



## Socio-Economic Research and Applications (SERAP)

### The Advent of Artificial Intelligence

**In the October edition of the Knowledge Digest, we shall explore the world of Artificial Intelligence; its latest advancements, examine the ethical implications, and consider the future trajectory of this transformative force, that is providing society with various benefits, as well as certain consequences.**

The transformative world of AI has brought humanity on the brink of a new era that brings with it various hopes and promises for a better future, or such is the dream we are made to believe in. It is clear that AI is on the path to reshape industries, enhance productivity, and revolutionize the way human beings live their lives on a daily basis. From the algorithms that power virtual assistant platforms, to the advanced learning machine models that can analyze massive data sets, AI is permeating every field, and influencing every sphere. In fields such as healthcare and finance, AI is making remarkable strides by improving diagnostic accuracy and providing treatment plans that may be less intrusive than traditional modes of treatment. AI algorithms can analyze medical images with remarkable precision, and assist doctors in diagnosing conditions such as cancer at earlier stages.

Similarly, in the field of finance, AI systems are allowing operations to be much more streamlined, and are enhancing fraud detection and enabling sophisticated risk assessments that foster a more secure and efficient financial environment. In other fields where massive data sets must be organized, processed and analyzed, AI systems have become virtually indispensable. It is through the advent of this technology that day to day operations have become easier and less time consuming, on average. However, the speed at which this technology has developed, brings with it certain implications that should not be ignored.

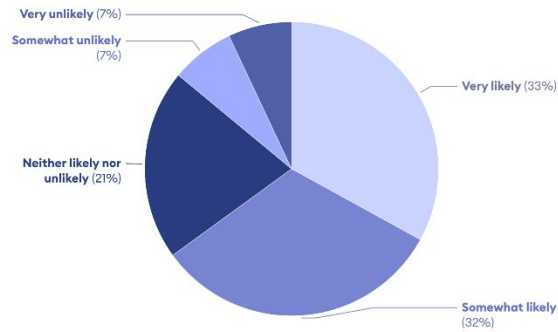
AI has brought various concerns to the global arena, including a host of ethical considerations that demand our attention regarding fields of privacy, copyright infringement, and potential job displacement, as well as other longterm implications such as increased dependency and overall degradation of human skill-seeking. It has become crucial that policymakers view AI for the powerful tool that it is, and assess the multitude of factors that are likely to change the face of society as we know it presently. Furthermore, policymakers must focus on questions of governance and accountability in sight of AI, and how and to what extent it is allowed to permeate the daily functioning of human life. How much responsibility can be attributed to it? Who is at fault if something does not go right? Who should be held accountable for its errors? These are some of the big questions that need to be asked at the higher levels of policy making in all countries.

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## Statistics and Graphs

### How likely are you to trust a business that uses artificial intelligence?

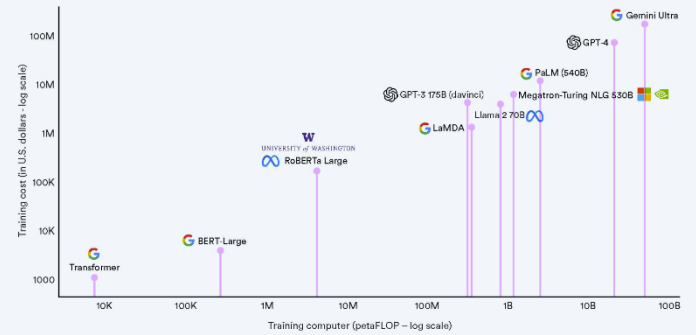


Source: Forbes Advisor • Embed

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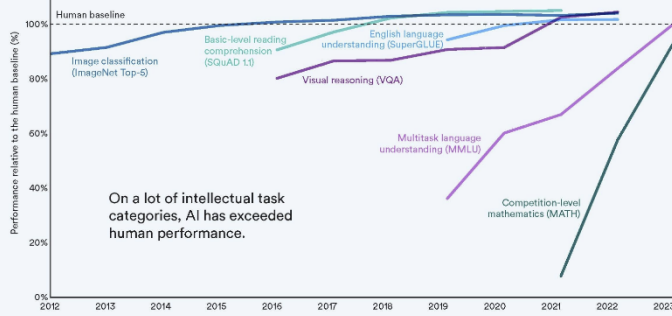
### Estimated training cost and compute of select AI models

Source: Epoch, 2023 | Chart: 2024 AI Index report



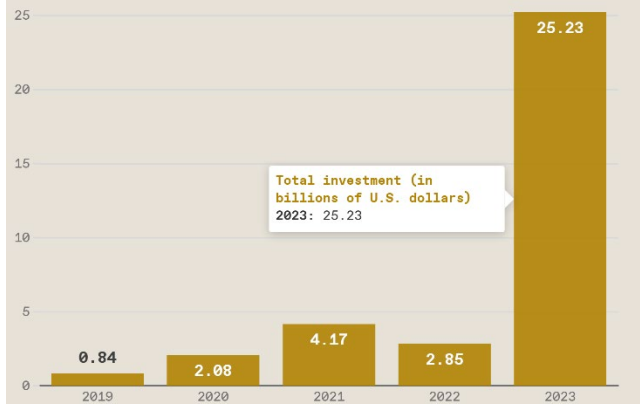
### Select AI Index technical performance benchmarks vs. human performance

Source: AI Index, 2024 | Chart: 2024 AI Index report



### Private investment in generative AI, 2013–23

Total investment (in billions of U.S. dollars)



Source: Quid, 2023 | Chart: 2024 AI Index report

IEEE Spectrum

## Takeaways

- **Enhanced efficiency and productivity** – AI has significantly improved efficiency and productivity across various industries, ranging from automation to the optimization of complex processes
- **Improved healthcare and quality of life** – AI is revolutionizing healthcare by enhancing diagnostic accuracy, personalizing treatment plans, and predicting patient outcomes
- **Ethical and societal implications** – the rapid advancement of AI raises important ethical and social questions that range from data privacy and algorithm bias, to the impact on employment, and equity.

## Recent Articles on Artificial Intelligence

### Academic Conference Alerts

Sites such as Conal provide a popular platform that provides comprehensive listings of upcoming conferences across various fields, allowing users to filter by topic, date, and location. It aggregates conferences from around the world and makes it easier for attendees or interested parties to find their relevant events in their areas of interest.

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### All Conference Alert

The All Conference Alert provides an official platform from where interested parties can view conference alerts for upcoming conferences, events, seminars, webinars and workshops. Interested parties may find many conferences relevant to AI via these links.

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### The AI Index Report

The 2024 Index is the most comprehensive to date and arrives at an important moment when AI's influence on society has never been more pronounced. This year, they have broadened the scope to more extensively cover essential trends such as technical advancements in AI, public perceptions of the technology, and the geopolitical dynamics surrounding its development. Featuring more original data than ever before, this edition introduces new estimates on AI training costs, detailed analyses of the responsible AI landscape, and an entirely new chapter dedicated to AI's impact on science and medicine.

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### 2024 Work Trend Index Annual Report

The data is in: 2024 is the year AI at work gets real. Use of generative AI has nearly doubled in the last six months,1 with 75% of global knowledge workers using it. And employees, struggling under the pace and volume of work, are bringing their own AI to work. While leaders agree AI is a business imperative, many believe their organization lacks a plan and vision to go from individual impact to applying AI to drive the bottom line. The pressure to show immediate ROI is making leaders inert, even in the face of AI inevitability.

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### Data and AI Trends Report 2024

This report by Google requires users to sign in in order to view the findings from a recent survey of business and IT leaders about their goals and strategies for harnessing gen AI – and what it means for their data.

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### Insights 2024: Attitudes towards AI

The rapid evolution of generative artificial intelligence (GenAI) has brought with it a wave of expectations, opportunities and concerns in all sectors. In research and health, the promise of accelerated discovery, increased output and improved patient care is matched by an expressed need for transparency, trust and quality content.

Our report Insights 2024: Attitudes toward AI brings together the views of nearly 3,000 researchers and healthcare professionals around the world. Their feedback reveals a clear appetite for adopting AI tools in their work, but also shows differing attitudes among respondents from the world's top three research-generating countries, the US, China and India.

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## The AI Report 2024 – Available Now

Like every industry, fashion is witnessing an explosion of AI, and it's becoming clear that a technological revolution is sparking a new era of cultural evolution. Strategic adoption of AI models, applications, and services is now an urgent business imperative, but at the same time the wider world is grappling with big, unanswered, questions around jobs, copyright, creativity, ethics, and just how far the vast possibility space of AI is going to translate into real, practical solutions.

The conversation around AI may be impossible to avoid, but clarity is still in short supply. Which is why The Interline – with support from our friends and partners at MMGNET Group – chose to focus our first deep-dive downloadable report of 2024 on the pragmatic side of artificial intelligence. Beyond the hype, what does it actually mean to bring a new paradigm of computing together with one of the most creative and culturally-anchored industries in the world?

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## Understanding AI's Impact on Behaviour and Society.

Like every new technology, artificial intelligence (AI) creates new opportunities, risks, and uncertainties. However, AI is special—the first technology that can replace and surpass human intelligence rather than just support it, which may make it even more consequential than any technology we have previously developed. AI is already being used to reshape the way we live and work. But will these changes be positive or negative? To some extent, this depends on if, and how, we use AI to change our behaviour and society. To explain that claim, let's examine the process of behaviour change, how AI might change it, some of the implications.

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## How AI Affects Our Sense of Self

As companies increasingly embrace automated products and services, they need to understand how those things make their customers feel about themselves. To date, however, managers and academics have usually focused on something quite different: understanding what customers *think* about those things. Researchers have been studying, for example, whether people prefer artificial intelligence over humans (they don't), how moral or fair AI is perceived to be (not very), and the tasks for which people are likely to resist the adoption of automation (those that are less quantifiable and more open to interpretation).

In this article, researchers look at the psychological effects they've observed in three areas that have important ramifications for managerial decision-making: (1) services and business-process design, (2) product design, and (3) communication.

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## Jessica Hawk on the challenge of AI in the media industry

From the advent of television to the emergence of the internet and the proliferation of on-demand content, the media industry has long been at the forefront of embracing transformative technologies. Each evolution has fundamentally changed the landscape of the industry, sweeping aside established models and challenging organisations to adapt to the new reality.

Many industry leaders believe that generative artificial intelligence has the potential to do the same, at a time when slowing growth for streaming services is motivating the search for new solutions for creating, delivering and distributing content. According to PwC's 27th Annual CEO Survey, 57 per cent of entertainment and media CEOs believe their current business path will no longer be viable in 10 years, demonstrating the challenge that media companies are facing. However, it's a challenge the industry is embracing, says Jessica Hawk, corporate vice president of data, AI and digital applications at Microsoft.

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## Recent Advances of Artificial Intelligence in Healthcare: A Systematic Literature Review

The implementation of artificial intelligence (AI) is driving significant transformation inside the administrative and clinical workflows of healthcare organizations at an accelerated rate. This modification highlights the significant impact that AI has on a variety of tasks, especially in health procedures relating to early detection and diagnosis. Papers done in the past imply that AI has the potential to increase the overall quality of services provided in the healthcare industry. There have been reports that technology based on AI can improve the quality of human existence by making life simpler, safer, and more productive. A comprehensive analysis of previous scholarly research on the use of AI in the health area is provided in this research in the form of a literature review. In order to propose a classification framework, the review took into consideration academic publications sourced from scholarly sources. The presentation covers both the benefits and the issues that AI capabilities provide for individuals, medical professionals, corporations, and the health industry.

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## Revolutionizing healthcare: the role of artificial intelligence in clinical practice

Artificial Intelligence (AI) is a rapidly evolving field of computer science that aims to create machines that can perform tasks that typically require human intelligence. AI includes various techniques such as machine learning (ML), deep learning (DL), and natural language processing (NLP). Large Language Models (LLMs) are a type of AI algorithm that uses deep learning techniques and massively large data sets to understand, summarize, generate, and predict new text-based content. LLMs have been architected to generate text-based content and possess broad applicability for various NLP tasks, including text generation, translation, content summary, rewriting, classification, categorization, and sentiment analysis. NLP is a subfield of AI that focuses on the interaction between computers and humans through natural language, including understanding, interpreting, and generating human language. NLP involves various techniques such as text mining, sentiment analysis, speech recognition, and machine translation. Over the years, AI has undergone significant transformations, from the early days of rule-based systems to the current era of ML and deep learning algorithms.

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## WHO issues first global report on Artificial Intelligence (AI) in health and six guiding principles for its design and use

Artificial Intelligence (AI) holds great promise for improving the delivery of healthcare and medicine worldwide, but only if ethics and human rights are put at the heart of its design, deployment, and use, according to new WHO guidance published today.

The report, *Ethics and governance of artificial intelligence for health*, is the result of 2 years of consultations held by a panel of international experts appointed by WHO.

“Like all new technology, artificial intelligence holds enormous potential for improving the health of millions of people around the world, but like all technology it can also be misused and cause harm,” said Dr Tedros Adhanom Ghebreyesus, WHO Director-General. “This important new report provides a valuable guide for countries on how to maximize the benefits of AI, while minimizing its risks and avoiding its pitfalls.”

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## How AI is Transforming Healthcare Delivery

Applied AI has stepped to the forefront of digital health innovation, but discussions often remain too theoretical. By examining how real healthcare organizations employ AI models across critical use cases, we move past the hype to quantify real-world enhancements.

AI solutions are commonly grouped into three capability categories improving care delivery:

1. **Clinical Decision Support:** AI can analyze patient information against scientific literature, care guidelines, and treatment history to suggest diagnostic and therapeutic options for specific individuals. This augments clinician knowledge.
2. **Operational Analytics:** Algorithms study complex system, cost, risk, and outcomes data to pinpoint opportunities to intervene upon organizational performance gaps and inefficiencies.
3. **Workflow Enhancement:** Automating repetitive administrative and documentation tasks allows clinicians to focus on higher-value patient care activities.

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