

# Artificial Intelligence

Advances in Artificial Intelligence and Machine Learning will transform the world with such speed that society will struggle to address crucial ethical considerations and economic consequences.



## Overview

Together, Artificial Intelligence<sup>1</sup> (AI) and the Internet of Things (IoT) will transform both the Internet and the global economy. Within the next five years, we can expect AI and machine learning to become imbedded in all forms of technology that incorporate data exchange and analysis. The opportunities this creates are immense, ranging from new services and breakthroughs in science, to the augmentation of human intelligence and its convergence with the digital world.

There are considerable uncertainties about AI, including the delegation of decision-making to machines, lack of transparency and whether technological change will outpace the development of governance and policy norms. Automation may profoundly change industry, affecting employment and the delivery of public services. Governments and societies need to prepare now for its effects.

**Economies and societies must prepare for the disruption that AI (along with IoT) will bring.**

**Ethical considerations must be prioritised in the design and deployment of AI.**

**AI and automation will promise new socioeconomic opportunities, but the impacts and trade-offs for individuals and societies are unclear.**

**As AI changes how we make decisions, we must ensure that humans remain in the “driver’s seat”.**

**There is a high risk that the benefits of AI will be unevenly distributed within and across societies — exacerbating current and future digital divides.**

<sup>1</sup> Artificial intelligence traditionally refers to an artificial creation of human-like intelligence that can learn, reason, plan, perceive, or process natural language.



## Governance and ethics in a world of AI

AI raises extensive ethical concerns. Technologists themselves say the technology needs to align with human values, and that ethical dimensions must be prioritised at every stage of the design, development and deployment of AI systems.<sup>2</sup> The speed at which AI and related technologies are being developed and deployed will require significant investment and effort in the short term to avoid unintended consequences for society and humanity. We will need focused research and effective governance structures to make sure AI technologies create opportunities and not harm.

“

Algorithms are still being developed by people, at this point; we have a bit of control of what we are doing. However, if we concede all this to intermediaries and their algorithms, in five years' time, they may not be developed by people. Are the intermediaries that we deal with going to be artificial intelligence?

Academic, Europe

“

It starts with the value of the human. Once we start giving power to machines, will that be tied to the metaphysical commitment to the human at the center of governance? We don't know what the consequences are.

Civil Society, North America

AI also raises serious considerations related to privacy, transparency, safety, the nature of work and jobs, and the overall economy. For example, technologies such as facial recognition based on AI can improve user experience over a social media platform. But the same technologies can be used to improve surveillance and compromise anonymity. Or, if AI becomes a permanent feature in social media networks and online platforms, where algorithms are used to curate the online experience, questions about free choice and bias will intensify. Concerns about the transparency and accountability of data collection and decision-making will accelerate calls for ethical principles to guide AI design and deployment.

<sup>2</sup> <https://futureoflife.org/ai-open-letter>



“

A society completely based on data collection on the business side... fuels a surveillance society without proper democratic checks and balances. Humans lose some self-determination through automated choices by connected machines.

Human Rights Expert, Europe

**Our community, across all stakeholder groups and regions, believes that automation generated through data analytics technology will have greater influence on human behaviour and decision-making.<sup>3</sup>**

How will governments address the larger economic and social impact of AI, and will they have the skills and resources to do so? Within governments, AI could bring about a fundamental reshaping of decision-making as policy development is increasingly data driven. By extension, there is a risk that AI could become an unaccountable and non-transparent decision-making tool for future policy choices.

“

The development of IoT and AI will provide scientific references for government decision-making and help them to respond quickly to public needs.

Technologist, Asia-Pacific

Many foresee a fierce, competitive battle to dominate the commercial AI space in coming years. While this will likely drive innovation and possibly disrupt current market structures, there are also concerns about competition. Forecasters believe that today's leading technology firms will control the market for AI platforms for the foreseeable future.<sup>4</sup>

**Related to:** [The Role of Government](#); [The Internet & the Physical World](#); [Personal Freedoms and Rights](#)

<sup>3</sup> Future of the Internet Survey 2 - Question 22: "To what extent does the use, insights, and automation generated through data analytics technology influence human behavior and decision-making?"

<sup>4</sup> <https://www.nytimes.com/2016/03/26/technology/the-race-is-on-to-control-artificial-intelligence-and-techs-future.html>



## Impact of AI on the Internet economy

While some argue that projections about AI are simply marketing hype, there is a clear focus by many in industry and government on preparing for a future in which AI is pervasive. CB Insights estimated that over \$5 billion US dollars in venture capital financing went to AI startups in 2016, a 62% increase over the previous year.<sup>5</sup> AI presents enormous opportunities to create new jobs, new industries and new ways of connecting.

As AI and automation drive significant structural change across industries, the very nature of work will change. Many existing jobs may be displaced as AI moves beyond monetising user data to changing how products and services are delivered. Adapting to the pace of change will be a major global challenge for the immediate future.

“

Projects relating to Artificial Intelligence and the Internet of Things have gone a long way in advancing our present technology and making life easier for the average human being.

Internet Society member, Africa

This said, AI systems and technologies could also change the nature of work in a way that empowers workers, diminishing inequality among people and between countries. AI can be a partner in human intelligence, letting us take on and solve much bigger challenges. As one survey respondent explained, “The distance between people’s brains and the Internet will become ever smaller, and the interface between the two ever more sophisticated”.

<sup>5</sup> <https://www.cbinsights.com/blog/artificial-intelligence-startup-funding/>





## Artificial Intelligence

### Drivers of Change

“

Machine to machine communication increases pressures to cut costs and people are being replaced. This is only going to increase with time. There are economic benefits but also challenges to employment.

Private Sector, Middle East

AI brings potential for huge gains in scientific research, transportation and the delivery of services. If accessibility and open source development win out, AI has the potential to bring dividends to developed and developing countries alike. For example, a country that relies on agricultural production could use AI to analyse crop yields and optimise food production. AI applications in healthcare could be a game changer for disease detection in low income areas.

“

Artificial intelligence will be creative destruction. Many jobs will be eliminated by AI, but it can generate new roles and jobs.

Academic, Latin America & Caribbean

But is society itself ready to absorb the change, and are we adequately preparing ourselves for this new economy? For developing economies, new technologies always create possibilities to leapfrog legacy systems, although the infrastructure requirements for AI (and IoT) to be deployed will be significant. The benefits of AI may also be unevenly distributed: for economies that rely on low-skilled labour, automation could challenge their competitive advantage in the global labour market and exacerbate local unemployment challenges, impacting economic development.

The intelligence and services used to manage and implement manufacturing or services may still reside in developed countries rather than being developed locally. AI might exacerbate the digital divide in significant ways that would have geopolitical implications.

“

Ensuring Internet technology can create jobs in the market and does not harm the job market is a challenge that has to [be] addressed in the next 5 years and it is an urgent and serious problem internationally.

Government, Asia-Pacific



## Impact of AI on Internet security and network intelligence

“

Algorithms are making decisions – and they are making them faster than human decisions, and on our behalf. Furthermore, systems are increasingly opaque. We don't know where they exist and what decisions they are making ...

Technologist, North America

While security and trust will be essential to the future of AI, the technology could also help to address security challenges. As networks and traffic streams become increasingly complex, AI can help network managers to understand traffic patterns and create heuristics that identify security threats. At a basic enterprise level, AI can perform tasks normally carried out by an IT helpdesk, such as troubleshooting employee computer problems.

This would give enterprise IT professionals more time to implement security best practices and better secure their systems and networks. Alongside human decision-makers, AI could also sort through the growing mass of security threats online.

AI relies on large amounts of computational resources and data. It is possible that this will drive a redistribution of computing and storage resources and have an impact on Internet architecture. To what degree will there be a need for interoperability and standardisation for AI? And, to what extent are the principles of interoperability, openness and decentralised management of the Internet challenged by the growth of AI?

Related to: [Networks, Standards & Interoperability](#); [Cyber Threats](#)