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The future of employment in an AI-driven world

Ius Laboris report exploring AI trends and risks

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Artificial intelligence (AI) holds immense promise in revolutionising economies, offering a pathway to heightened productivity, streamlined processes, and cost reduction.

With AI integration increasing in importance in various sectors, investments in AI have soared. Private sector AI investments in 2021 were nearly eight times greater than those in 2016, signalling the growing recognition of its potential. Further, a proliferation of research publications demonstrates escalating scientific interest in AI as well.

The attention garnered by AI reached unprecedented levels with the introduction of Open AI's ChatGPT. In a remarkable span of merely five days, this AI model amassed a staggering one million users—a feat that took Meta (formerly known as Facebook) 10 months and the streaming giant Netflix three years to achieve (Euronews). This surge in interest was also reflected in a escalating number of Google searches about AI, as individuals sought to understand what it could do for them.

Nevertheless, despite the promising benefits AI offers, it also raises significant questions and entails potential risks. Foremost among these is the possible impact of AI on the labour market. Will it lead to unemployment and exacerbate the divide between high- and low-paid workers? How will businesses be affected and what structural changes will ensue?

This report delves into the evolving landscape of AI trends and sheds light on the risks businesses and employees may encounter. Stijn Broecke, a senior economist at the OECD who is leading the Future of Work initiative, lends his invaluable insights to our exploration.

AI trends

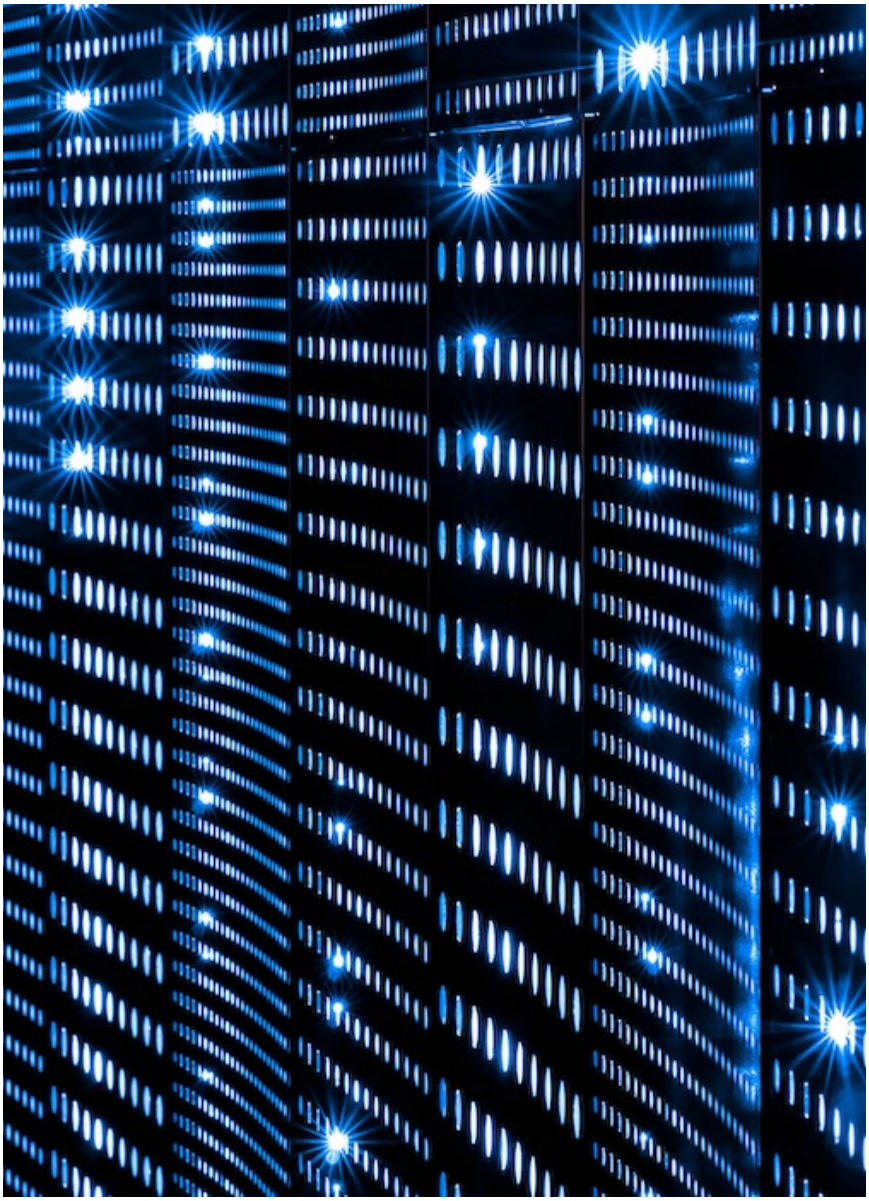
1. What is AI?

While the term AI is being used with increasing frequency in our everyday lives and in the media, there is no single clear definition. AI is a relatively young field, spanning around sixty years combining various sciences, theories and techniques including mathematics, statistics, neurobiology and computer science. Its main objective is to develop machines that can imitate human cognitive abilities (Council of Europe).

An AI system consists of three main parts: Sensors, Operational Logic, and Actuators. Sensors gather information from the environment, while Actuators make things happen based on that information, but the crucial element of an AI system is its Operational Logic, which processes the input from Sensors and produces output for the Actuators. This can be in the form of recommendations, predictions or decisions (OECD 2019).

As an example, consider ChatGPT, a chatbot that showcases generative AI. Developed by OpenAI, an AI research company based in San Francisco, ChatGPT is trained on a wide range of sources such as articles, websites, social media posts and real-time conversations. It learns to mimic the structure and grammar of writing, incorporating commonly used phrases. It can engage in conversations about various subjects, from history to philosophy, and even generate lyrics or offer computer coding suggestions.

However, it's important to mention that the chatbot's accuracy is not always guaranteed. The information it relies on is not fact-checked, and its performance improves through feedback from humans.



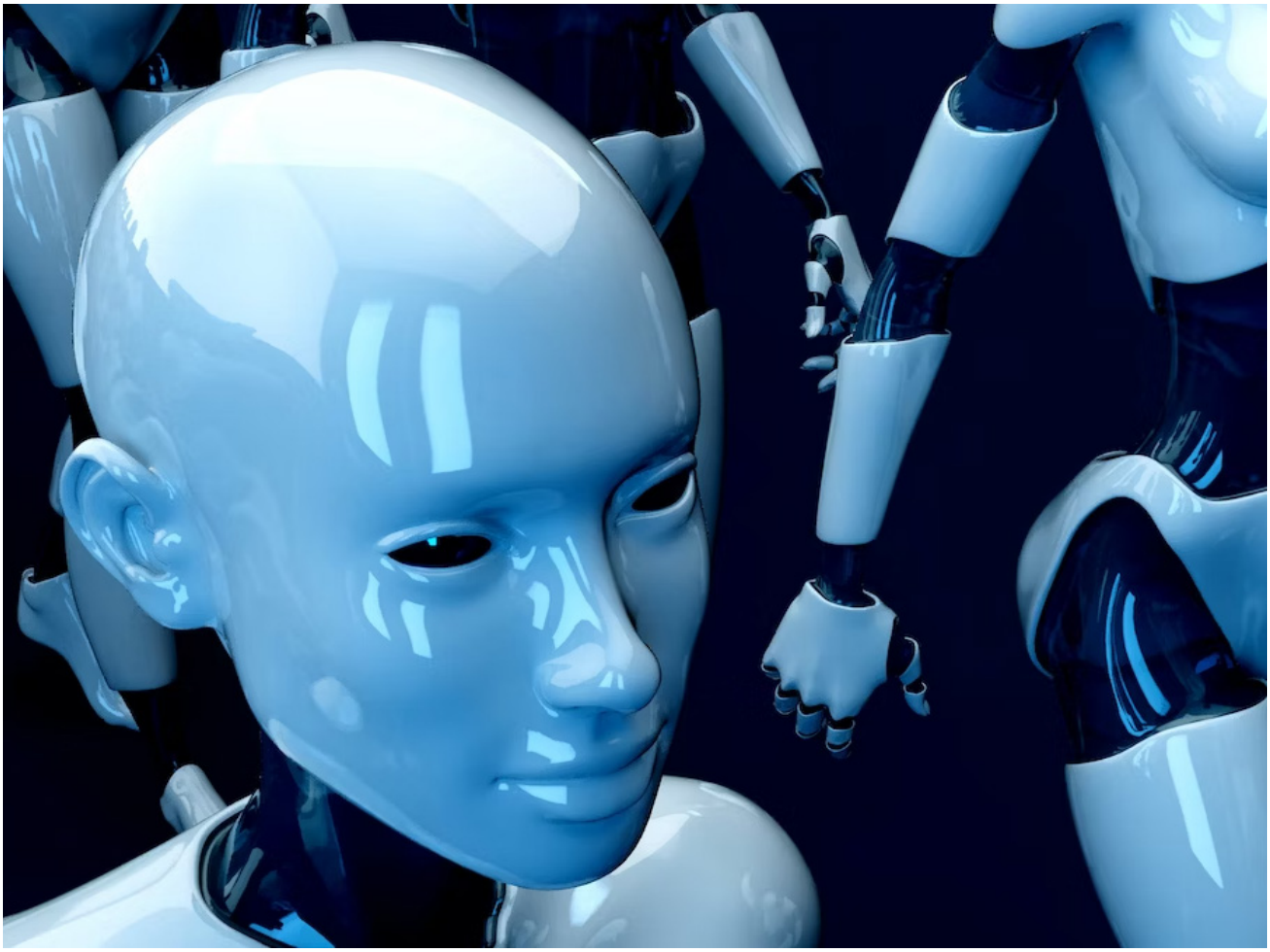
2. AI progress over time

When attempting to foresee what the future holds, it's useful to consider various factors such as the level of attention given to it by the scientific community, investment trends and media coverage. While these factors may not offer certainty, they do provide valuable insights into the trajectory ahead.

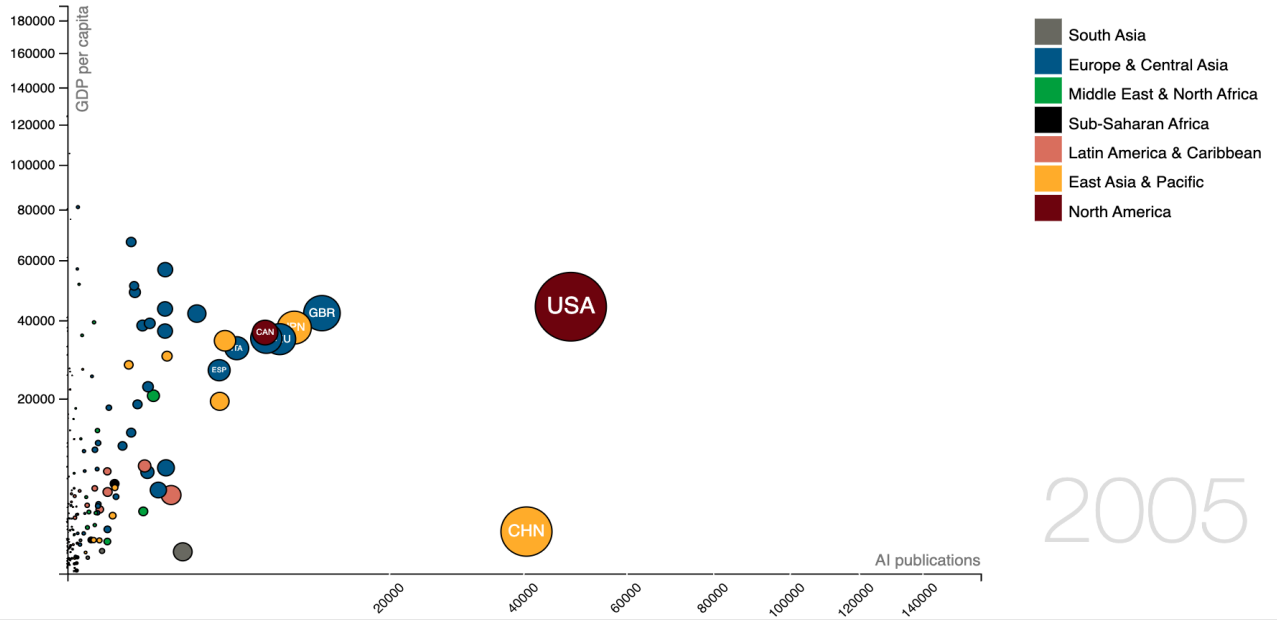
Taking AI as an example, both investment and scientific attention have experienced significant growth over the past decade. This upward trend suggests a rising recognition of the importance and potential of AI in shaping the future.

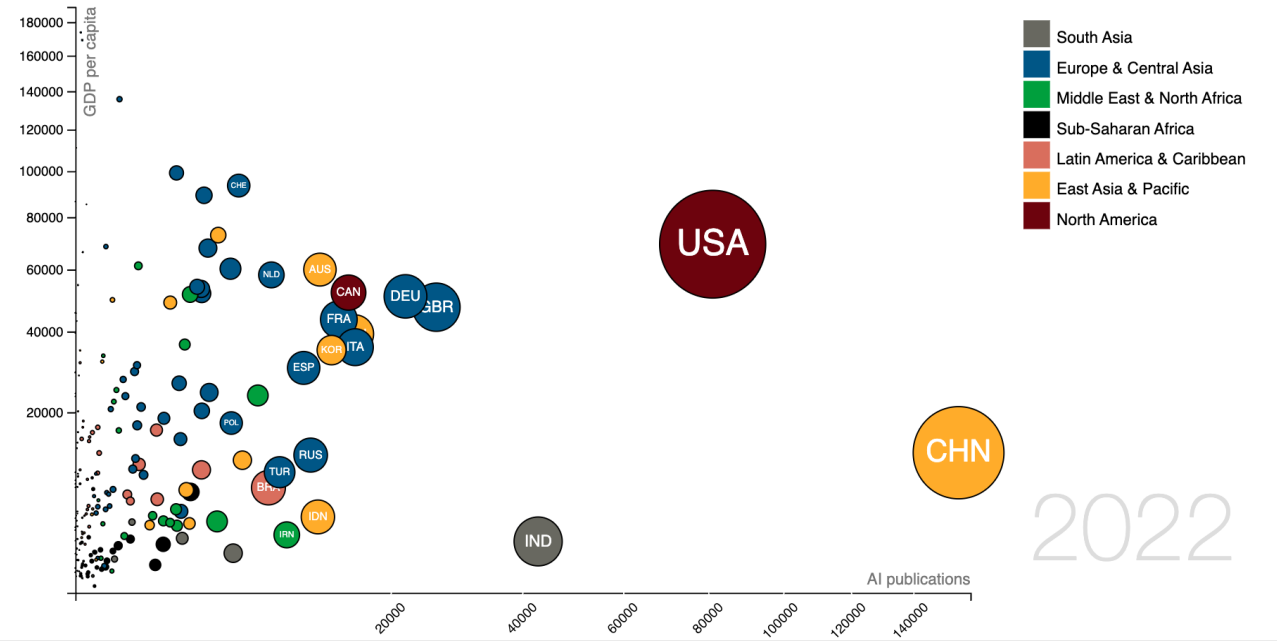
When we compare the number of AI research publications with the GDP per capita of countries or regions in 2005 and 2022, we can see a substantial increase in research publications.

Several countries, including China, the United States, the UK, India, Japan, France, Canada and Italy, have all published copiously on the subject.



AI RESEARCH PUBLICATIONS VS GDP PER CAPITA BY COUNTRY, REGION, IN 2005 AND 2022





Source: OECD.AI

3. Investment in AI

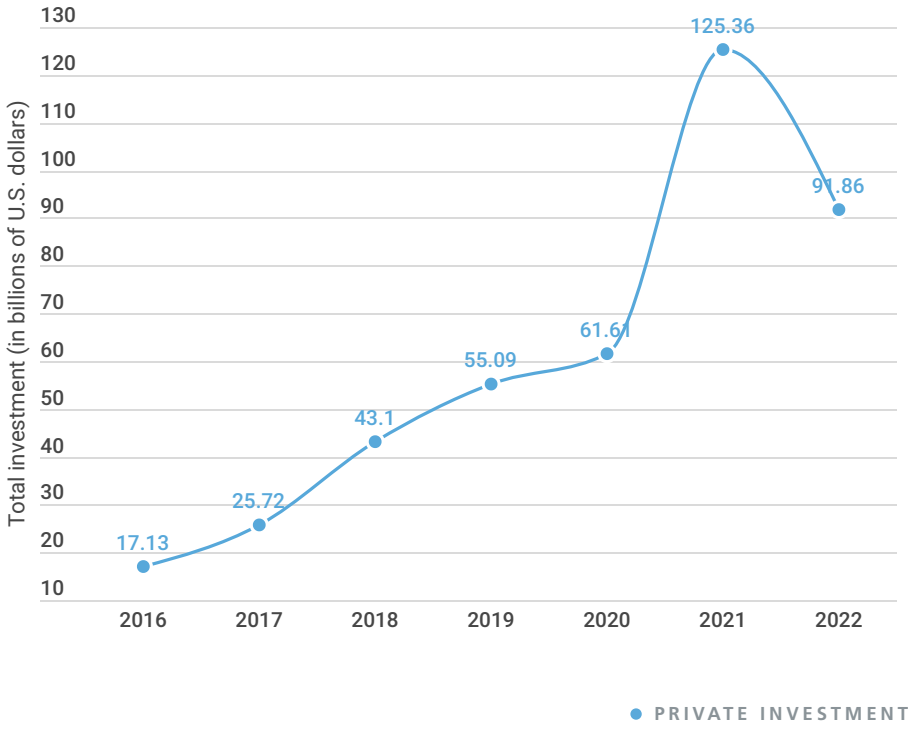
The integration of AI into economies has also led to substantial growth in private investment, with an upward trajectory year-on-year since 2016, with the sole exception of 2022. Starting at USD 17.13 billion in 2016, private investment in AI rose to USD 125.36 billion in 2021, dipping back to USD 91.86 billion in 2022.

In terms of aggregated private AI investment since 2013, the US emerges as the leader with a total of USD 248.9 billion invested, followed closely by China with USD 95.1 billion and the UK in third place with USD 18.2 billion. Despite this, both the US and China experienced a sharp decline in 2022 of 35.5% and 41.3%, respectively.

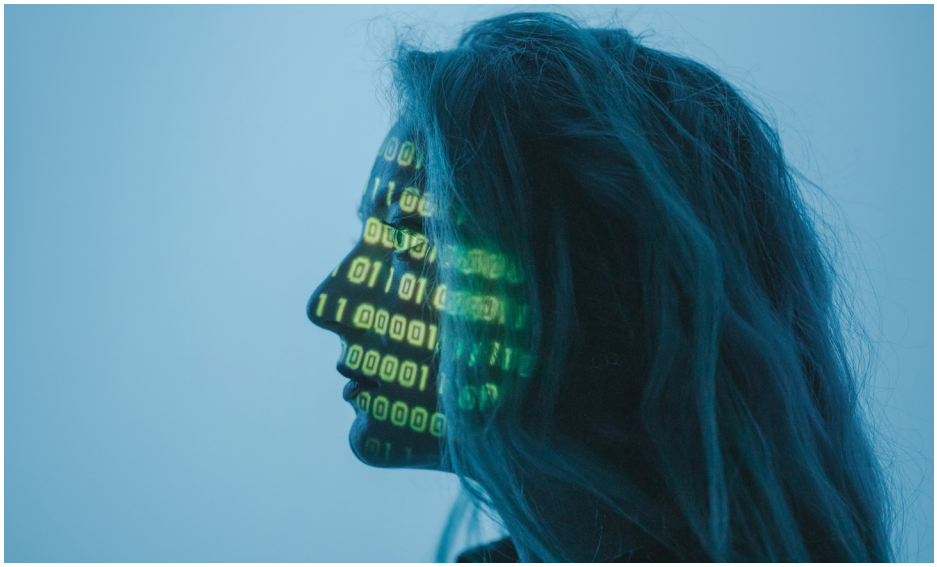
The highest investments in 2022 were seen in healthcare, data management, processing and cloud technology, fintech, cybersecurity, data protection and retail.

In terms of newly-funded AI companies, the US outpaces both China and the UK by a significant margin, boasting approximately 3.5 times more newly funded AI companies than China and 7.4 times more than the UK (Stanford 2023).

GLOBAL PRIVATE INVESTMENT IN AI, 2016 – 2022



Source: Stanford, The AI Index 2023 Annual Report



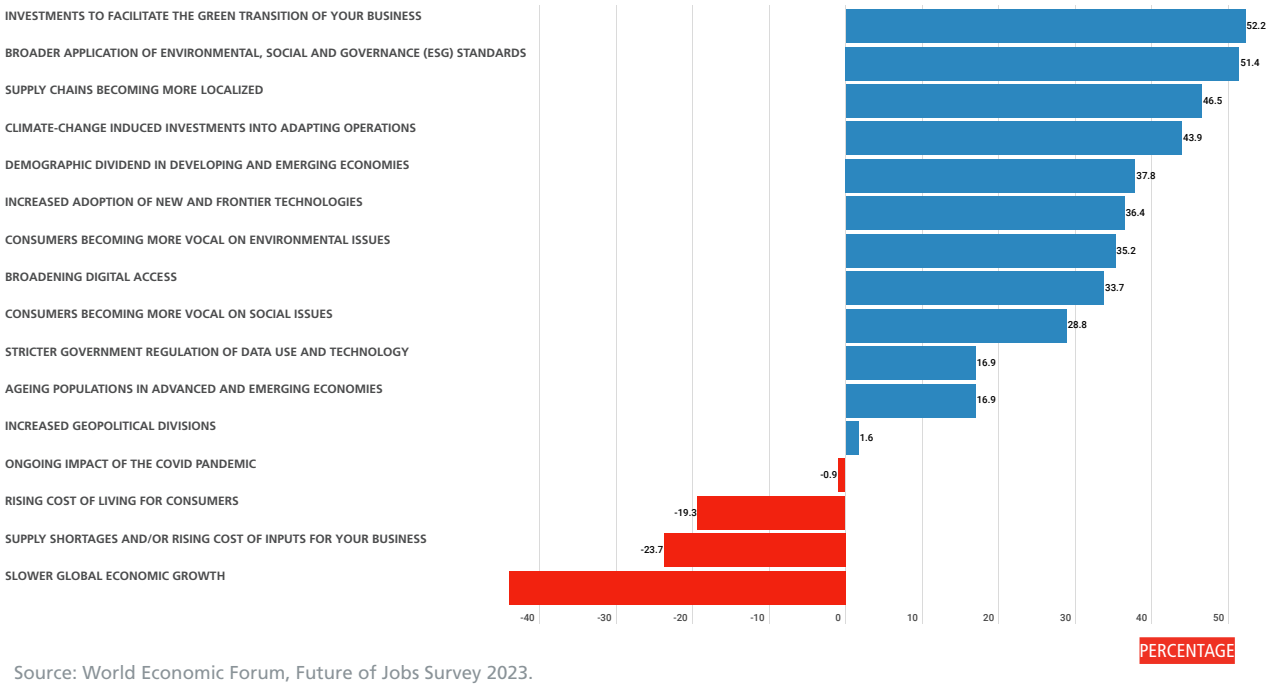
Forecasting the impact of AI on business

1. The key drivers of business transformation and employment

AI is anticipated to have a profound influence on nearly every aspect of our lives - but particularly when it comes to the labour market. One of the areas that will be most significantly impacted is the way businesses operate. The introduction of AI technologies is expected to usher in a new wave of business transformation, revolutionising companies' operational capabilities. The 'Future of Jobs 2023' report, conducted by the World Economic Forum (WEF), surveyed 803 companies across 27 industry clusters and 45 economies, with the companies collectively employing over 11.3 million workers. The report reveals that those surveyed believe technological advancement through the adoption of new and frontier technologies, along with increased digital access will be the most influential factors on the job market in the coming five years.

More than half of the surveyed companies foresee job growth resulting from these trends, while some others have concern about potential job displacement or loss. When considering the net effect on the job market however, technological advancement through the adoption of new and frontier technologies, along with increased digital access rank 6th and 8th, respectively. In addition, the report identifies slower economic growth, supply shortages, rising input costs and an increasing cost of living as drivers of expected job losses (WEF 2023).

EXPECTED IMPACT OF MACROTRENDS ON JOBS, 2023–2027, NET EFFECT



Source: World Economic Forum, Future of Jobs Survey 2023.

2. How AI is expected to reshape business and employment

Generative AI has garnered significant attention recently, with discussions revolving around the potential automation of over 50% of tasks for 19% of the workforce. According to the WEF, nearly 75% of companies it surveyed anticipate adopting AI, which could lead to substantial workforce churn. Of these organisations, 50% expect AI to drive job growth, while 25% anticipate job losses.

In terms of the fastest-growing roles, technology-related positions dominate the list. Leaders are AI and Machine Learning Specialists, followed by Sustainability Specialists, Business Intelligence Analysts, and Information Security Analysts. The demand for AI and Machine Learning Specialists is projected to rise by 40%, equivalent to 1 million jobs, as AI and machine learning continue to drive industry transformation.

While some companies strongly believe AI and big data may have been overemphasised as a core skill and will decline in importance, a net 59% of companies predict its growing significance and consider it a strategic priority.

AI and big data, which are currently ranked 15th as core skills for mass employment, are poised to climb the ranks and become the third-highest priority in company training strategies by 2027. Notably, for companies with more than 50,000 employees, AI and big data will take the top spot in terms of training priorities.

Big data analytics, climate change and environmental management technologies, encryption and cybersecurity are predicted to be the primary drivers of job growth. On the other side of the coin, AI technologies, agricultural technologies, digital platforms and apps, e-commerce, and digital trade are expected to have a dual impact on jobs: they will likely lead to job displacement and loss in certain areas while also creating new job opportunities in others.(WEF 2023).

On the other hand, in terms of the overall net impact on the job market, the majority of technologies are expected to be net job creators in the next five years. It is interesting to note that the list is not only dominated by technology-related positions, but also includes roles related to climate change mitigation and environmental management technologies.

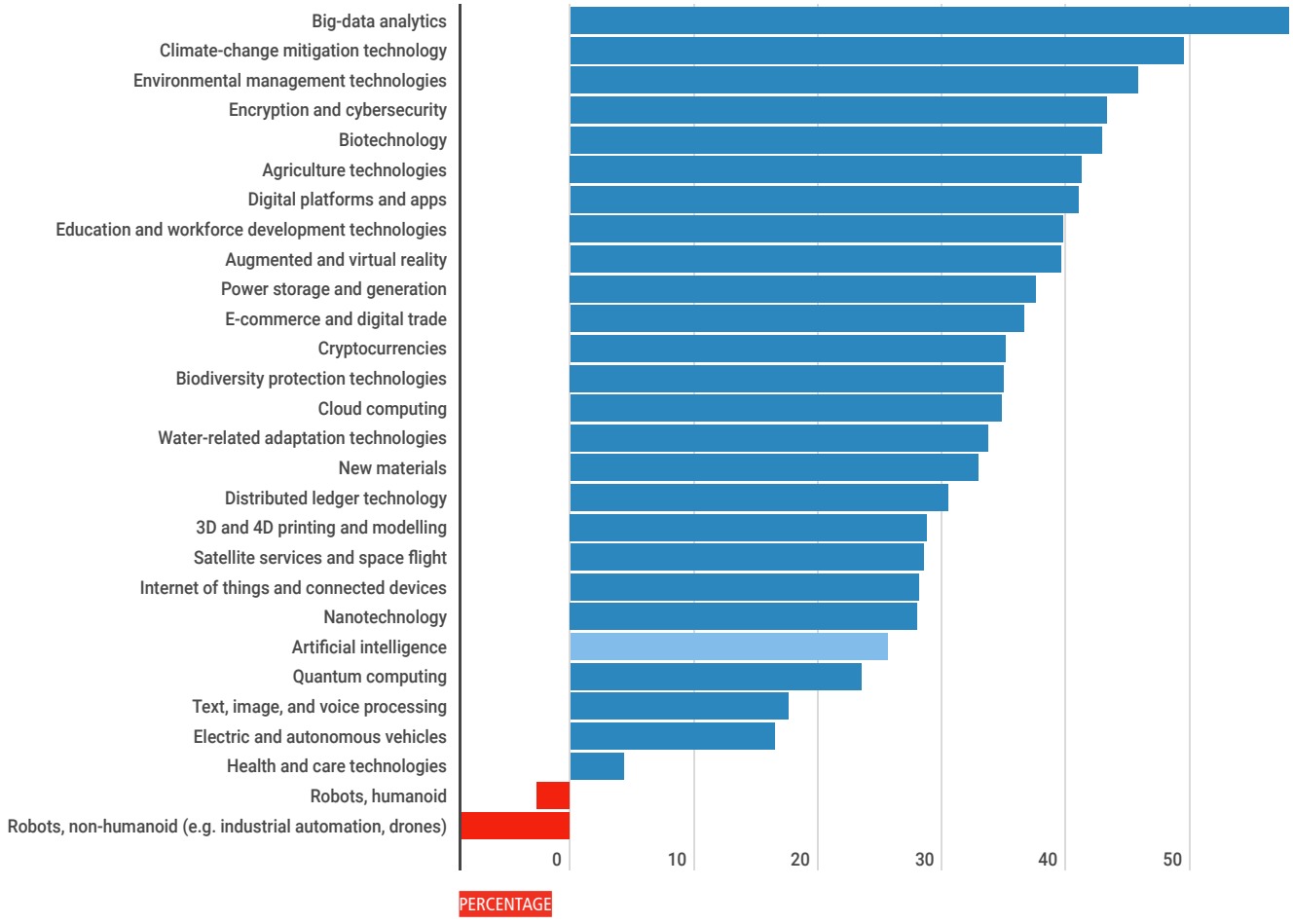
The net effect of robots, both humanoid and non-humanoid, is expected to trigger job losses, whilst non-humanoid robots, such as industrial automation technologies and drones, are anticipated to have a significant disruptive impact on the job market.

When it comes to businesses' expectations regarding the fastest growing and declining jobs compared to the current workforce, the WEF survey reveals AI and Machine Learning Specialists emerge as the top fast-growing roles, with Sustainability Specialists and Business Intelligence Analysts following closely behind.

On the other hand, the list of declining roles includes lawyers, human resources specialists, accountants and auditors, among others. Among the roles anticipated to experience the most significant decline, however, clerical and secretarial positions take the lead.

Bank Tellers and Related Clerks, Postal Service Clerks, and Cashiers and Ticket Clerks are examples of roles expected to decline rapidly in the coming years.

EXPECTED IMPACT OF TECHNOLOGY ADOPTION ON JOBS, 2023–2027, NET EFFECT



Source: World Economic Forum, Future of Jobs Survey 2023.

Net decline in jobs, 2023-2027 (in rounded percentages)

Source: World Economic Forum, Future of Jobs Survey 2023.

3. Exploring employee expectations from AI

Interestingly, despite expectations of potential job loss in certain sectors, employees maintain a positive outlook regarding the adoption of AI technologies. They believe that AI has the potential to enhance their productivity and alleviate daily work burdens.

In the current landscape, Microsoft's 'Work Trend Index Annual Report 2023' reveals an intriguing insight. A significant number of individuals (68%) express a sense of lacking uninterrupted focus during their workday. This scarcity of dedicated focus time, coupled with the constant quest for information and continuous communication influx, comes at an opportunity cost. In fact, 62% of survey respondents state that they spend excessive time searching for information throughout their workday.

According to the same source, many employees view AI as a valuable solution to address these work challenges. While 49% of respondents express concerns about AI replacing their jobs, an overwhelming majority (70%) believe that they can benefit from AI by delegating tasks to it, thereby reducing their workload.

Additionally, 3 out of 4 individuals are comfortable using AI, not only for administrative tasks (76%), but also for analytical work (79%) - and even for the creative aspects of their roles (73%).

The report states business leaders are twice as likely to perceive AI as a means to enhance productivity rather than reduce headcount in the workplace (31% vs. 16%) (Microsoft 2023).

GREATEST OBSTACLES TO PRODUCTIVITY

Source: Microsoft, The Work Trend Index 2023.

The challenges posed by AI

The pervasive influence of AI is poised to revolutionise the way we work across various industries. It will collaborate with humans in certain tasks, replace them in others, and even create entirely new job roles. The promise of enhanced workplace efficiency and reduced workloads for employees accompanies this technological advancement.

Nevertheless, the widespread adoption of AI also gives rise to debate concerning its likely overall impact on the job market.

Although it is thought that AI may disproportionately affect certain social groups and widen the gap between high-paid and low-paid workers, leading to increased polarisation in the labour market, these impacts remain uncertain at this point and other similar questions around how the world of work will be affected are equally unresolved. One such is how AI will be regulated.

Governments face the crucial challenge of striking a balance between minimising risks and maximising benefits through effective regulation. If regulation becomes overly restrictive or fragmented, companies may refuse to embrace AI technologies. The challenge is to create well-crafted regulation in good alignment with AI.

Exploring AI related risks

In conversation with Stijn Broecke

What structural changes might occur due to the automation and the adoption of AI technologies? And is there a potential risk of increased polarisation between higher paid and low paid workers?

We have worked a lot in the past on the impact of technologies on the labour market. We have often seen worries about jobless futures. However, these concerns have not materialised in the past. In fact, prior to the COVID-19 pandemic, most OECD countries experienced record employment rates despite the adoption of new technologies and automation. While there were instances of job destruction, we also observed significant job creation. It is important to note that the new jobs created were not always identical to the ones that were lost, resulting in considerable upheaval. One notable pattern we observed was that low-skilled workers faced more challenges with the introduction of new technologies, as their jobs were often the ones automated, whereas high-skilled workers tended to benefit the most. Moreover, we noticed regional disparities in the impact of technologies, leading to growing inequalities across different regions. With the emergence of AI, concerns about joblessness and inequalities have resurfaced. However, we are still in an early phase, and the adoption rates of AI remain relatively low. Currently, it is predominantly large companies that are embracing these technologies, often in experimental stages. Considering the overall impact on jobs and the levels of unemployment, we have not witnessed significant effects thus far. The OECD has collected some of the first robust evidence, I think, of what is actually happening in the labour market. Nonetheless, it is important to acknowledge that we are still in the early stages, and further research is needed to fully understand the long-term implications. But even amongst companies that have adopted AI, it's a mixed picture with no clear evidence of real job losses overall so far.

Stijn Broecke

OECD senior economist, leading the OECD's initiative on the Future of Work

This is due partly to companies still being in an experimental phase, making them reluctant to lay off workers. They prefer to retain their workforce, especially in tight labour markets where finding new employees is challenging. These companies aim to redeploy their workers or gradually adjust their processes without hiring additional staff. They strive to achieve growth by maximising output with fewer people. If there is a reduction in the workforce, it typically occurs indirectly through attrition, such as retirements or voluntary resignations. This aligns with our previous observations, where occupations at high risk of automation did not experience significant declines in employment. However, their growth was slower compared to occupations with less exposure to automation. Early evidence on AI indicates a similar trend, where firms and occupations more exposed to AI might experience slower growth.

Another interesting thing about AI is that it has made most progress in occupations that are high skilled. High-skilled workers now face greater exposure to AI developments, which is a departure from the past. However, the early evidence suggests that this increased exposure does not necessarily lead to automation of these occupations. Instead, it appears that low-skilled workers remain at the highest risk, while high-skilled workers tend to benefit from AI technologies. Once again, this enhances their productivity and results in higher-quality services and products. Consequently, high-skilled workers are expected to reap the benefits. When firms are asked about the impact of AI, they indicate an increased demand for high-skilled workers.

We did a survey in the manufacturing and finance sectors of seven OECD countries, and overall, workers expressed a positive outlook regarding the impact of AI on their working conditions and performance. However, high-skilled workers tend to be more optimistic than low-skilled workers. Therefore, it is likely that AI will exacerbate inequalities between high-skilled and low-skilled workers.

Finally, it is important to note that AI differs from previous technologies in its potential to impact a larger number of jobs. As a general-purpose technology, it carries a broader scope of influence, which warrants some concerns. It's likely to affect every single occupation in every single sector. So the scale of its impact is likely to be bigger than the impact of robots has been.

Another aspect that raises some concern for me regarding AI is the rapid pace of its development. This is significant because the labour market is accustomed to changes involving job destruction and creation, but these transitions require time for adjustment. If the speed of development and adoption is excessively high, one risk is that the necessary time for a smooth adjustment might be lacking, leading to abrupt disruption. This is another factor that slightly worries me. Nonetheless, I maintain an overall positive outlook for the long term, although there is always a possibility of being proven wrong. Who knows?

Governments are developing regulatory frameworks to address AI-related issues and opportunities, but so far there is a lack harmonisation. Could this pose a problem for multinational businesses?

I wouldn't say we're currently in a regulatory vacuum because existing laws already to some extent address the challenges posed by AI. Many regulations that are already in place would still apply to AI in most cases. However, there is a need to review and update the regulations, especially in

areas such as discrimination and algorithmic management. Some governments, including the European Union, are developing new regulations specific to AI. It is important to address these regulatory gaps and provide clear guidelines, as the uncertainty surrounding regulations hinders firms from adopting and utilising AI technologies. Creating a clear regulatory environment is crucial to foster the development and adoption of these technologies.

Let me provide a brief example to illustrate the point. Take the use of AI in recruitment. Currently, it's unclear to what extent the developer or the employer would be held accountable in cases of discrimination. Clarifying this accountability is crucial because without clear guidelines, companies will be hesitant to adopt these technologies. However, it's important to note that these technologies, if used properly, have the potential to greatly enhance the recruitment process. This is why effective regulation is vital in addressing these concerns and promoting responsible use of AI.

Your question raises an important and complex issue regarding harmonisation. We are witnessing developments in various regions, such as the EU, the US, and China, where discussions on regulation or soft laws are taking place. The risk of fragmentation and a potential race to the bottom in terms of standards is a concern. International cooperation is crucial, not only in terms of regulation but also in setting principles. The OECD has already played a significant role in this area. In 2019, we published the OECD AI principles, which have been adopted by OECD and non-OECD countries and formed the basis for the G20 AI principles.

While these principles are important, some argue that additional regulation may be needed in certain cases. Organisations like the OECD can contribute to addressing this challenge and preventing fragmentation. Similar to the impact of regulations like GDPR in Europe, we may see a similar pattern emerge in the case of AI, although it may take time. It is indeed a significant challenge, one that the OECD recognizes and is actively considering how to address in order to support development and adoption without fragmentation.

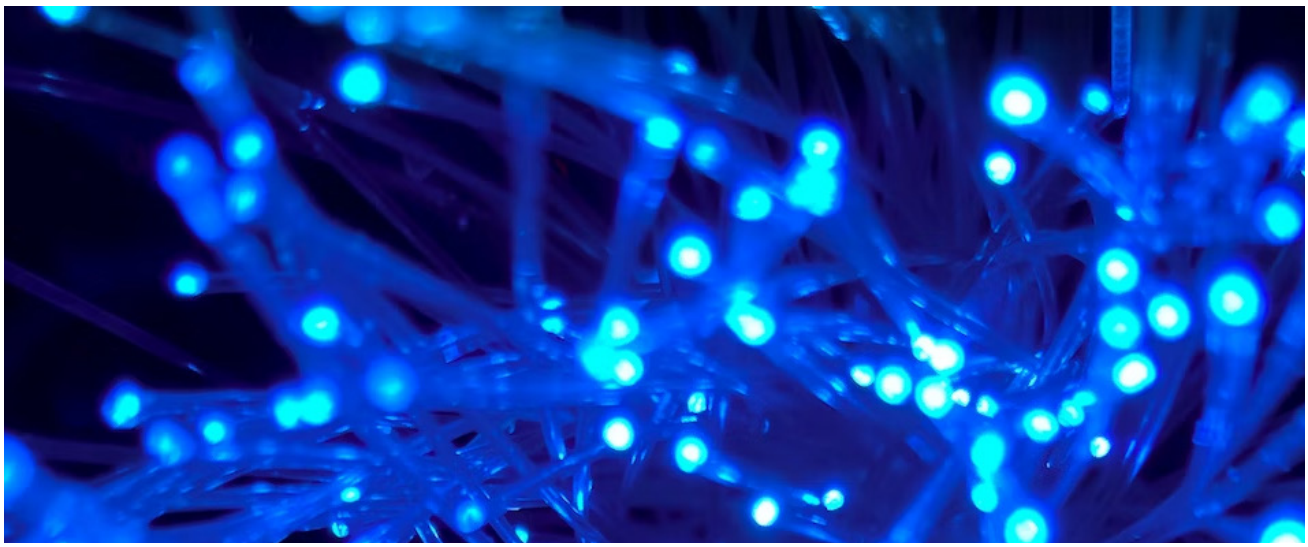
Take-aways

Although AI has been in existence for some time, its true significance is only recently becoming apparent. Today, regulators, businesses and society at large are actively seeking to grasp the benefits and understand the potential risks that AI may bring to our lives.

While it may still be early to precisely determine the full impacts of AI, certain trends and risks are already discernible. Unlike previous technological advancements, AI is poised to have a far-reaching impact, permeating nearly every sector. However, this widespread implementation also carries the risk of exacerbating inequalities, particularly impacting low-paid workers.

Conversely, AI holds the promise of enhanced productivity and cost reduction, driving significant interest from businesses to adopt AI technologies. Such widespread implementation will inevitably lead to structural changes, with certain skills such as machine learning, big data analytics, climate change, and environmental management technologies, as well as encryption and cybersecurity, emerging as primary drivers of job growth. Conversely, for example, clerical and secretarial positions are expected to experience serious decline, with bank tellers, postal service clerks, cashiers, and ticket clerks also likely to suffer losses.

At Ius Laboris, we are closely monitoring the shifting AI landscape and will keep watch on emerging trends and advancements, so as to provide regular reports on what's happening. We look forward to updating our readers in the coming months.



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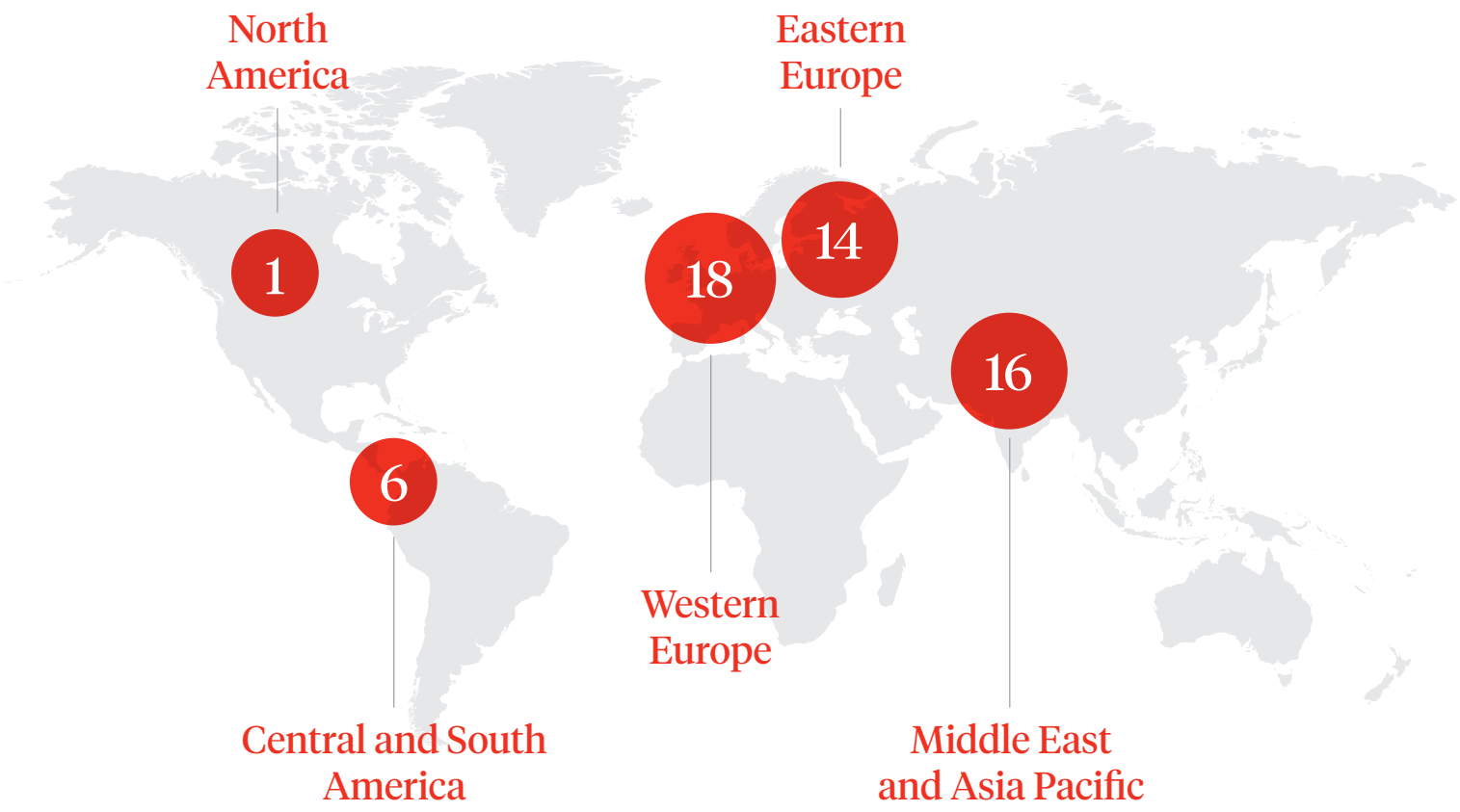
Geographical Coverage



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