

# Why AI matters

Opportunities, risks and regulation



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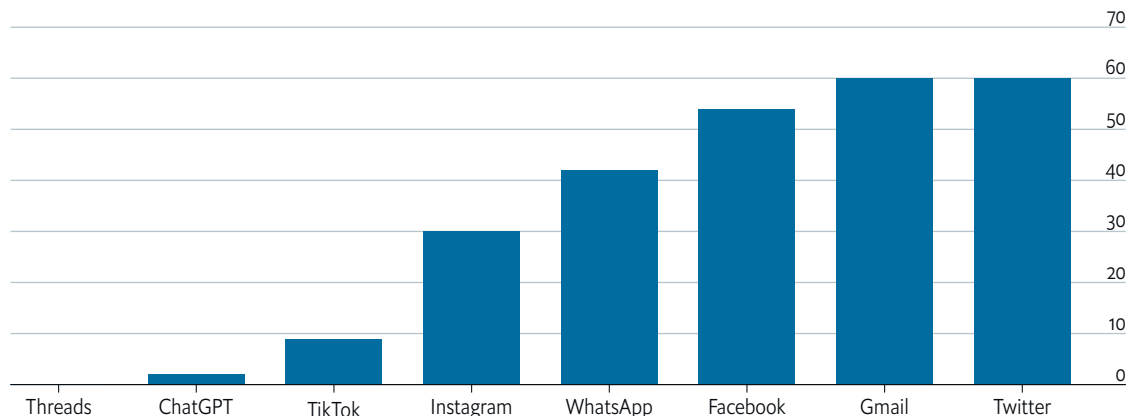
# Why AI matters: opportunities, risks and regulation

- **ChatGPT has democratised artificial intelligence (AI), making it easier to use for non-technical staff. This has opened up new opportunities for adoption across most industries.**
- **AI has already been used in many businesses for years, allowing everything from predictive logistics to self-driving cars, but further adoption will only occur if the technology fits a business need.**
- **There are multiple risks associated with AI: political, social and economic. Policymakers have been moving forward with regulation of the technology, but differing approaches will further contribute to fragmentation and regionalisation within the tech world.**
- **Because of numerous elections in 2024, AI's biggest impact initially is more likely to be on the political rather than the business front. In the medium term, it could also transform job and education needs.**

## Generative AI's moment

The launch of ChatGPT in November 2022 has democratised AI, attracting 100m users in less than two months. The technology is itself not new. GPT stands for Generative Pre-trained Transformer. Google introduced the first transformers (neural networks that are able to process huge amounts of data) back in 2017, before OpenAI launched its first GPT model in January 2018. ChatGPT, Bing AI and Boba have all made AI easy to use, but widespread adoption in enterprise will occur only if the technology fits a business need.

**ChatGPT grew rapidly between December 2022 and January 2023**  
(months it took to reach 100m users)



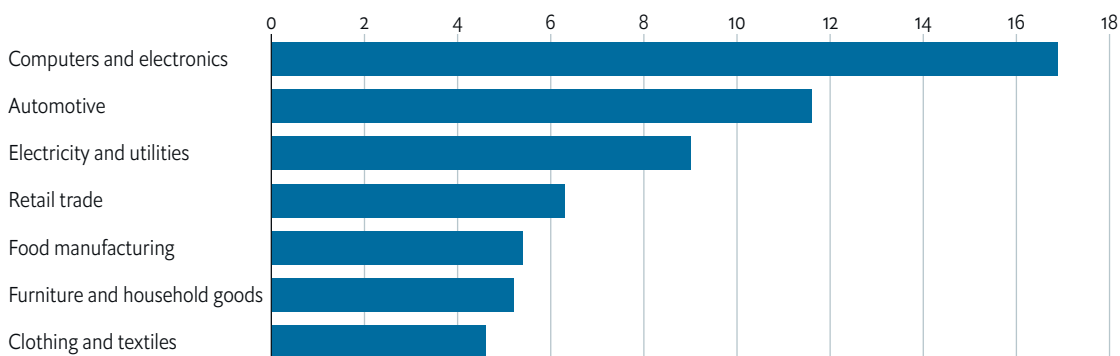
Sources: Various news reports; EIU.

## How companies use AI now

ChatGPT and generative AI have become a hot topic in the past few months, but consumers and companies alike have been using AI for several years. Examples include voice assistants like Siri or Alexa, or when Amazon or Netflix provide recommendations. The fact that AI tools can be used by non-technical staff will allow some of these existing use cases to be expanded. It will also open up new opportunities across sectors.

### **Some EU firms are already using AI**

(EU27; % of enterprises using AI by sector)



Sources: Eurostat; EIU.

### **AI is transforming the future of farming**

AI is being used in agriculture to improve productivity in three major ways: robotics, soil and crop monitoring, and predictive analytics.

John Deere, a farming equipment company, has spent the past few decades investing in technology and robotics to develop the first fully automated tractors, which it launched in January 2022 at CES, a major annual tech trade event that happens in Las Vegas. By applying high-quality AI and machine-learning training data tailored for agriculture, autonomous tractors can undertake tasks such as cultivating, fertilising, harvesting and planting with minimal human intervention. Monarch Tractor, a US-based start-up, is also developing autonomous tractors, with financing from CNH Industrial.

Another important use for AI is precision farming using predictive analysis. Combined with real-time sensor data and visual analytics data from drones, AI can provide farmers with forward guidance to improve crop-yield prediction and detect pest and disease infections. Recently PepsiCo (US) partnered with Cropin (India), a software as a service (SaaS) provider, to launch a crop intelligence model for India that used predictive AI analytics to improve potato crops.

### **AI is driving innovation in the automotive sector**

AI has a wide range of applications for the automotive industry, from design, production and vehicle maintenance to infotainment and autonomous driving.

AI algorithms, combined with inputs from sensors (including LiDAR) and cameras, can already direct self-driving vehicles within prescribed, self-contained areas. The BMW X5, Tesla Model S, and GM's Cadillac Escalade now operate at level 2 or 3 of the five levels of autonomous driving. This means that they still require full-time driver attention, but they provide assistance with steering, braking, accelerating and adaptive cruise control. Meanwhile, Cruise (US; owned by GM), Waymo (US; owned by Alphabet) and Pony.ai (China) are among the companies experimenting with level 4 driverless robotaxis in cities from Phoenix, Arizona, to Beijing, China.

In terms of manufacturing, AI is used for vehicle design, workflow solutions and robotics in production lines. BMW (Germany), Toyota (Japan) and GM are among the carmakers rolling out machine-vision systems, which use AI for automatic inspection and to help in detecting defective products. AI also powers in-vehicle infotainment systems, enabling navigation, security through biometric recognition, and driving monitoring for insurers.

#### **AI has helped to smooth logistics and retailing**

Amazon (US) has been using AI for predictive logistics for several years now, having patented the technology back in 2014. The online retail giant analyses customer data in order to predict demand for goods, so that it can prepare and ship products for delivery within just a few hours of purchase. Retailers such as Walmart (US) use AI tools to predict and plan inventory levels, not just by analysing demand but also by scanning pictures and video from store cameras. Consumer companies use AI and geolocation data to improve transparency in their supply chains, for example to meet their sustainability targets; Unilever (Netherlands) uses this to track deforestation.

Another use case for AI (especially generative AI) is in customer services, with many businesses using AI-powered chatbots to address customer queries, or even to take orders or help them shop. However, some retailers struggle to monetise such services; Walmart shut down its experimental AI personal shopping assistant in 2020, three years after launch, because of insufficient uptake. AI-powered digital avatars have been more successful; used in China to replace human online influencers that are subject to government scrutiny, they are particularly popular with Western luxury brands such as Louis Vuitton (France) and Prada (Italy).

#### **AI can improve the resilience of electricity grids**

Currently, the main use of AI in the energy sector is for improving grid management and efficiency in an increasingly volatile and flexible grid. As output from wind, solar and hydropower plants fluctuates with the weather, efficient grid management is needed to avoid blackouts. In the US, the Department of Energy has put AI at the centre of its smart grid strategy, while in the UK the National Grid has teamed up with IBM, an American multinational technology corporation, to develop cloud-based analytics. These initiatives allow for real-time monitoring of power grids and the ability to forecast and respond to surges in output or demand.

This flexibility is becoming increasingly important as durable goods are electrified. Electric vehicles (EVs) need a flexible power network, as they are charged from the grid but can also be uncharged into the grid, providing an extra source of electricity. Household appliances are getting electrified and connected to smart meters, leading to more flexible usage. This includes washing machines that turn on automatically when electricity is cheap.

#### **Fraud detection and automated investing dominate financial AI**

Firms in the financial industry were early adopters of algorithms and AI, although the sector has arguably fallen behind in recent years. One widespread use is for fraud detection. Visa, Mastercard and PayPal (all US) are using machine-learning algorithms to analyse data on customer behaviour captured over several decades. Such analysis can detect anomalies in account activity and identify fraudulent activity in milliseconds at any point in the transaction cycle. These systems sometimes generate false positives, blocking genuine customer payments, but they have been successful in reducing fraud.

Another prominent use of AI is in what was once called algorithmic trading, which now relies more on machine learning than on human instruction. Early adopters of these systems often reaped good profits, but risked prompting herd-like behaviour that jolted markets. More recently, investment firms have deployed similar systems for automated investing, or robo-advisers, which can take over tasks such as portfolio rebalancing, tax-loss harvesting and efficient investment of cash holdings. Popular US robo-advisers include Vanguard's Digital Advisor and SoFi's Automated Investing bot.

#### **Is AI already in the pink of health(care)?**

AI is already being used in healthcare facilities and pharmaceutical industries in several ways, including drug discovery, diagnostics and allocation of resources.

Pfizer (US), Genentech (US) and Sanofi (France) are among the companies using AI and machine learning to speed up their efforts in research and development. This can be done by trawling through historic research papers and clinical trial data in search of unspotted patterns, or by analysing genetic data from patients and diseases to generate new insights. These insights help to develop more personalised and effective drug candidates, with AI also used to design subsequent clinical trials.

GE HealthCare (US) is among the medtech companies using AI to help with the digitalisation of health services. Its centralised command centres, as used at Johns Hopkins Hospital (US) and Bradford Royal Infirmary (UK), use predictive AI analytics to aid in physician decision-making, the management of patient flows and research collaborations.

Diagnostics is another area with potential, with AI used to check patients' symptoms against possible causes or to analyse scans. Early adopters include Chinese health apps such as Ping An's Good Doctor and Chinese hospitals, particularly in Shanghai, which want to become a base for healthcare AI.

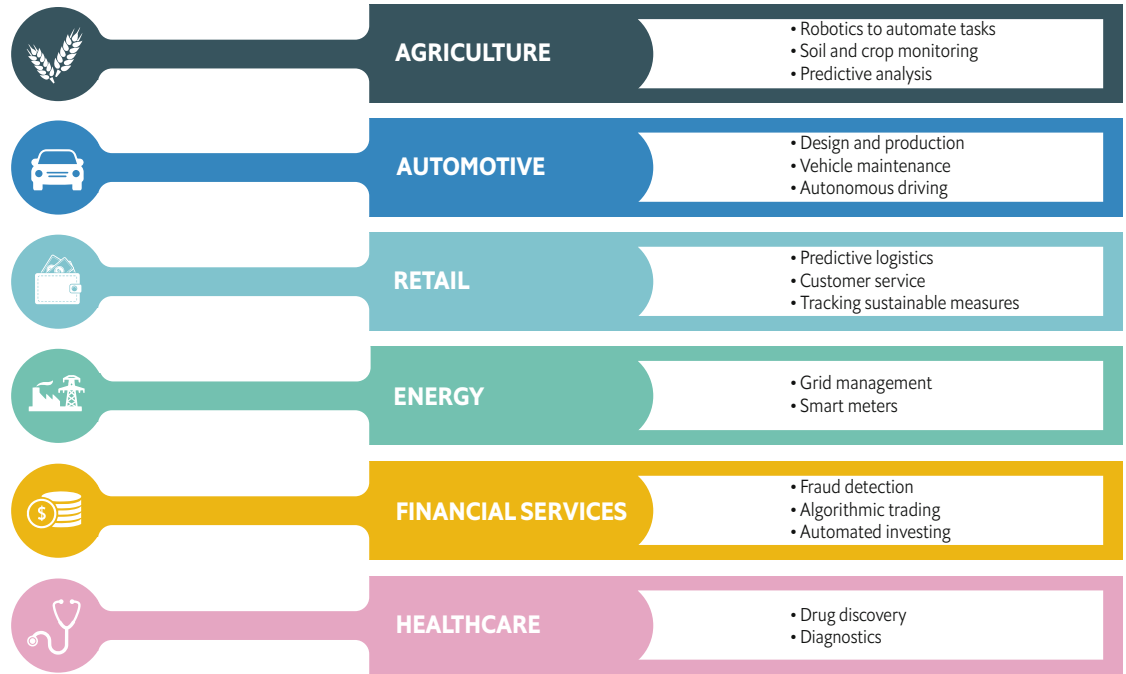
#### **Use cases must drive adoption**

In all of these sectors, the pandemic has highlighted the need for a digital transformation strategy, and AI is a critical part of that process. The technology is developing rapidly, but businesses must still understand why they want to use it. That business need will then drive the necessary investment and innovation in the right direction, with fewer missteps.

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### Artificial intelligence use cases across industries

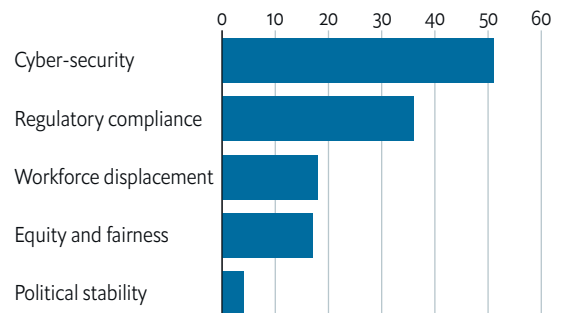


## AI poses multiple risks

Although AI will improve efficiency and productivity for many businesses, it also poses major risks. Some are within the enterprise itself, and will include cyber-security, where AI can supercharge attacks, or regulatory compliance, where companies have to ensure that their use of AI falls within the scope of current and developing laws. However, some of the risks are much broader, involving society at large; they can be economic (will AI augment human workers or replace them completely?), social (with questions of data privacy, implicit bias or wrongful surveillance), political (being used to spread misinformation and manipulate voters during elections) and geopolitical (being used to develop new weaponry by both governments and terrorist organisations).

We expect generative AI to have a bigger impact politically than on business in the short term. With elections in the US, the UK and India in 2024, the accessibility of ChatGPT and its competitors will drive the creation of fake content, be it text, imagery, audio or video.

### Common AI risks raised by companies (respondents working on a risk, %)



Sources: McKinsey survey 2022; EIU.



## How governments are looking to regulate AI

As the use of AI gathers pace, so are attempts at regulation. Every country is looking to have its own rules to combat risks such as misinformation, job losses or bias, which could lead to further fragmentation of the global digital market.

### The state of AI regulation in 2023

EU	US	China
<b>Remains the global regulator</b>	<b>Politics prevents effective regulation</b>	<b>Socialist values at the forefront</b>
<b>AI Act</b> (expected 2023) A risk-based approach to AI, with more scrutiny on high-risk uses before they enter the market	<b>Voluntary Commitments</b> (July 2023) Self-regulation from the leading AI companies, with limited enforcement mechanisms	<b>Regulation on recommendation algorithms</b> (December 2021) Focus on transparency of algorithms and giving users more control over their data
<b>AI Liability Directive</b> (expected 2023) Focus on algorithms, with the burden of proof on companies and not users	<b>Algorithmic Accountability Act of 2022</b> A legislative proposal requiring transparency and accountability, but unlikely to become law	<b>Rules on generative AI</b> (August 2023) Need for registration and labelling, with providers accountable for content generated

Source: EIU.

### The EU wants to remain the global tech regulator

As with other digital regulation, the EU has taken the lead over the US and China. The AI Act, which has been passed by the European Parliament and is currently under tripartite discussions with the European Council and the European Commission, delves into the different levels of risks associated with the technology. AI with unacceptable risks, such as social scoring, is banned, whereas AI with high risk will require both registration and a declaration of conformity before being allowed in the market.

When the European Parliament initially proposed the framework, it had in mind AI technology that was capable of a single task. Therefore the rise of generative AI and foundation models that were capable of multiple tasks required a rewrite. All AI systems are essentially considered to be high risk, with an extra focus on transparency, especially of copyrighted material, and liability. It remains to be seen whether the final text, expected by end-2023 or early 2024, will go that far.

Other rules will also affect the development of AI in the EU:

- The AI Liability Directive, which is still under discussion, focuses on algorithms and putting the burden of proof on the company rather than the user—in case of any damage, the onus is on the company to prove that its systems are not harmful, rather than on the user to prove that they are.
- The Data Act, which is also under discussion, looks into fair access and use of data, with users (both individuals and businesses) having control.
- The Data Governance Act, which has been passed, is about the mechanisms to enable data-sharing.



- The General Data Protection Regulation (GDPR), effective from 2018, focuses on the privacy of personal data, and how that data can be used by AI systems.
- The Digital Markets Act, which has also passed, focuses on competition, and will target the largest cloud players, which are essential for AI systems.

#### **AI regulation in the US aims to contain China**

The US has always favoured innovation over regulation, and would prefer the market to introduce its own self-regulatory principles. This approach has been strengthened by its tech rivalry with China, which has increased the pressure to innovate and led the US to impose strict trade controls, such as those on semiconductors.

The US political system also makes it hard to pass regulations. The legislative branch has looked at AI, with the Senate (the upper house of Congress) introducing its SAFE innovation framework, and the House of Representatives (the lower house) introducing the Algorithmic Accountability Act, but neither is likely to pass before Congress's term ends in 2024, considering no substantial tech legislation was passed in the previous term with the Democrats in control. This means that the executive branch has to use its current legal authority to regulate new use cases.

The White House has introduced its own AI Bill of Rights, and has secured voluntary commitments from major tech companies to manage the risks of AI. The Federal Trade Commission (FTC), the Department of Justice, the Consumer Financial Protection Bureau and the Equal Employment Opportunity Commission (EEOC) all released their own joint statement. The FTC also opened an investigation into OpenAI, focusing on consumer protection and consumer harm.

The judiciary also has to get involved and decide whether the executive can use its existing legal authority. In two recent decisions (*Gonzalez v Google and Twitter v Taanmeh*), the Supreme Court ruled that Section 230, which gives internet companies immunity in terms of the content available on their platforms, still applied to the recommendations made by their algorithms. More AI-related rulings should be expected, and individual states may also gain in pre-eminence if little is passed at the federal level.

#### **Chinese AI regulation focuses on political control**

Although overall tech regulation may have been paused in China, this is not the case with AI, with a full set of regulations expected to pass by the end of the year. China wants to become the global AI leader, but the ruling Communist Party does not want alternative spheres of power to emerge. Early rules had focused on how recommendation algorithms were used to sell to customers, and were part of the greater control and scrutiny that tech players had faced in the country.

The focus on political control was also apparent in the April 2023 draft regulation on generative AI, which made it clear that respecting socialist values was at the core of China's use of AI. This regulation was signed into law in August 2023, with accuracy and the prevention of fake content being critical parts of the rules, as well as the need to register models, algorithms and AI training data. The rules focus on responsibility, privacy, accuracy and misinformation, making them similar to the EU rules in that respect, although they are applicable under a very different regime. These rules will also have far

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less impact globally than the EU's, because the Communist Party remains focused on ensuring control in the domestic market.

Other countries have also introduced or are looking to introduce AI rules, but the EU remains very much an outlier because of the potential strictness of its rules. It is hoping to have the same global impact with AI as it did with privacy, where the GDPR has become the global standard for data regulations, with businesses needing to comply in order to access the EU market. However, many other jurisdictions see AI as a competitive advantage. They are prone to favour innovation over regulation through a light-touch approach, and this could put the EU at a disadvantage. The introduction of AI regulations by governments around the world will increase the current fragmentation and regionalisation of the global technology industry. AI adoption creates both opportunities and risks, and it is vital that regulators enhance the former and mitigate the latter.

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