clinicians to be familiar with the tools.

Perceptions of GenAI

While awareness of certain GenAI tools is high among both researchers and clinicians, attitudes to the technology are more variable, with 49% of respondents globally saying they feel mixed about AI, able to see both potential and drawbacks.

However, sentiment is generally more positive about the impact of AI than negative: 36% of respondents say AI is a welcome advancement, compared to just 1% who see mostly drawbacks. Researchers (41%) are more positive about the technology than clinicians are (32%) and US respondents are less likely to feel positive, 28% in the US vs. 46% in China, 41% in India. Clinicians are also more unsure, with 17% saying they need to see how AI develops, compared to 10% of researchers.

The vast majority (95%) of respondents believe GenAI will have an impact on their work (1% think it won't, 4% don't know), with 72% believing the level of impact will be either transformative or significant.

Overall feelings towards AI (including GenAI)

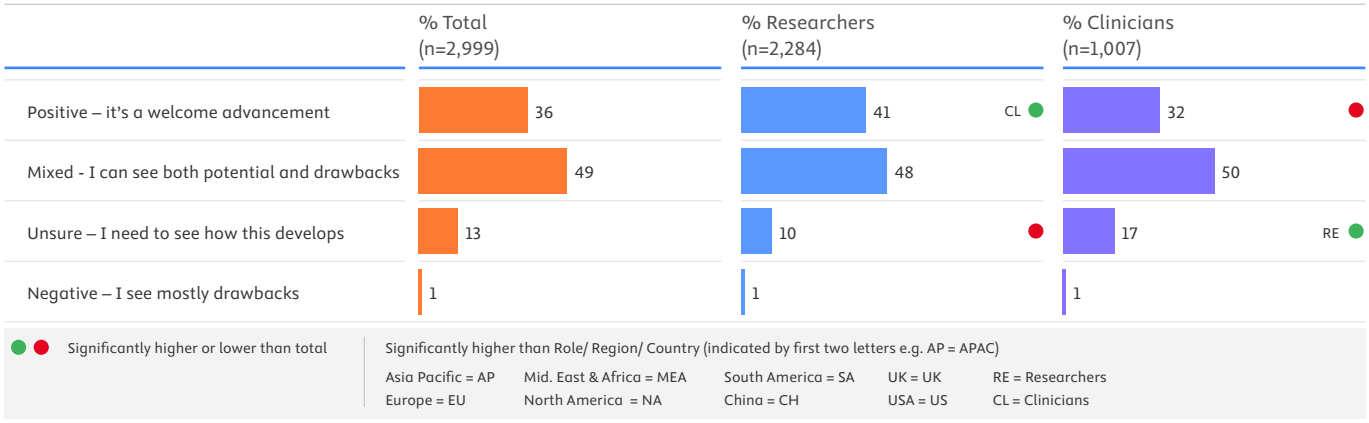


Fig 1. **Question:** What are your overall feelings about the impact of AI on your area of work

AI in practice

Of those familiar with AI, more than half (54%) of respondents in the current research have used AI, with researchers (59%) more likely than clinicians (50%) to have used it.

Proportionally more researchers (37%) than clinicians (26%) have used AI tools for a work-related purpose.

One-quarter (25%) of respondents in the current study have used ChatGPT for work, with usage significantly higher among researchers than clinicians (31% and 19% respectively). Comparatively few (4%) report using MS Copilot (in Word, Excel and PowerPoint).

The most common reason for researchers and clinicians not having used GenAI is lacking the time to investigate or experiment with the tools – 49% of respondents globally cite this as the reason, including 52% of researchers and 47% of clinicians.

Other reasons given for not having used AI tools include lack of access (26%), not having the right tools (25%) and having concerns about AI tools (22%).

Usage of AI and context for usage

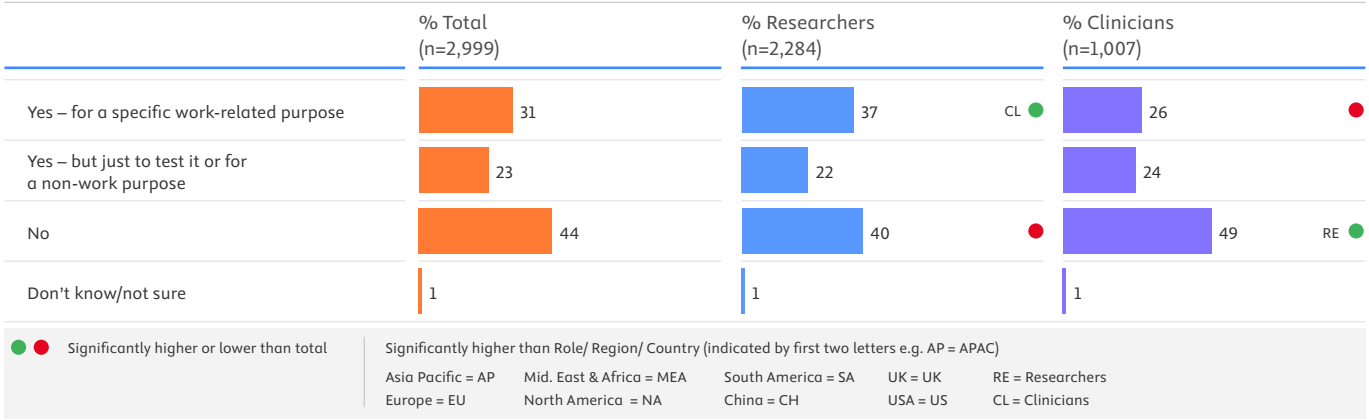
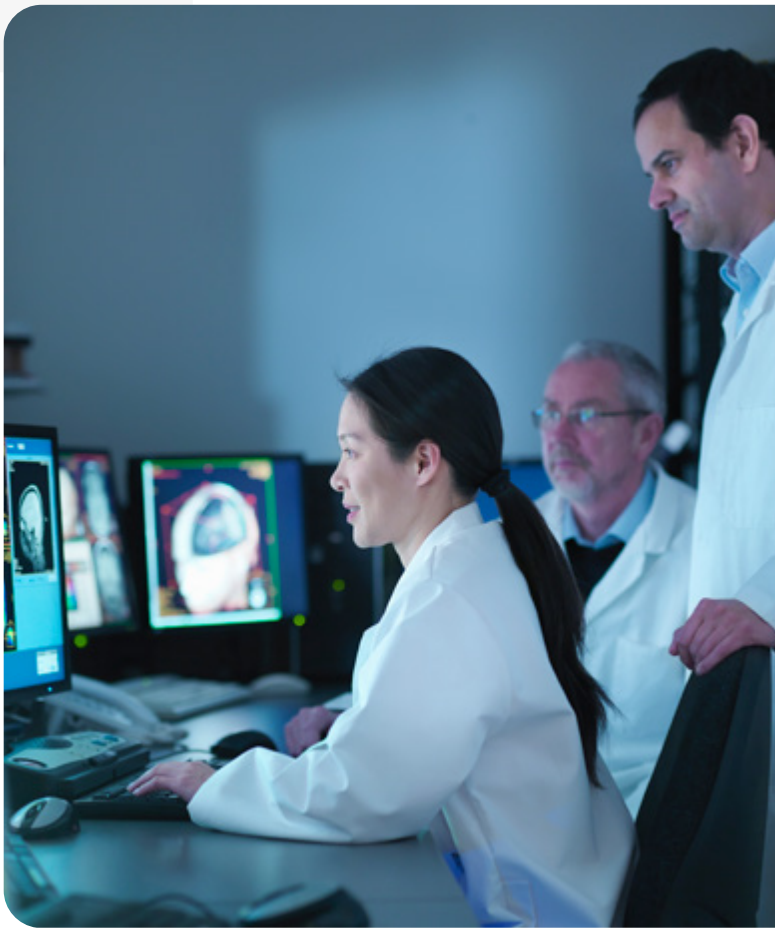


Fig 2. **Question:** Have you used an AI (including generative AI) product or an AI feature on a product you use regularly?

Chapter 2:

A future lens on AI



Discover researchers' and clinicians' expectations, including the potential benefits and drawbacks of the technology.

- 95% think AI will accelerate knowledge discovery
- 94% believe AI help rapidly increase the volume of scholarly and medical research
- 92% foresee cost savings for institutions and businesses
- 87% think it will help increase work quality overall
- 67% of those not using AI expect to use AI in the next two to five years
- 42% of those who have ethical concerns about AI cite as a top disadvantage that it is unable to replace human creativity, judgement and/or empathy
- 71% expect generative AI dependent tools' results be based on high quality trusted sources only
- 72% believe AI (including GenAI) will have a transformative or significant impact on their area of work

Researchers and clinicians recognize the growing potential of AI tools, and if they're not already using them, most expect to do so in the coming two to five years. Almost all respondents expect AI (including GenAI) to have an impact by helping accelerate knowledge discovery.

While they identify numerous benefits, they also think that AI will not replace inherently human capabilities like creativity and empathy. Transparency and quality will be important in the future as GenAI use increases.

Positive impact of AI in various areas over the next two to five years

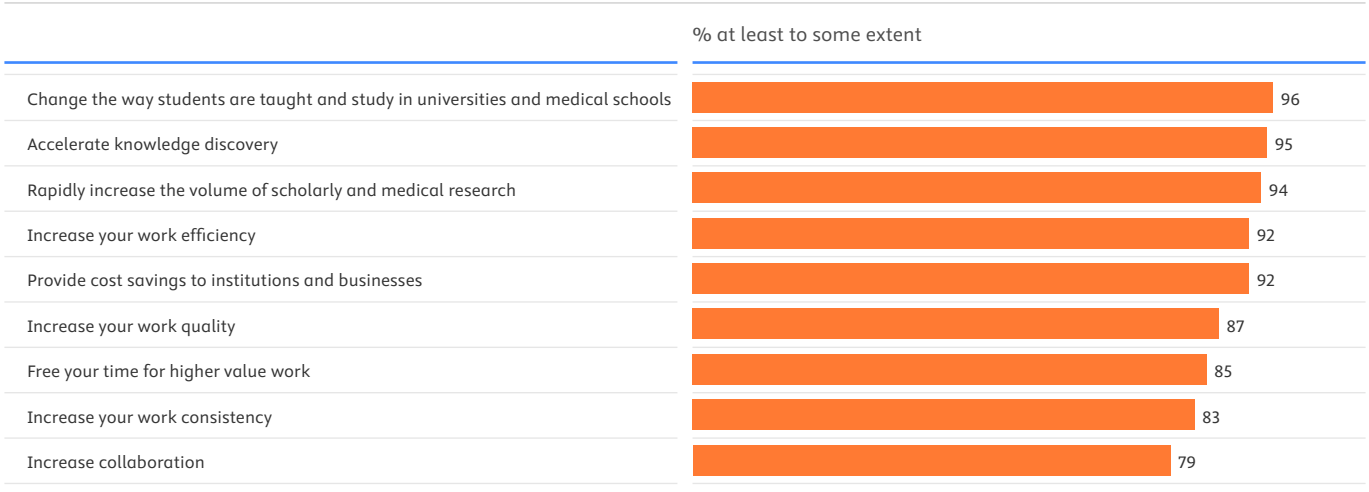


Fig 3. **Question:** Thinking about the impact AI will have on society and your work, to what extent do you think over the next 2 to 5 years it will...? A great extent, some extent, not at all. n=2,887

Perceived impact and benefits

The sentiment around AI is influenced by the impact people expect the technology to bring in the future, some of it positive and some negative.

Research: 95% believe it will accelerate knowledge discovery at least to some extent in the next two to five years. Similarly, 94% of respondents think AI will help rapidly increase the volume of scholarly and medical research, with clinicians (96%) more likely than researchers (92%) to think this. About three-quarters (74%) expect AI to increase collaboration, which is valuable to research success. Specifically, 95% of respondents see benefit in using AI for research-related activities (see detailed findings in full report).

High-value work: About nine in ten (87%) respondents expect AI to improve their work quality, while 13% predict there will be no impact in this area. Similarly, 83% think the technology will increase their work consistency, compared to 17% who expect no benefit.

Education: Almost all (96%) respondents to the current survey expect AI to change the way students are taught to some extent, and most (96%) see a lot of benefit in AI for teaching and lecturing activities.

Clinical work: In the current study, 41% of respondents see a lot of benefit in AI for clinical activities such as diagnoses and patient summaries.

Publishing and funding: 92% of respondents believe AI will bring some benefit in publication and monitoring the impact of research, for example in authoring and reviewing. When it comes to funding, though, respondents are not as optimistic, with 84% expecting AI to provide a lot of benefit for funding-related activities, and 16% expecting no benefit at all.

Perceived drawbacks

Respondents are not solely positive about AI – they also identifiy a number of potential disadvantages of AI. The majority (85%) have at least some concerns about the ethical implications of AI in their area of work.

The human element: People see its inability to replace human creativity, judgement and/or empathy as the main disadvantage, with 42% of respondents ranking this as a top-three disadvantage of the technology. Clinicians (45%) are more likely to say this than researchers (39%). And women (46%) are more likely to say this than men (38%).

Regulation: Two-fifths (40%) of respondents cite the lack of regulation and governance as a top three disadvantage of AI. The next most commonly cited disadvantage is that outputs can be discriminatory or biased, with 24% of respondents ranking this in their top three.

Accuracy: For 19% overall, being too dependent on outdated data and/or information is a top three disadvantage of AI. Similarly, 18% of respondents consider hallucinations (i.e. when AI generates incorrect and/or nonsensical outputs) to be a major disadvantage, with researchers (25%) significantly more likely than clinicians (11%) to rank this in their top three.

Privacy: 13% of respondents consider the lack of confidentiality of AI inputs or prompts as a top three disadvantage, and 11% rank the lack of confidentiality of outputs as such.

Expectations

Use of AI is predicted to grow: 67% of those who have yet to use AI tools expect to do so in the next two to five years with China (83%) and India (79%) outpacing the US (53%) significantly. While respondents were optimistic about their future use of AI, they also shared a number of expectations around how they believe AI should develop.

The top expectation overall is that generative AI will always be paired with human expertise, with 83% of respondents globally agreeing with this. Clinicians (86%) are more likely than researchers (81%) to agree.

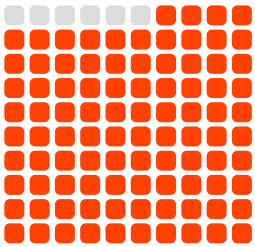
Institutions are also expecting the use of AI to increase – and they're preparing for it. Actions institutions are taking include building a plan or protocol to evaluate the purchase of tools that include AI (reported by 16% of respondents), setting up a community of practice around it (14%) and providing ethics courses (14%). Overall, 12% plan to acquire tools that include AI in 2024 or beyond.

It is less common for institutions to be appointing new AI leadership (6%) or operational functions such as GenAI Librarian (10%).

Expectations of AI

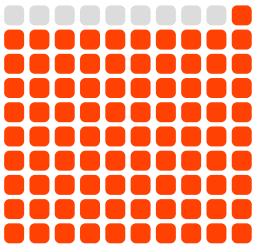
Fig 4. **Question:** Thinking about the use of generative AI in your area of work, how much do you agree or disagree with the following either presently or in the near future? By near future, we mean in the next 2-5 years.

Likely uses of a reliable and secure AI assistant



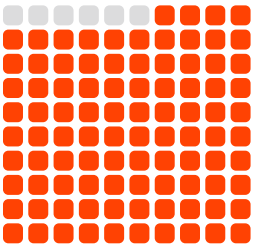
94%

of survey respondents who believe AI can bring benefit in research are likely to use an AI assistant to review prior studies, identify gaps in knowledge and generate a new research hypothesis for testing.



91%

of researchers who believe AI can bring benefit when preparing a paper are likely to an AI assistant to proof their paper and 89% to generate a synthesis of research articles in an area.



94%

of clinicians who believe AI can bring benefit across clinical activities are likely to use an AI assistant to assess symptoms and identify a disease or condition.

Chapter 3:

Shaping an AI-driven future

- 94% believe AI will be used for misinformation
- 86% are concerned AI will cause critical errors or mishaps
- 81% worry AI will erode critical thinking
- 58% say training the model to be factually accurate, moral, and not harmful would strongly increase their trust in that tool

Knowing the information the model uses is up to date was the most selected information area by respondents for increasing their comfort in using an AI tool

Understanding not only their concerns but the factors that build researchers' and clinicians' trust in AI tools and their comfort using them can help technology developers create better tools and institutions maximize their benefit. Almost all respondents are concerned that AI will be used for misinformation and could cause critical errors or mishaps. Factual accuracy and up-to-date information would help increase trust among users.

Exploring users' concerns

Understanding users' (and potential users') concerns around GenAI is an important step in developing tools with minimized risks. Some of the biggest concerns are around misinformation and errors.

Overall, 94% of respondents (95% of researchers and 93% of clinicians) believe to some extent that AI will be used for misinformation over the next two to five years. Most researchers and clinicians (86%) are also worried about critical errors or mishaps (accidents) occurring, with 14% not expecting this not to happen at all.

Over four in five (82%) doctors think use of AI will mean physicians become over reliant on the technology to make clinical decisions. This concern was echoed in the *Clinician of the Future Education Report*, in which more than half (56%) of students feared the negative effects AI can have on the medical community.[4]

Social disruption is also a concern for 79% of respondents, for example with AI causing the unemployment of large numbers of people.

Ethical concerns are also important to respondents. In the current survey, most respondents (85%) have at least some concerns, with only 11% reporting no concerns about the ethical implications of AI on their area of work and 11% reporting fundamental concerns. This is higher in Europe (17%) and North America (14%).

Negative impact of AI in various areas over the next two to five years

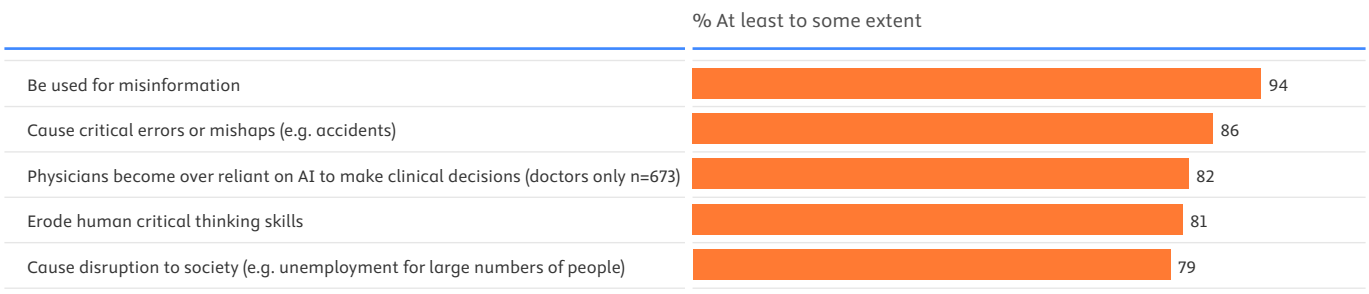


Fig 5. **Question:** Thinking about the impact AI will have on society and your work, to what extent do you think over the next 2 to 5 years it will...? Lot of extent, some extent, not at all. n=2,829

Factors impacting trust in and comfort using GenAI tools

More than half (58%) of respondents say training the model to be factually accurate, moral, and not harmful would strongly increase their trust in that tool.

Some of the other factors respondents say would increase their trust in AI tools relate to quality and reliability. For example, 57% say only using high-quality peer-reviewed content to train the model would strongly increase their trust, while just over half (52%) say training the model for high coherency outputs (quality model output) would strongly increase their trust.

Transparency and security are also important factors. For 56% of respondents, citing references by default (transparency) will increase trust in GenAI tools. Keeping the information input confidential is a trust-boosting factor for 55%, as is abidance by any laws governing development and implementation (legality) for 53%.

We asked respondents which information areas would increase their comfort is using a tool dependent on AI:

Reliability: More than one-third (37%) of respondents identify knowing the information the model uses is up to date as one of the top three factors affecting comfort, and 28% identify actions having been taken to prevent unfair bias. Over one-quarter (26%) say an explanation of how the solution worked is one of the top-three factors that would make them more comfortable.

Governance: 36% rank feeling more comfortable if robust governance on data and information was used to train the model in their top three, and 36% if there is accountability through human oversight.

Awareness of potential impacts: 27% of respondents say privacy being respected on outputs generated is a top three comfort factor, and 30% if the real-world impact on people.

Actions for a GenAI-powered future

Based on the survey findings and secondary research, we recommend actions for technology developers and institutions.

GenAI technology developers can:

- Enhance accuracy and reliability
- Increase transparency
- Strengthen safety and security

Institutions employing researchers and clinicians can:

- Establish policies and plans and communicate them clearly
- Build governance and expertise
- Provide training and capacity
- Ensure access

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Notes

For a detailed methodology, including sample bases by region/country, see the appendices of the main report.

For more about the AI views and usage of clinicians, see the report Insights: Clinician of the Future attitudes toward AI.

https://tinyurl.com/ai-cotf

For more on AI usage and perceptions among researchers, see the report Insights: Researcher attitudes toward AI.

https://tinyurl.com/ai-researchers

https://tinyurl.com/attitudes-ai

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