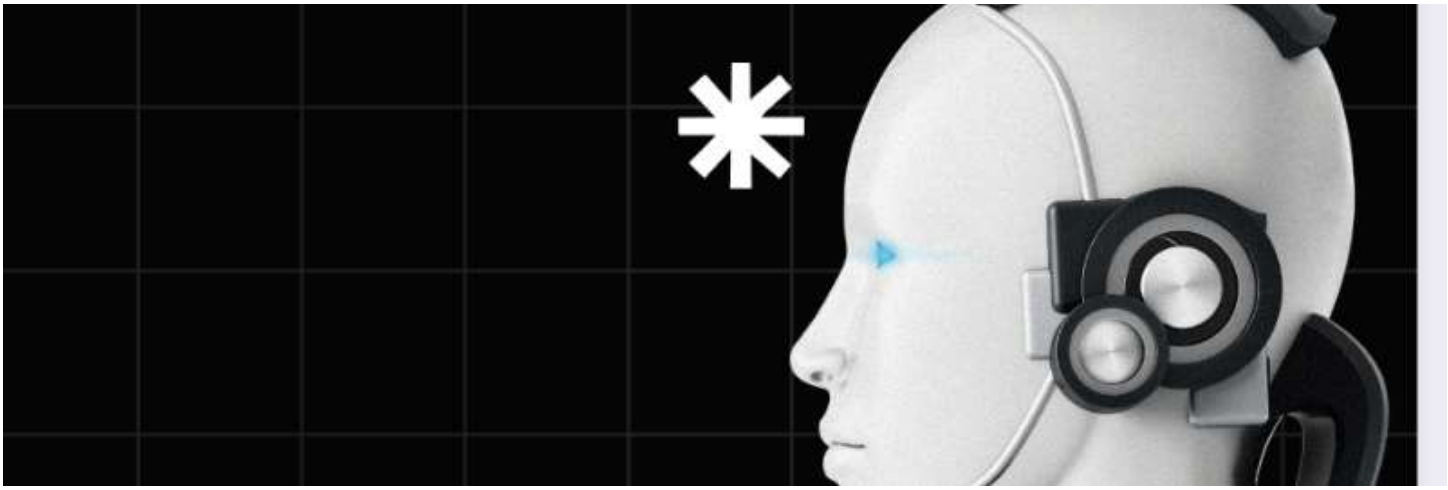


# AI Double Edge Sword

dual reality of AI in workplace

**Group 1**

**November 27, 2024**


## 1 Shanghai

*(industrial robotics, smart cities)*

- **AI Adoption**: **Over 70% of large enterprises in Shanghai use AI-driven tools in business processes.**

- **Investment in AI**: **Shanghai allocated $15 billion by 2025 for AI development in autonomous vehicles and logistics AI.**
- **Job Impact by 2025**: **Estimated total of 3.5 million jobs in manufacturing and logistics will be impacted.**

## 2 Singapore

*(finance, healthcare)*

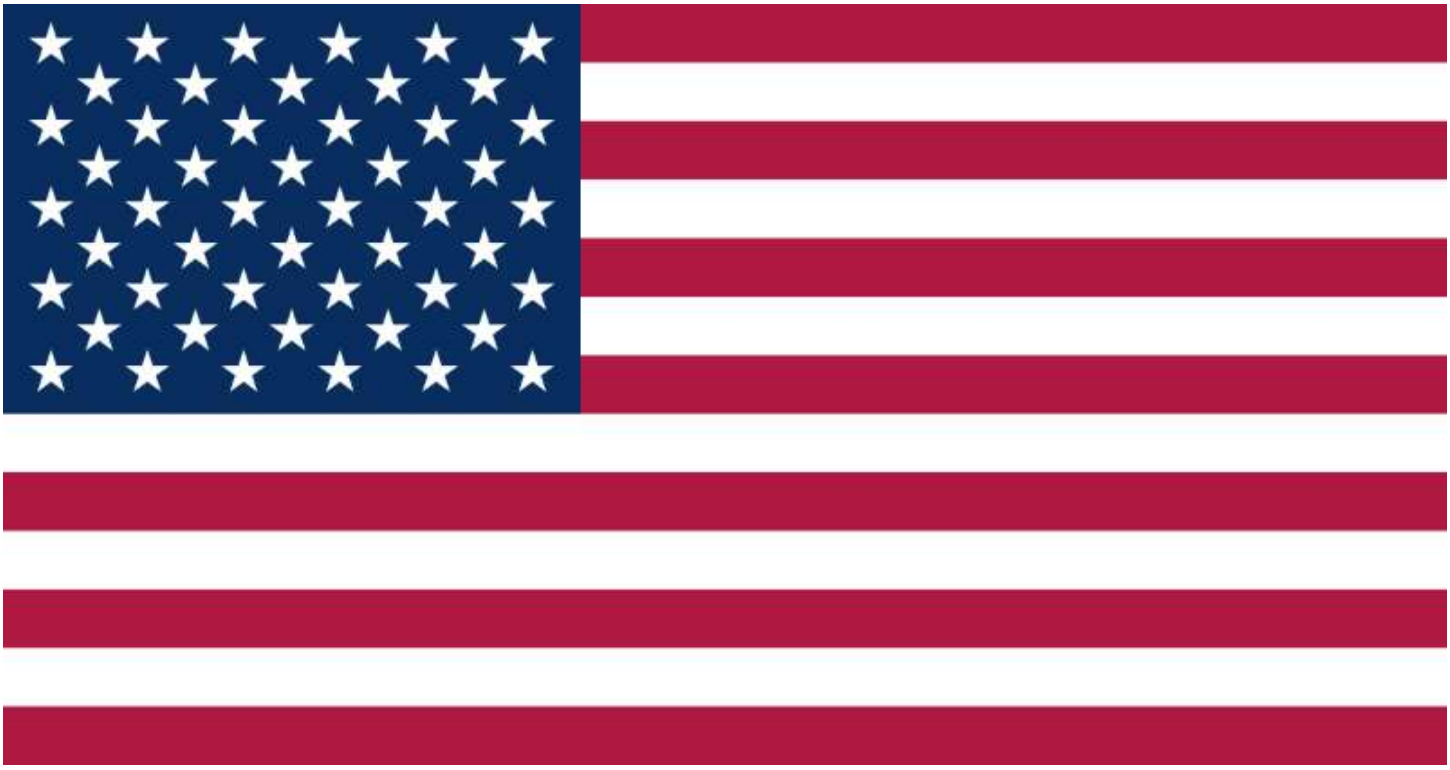
- **AI Adoption**: **Over 60% of companies in Singapore use AI in at least one business function.**
- **Investment in AI**: **Government allocated SGD 500 million (~$370 million USD) to its National AI Strategy focusing on AI for eldercare and transportation systems.**
- **Job Impact by 2025**: **Estimated 600,000 jobs will be impacted in retail, administration and fintech.**

## 3 Amsterdam

*(green energy, logistics)*

- **AI Adoption**: **Around 45% of enterprises in Amsterdam actively use AI.**
- **Investment in AI**: **Amsterdam is part of the European AI Alliance, which funds €1 billion annually for research and application for green energy optimization and urban mobility.**
- **Job Impact by 2025**: **Estimated 500,000 jobs will be impacted in transportation, customer service renewable energy and tech sectors.**

## 4 New York



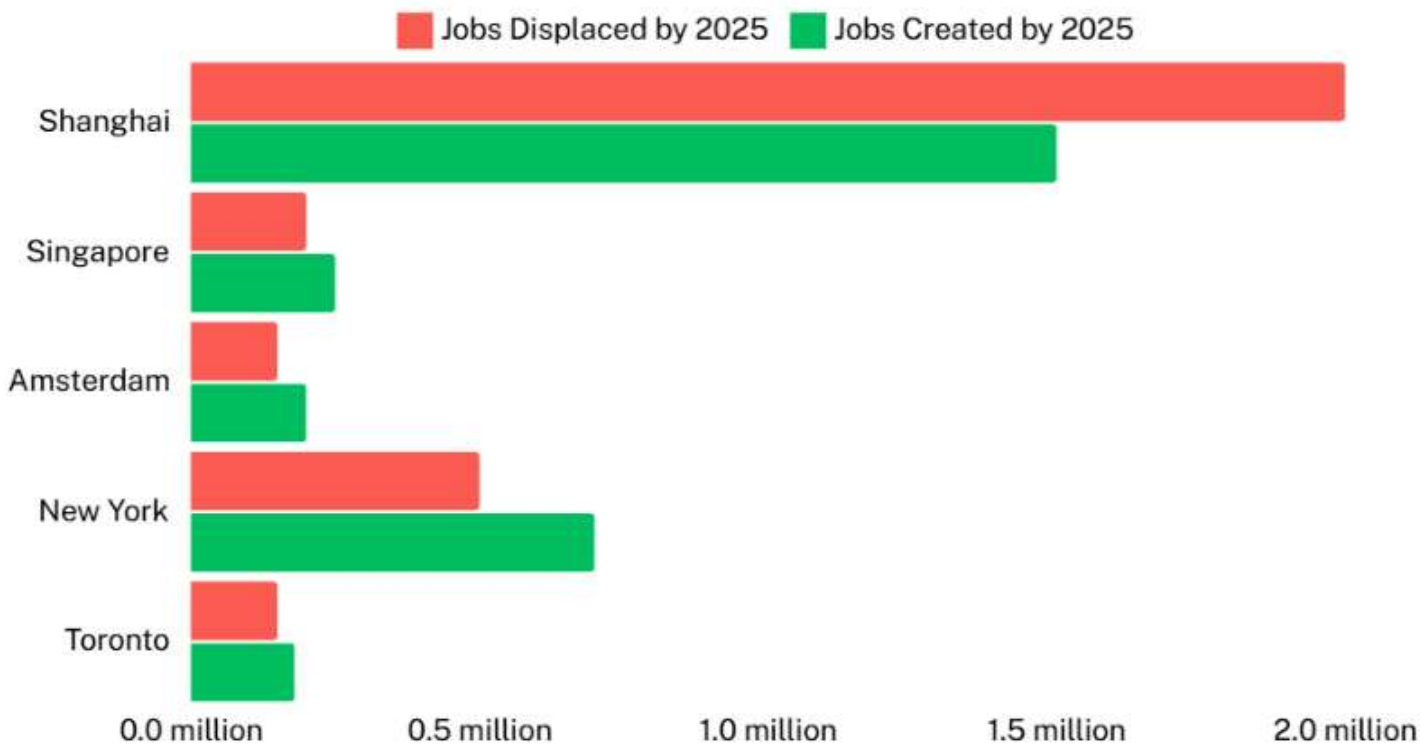
*(finance, marketing)*

- **AI Adoption**: **Over 75% of Fortune 500 companies headquartered in New York use AI for finance, real estate and advertising.**
- **Investment in AI**: **New York firms invested $7.3 billion in AI technologies in 2022 for fraud detection, quantitative trading and digital marketing.**
- **Job Impact by 2025**: **Estimated 1.3 million jobs will be impacted in banking, retail, marketing and fintech.**

## 5 Toronto

*(AI research, clean energy)*

- **AI Adoption**: **Around 50% of companies in Toronto implement AI in business processes.**
- **Investment in AI**: **Canada's Pan-Canadian AI Strategy has dedicated $125 million to AI research hubs like Vector Institute.**
- **Job Impact by 2025**: **Estimated 350,000 jobs will be impacted in manufacturing, logistics and clean energy solutions.**

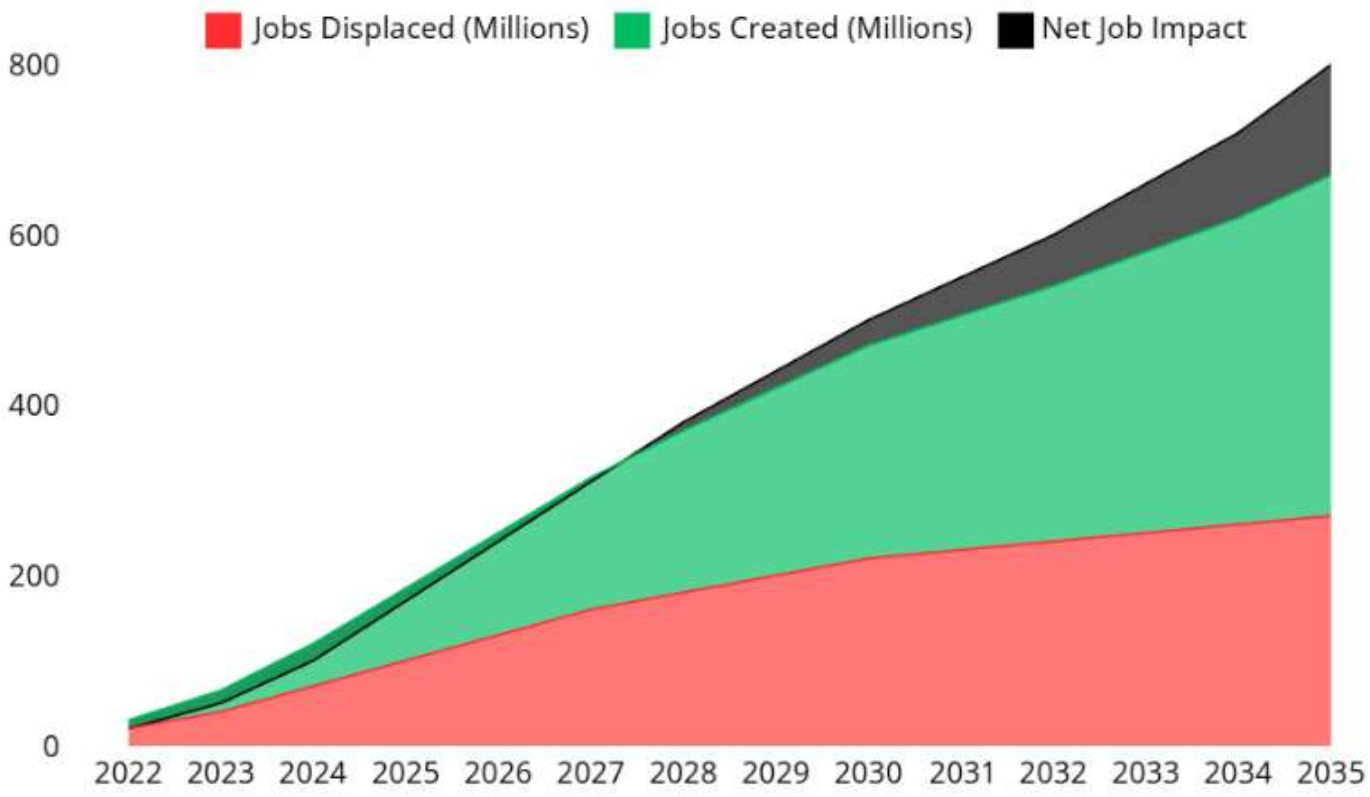



### *AI Impact on major cities*

***(2025)***

**Jobs lost** are predominantly in repetitive and manual tasks like manufacturing, data entry and logistics.

**Jobs created** emerge in tech, AI development, healthcare, renewable energy and digital transformation.




### *Jobs displaced vs Jobs created*

***(2022 - 2035)***

**due to AI adoption** in workplaces

Inflection Point: 2028, positive net impact on employment.

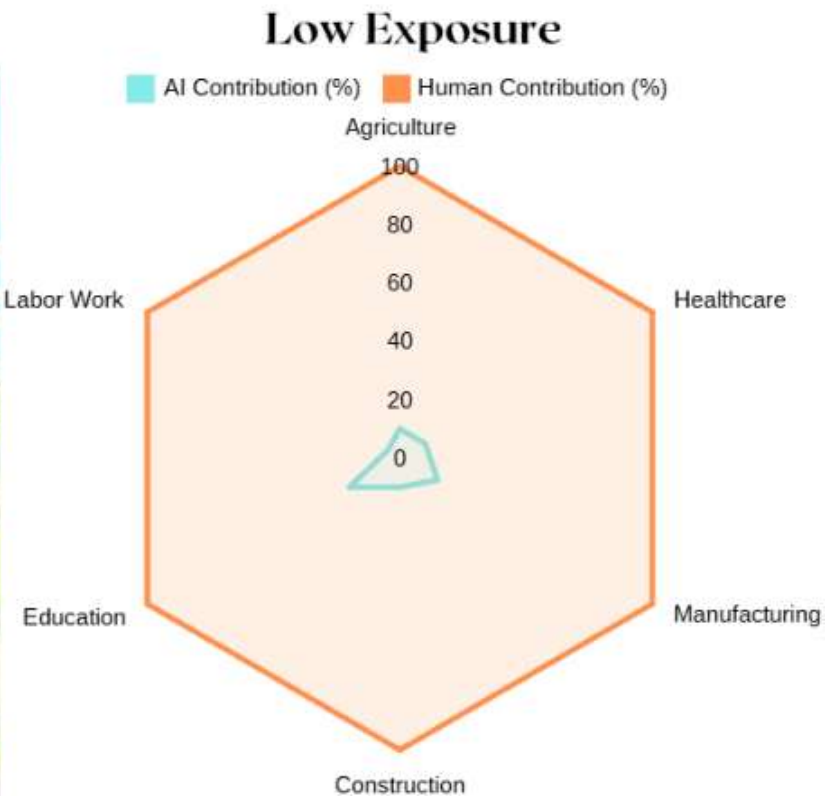
Steady Growth: From 2028 onward, job creation accelerates due to AI-fueled industries.

Early Disruption: Before 2028, industries reliant on repetitive tasks face significant job displacement.

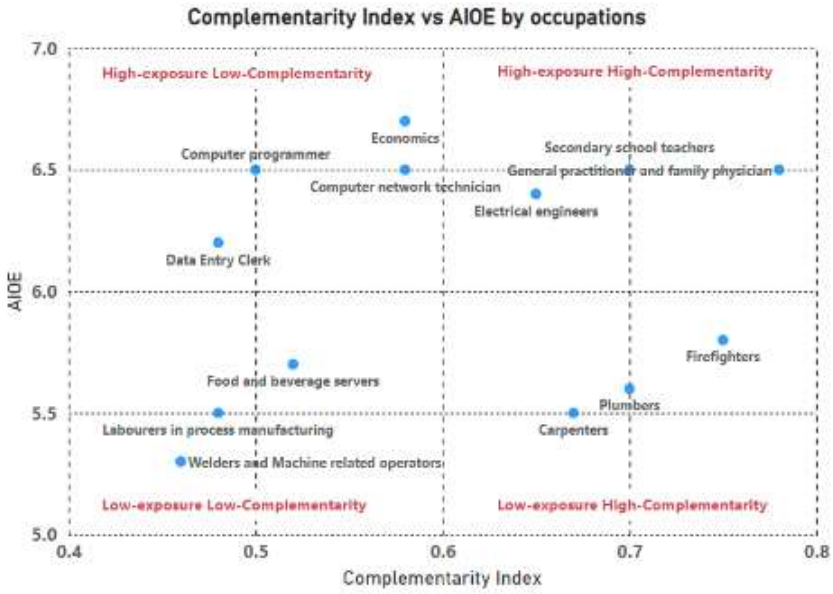
## Job Classification : The impact of AI in Job roles


**High Exposure, Low Complementarity :** AI technology continuously increases its presence in the human work environment. Here machines are very effective and efficient with humans. As per the data, 31% of employees in Canada are working in a role that may be classified as high exposure and low complementarity and it can have the most job displacement.


**High Exposure, High Complementarity :** As humans are increasingly interacting with AI systems, many roles are there in the job market where humans are befitted using AI.



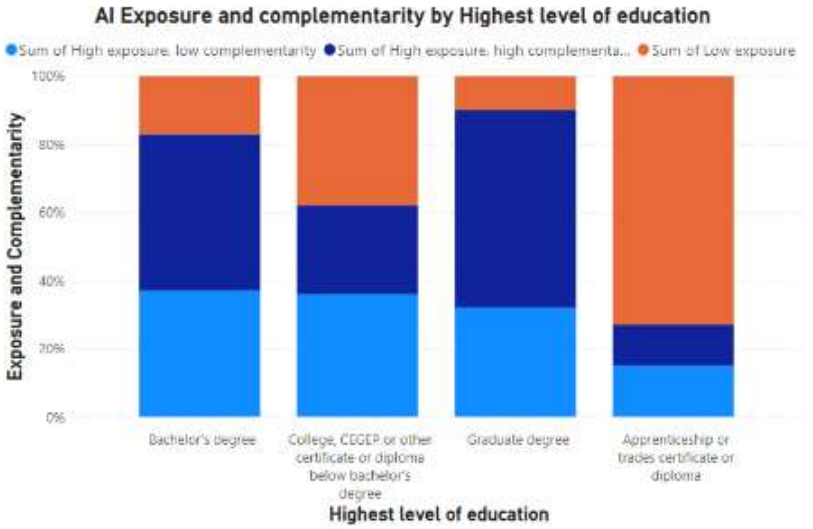

**Low Exposure :** There are few jobs in the market where humans are dominating and not exposed in AI. Some roles related to mechanical, construction, agriculture and transportation industries remain largely unaffected by AI.




**Measures of Job Classification:**

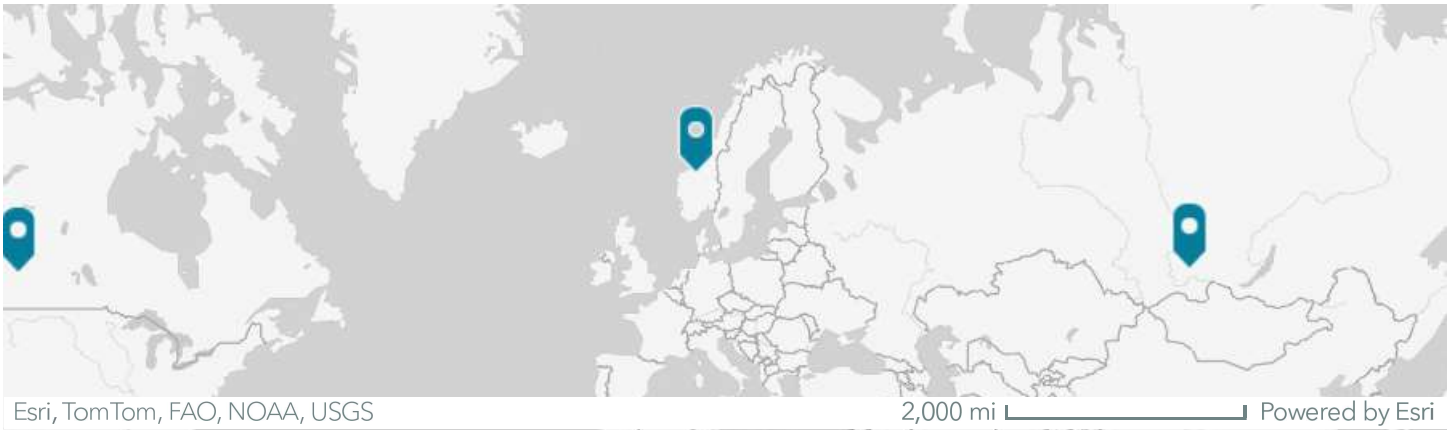
**AI Occupational Exposure Index (AIOE):** The AIOE (AI Occupational Exposure) measures how much a specific occupation or sector is influenced by AI technologies. It quantifies exposure to AI in various ways, including task automation, AI-enhanced decision-making, and reliance on AI systems. A high AIOE indicates that a significant portion of the job is affected by AI, while a low AIOE suggests minimal or no exposure to AI.

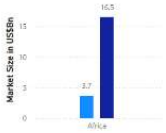
**Complementarity:** It assesses the relationship between AI and human workers. High complementarity indicates that AI enhances workers' tasks, while low complementarity suggests that AI may automate jobs, decreasing the necessity for human involvement.




**AI exposure of job roles based on level of education:** The relationship between education and AI exposure is crucial. Highly educated employees may experience greater transformation in AI-related jobs, as illustrated in the figure.

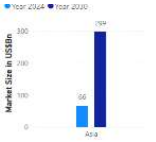
## Automation and AI: An Overview of current market size and investment



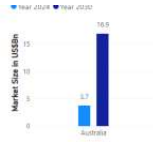
## Investment in AI and Automation in Africa

In 2024, the market size of Artificial Intelligence and automation in Africa is US$3.7Bn. CAGR 2024-2030- The size is expected to grow at an annual rate of 28.33%, resulting in ...



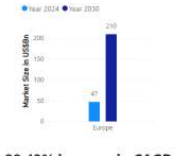
## Investment in AI and Automation in Asia

In 2024, the market size of Artificial Intelligence and automation in Asia is US$66.3Bn. CAGR 2024-2030- The size is expected to grow at an annual rate of 28.33%, resulting in ...



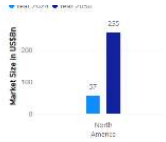
## Investment in AI and Automation in Australia

In 2024, the market size of Artificial Intelligence and automation in Australia is US$3.7Bn. CAGR 2024-2030- The size is expected to grow at an annual rate of 28.33%,...



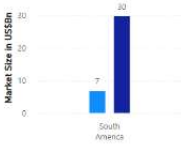
## Investment in AI and Automation in Europe

In 2024, the market size of Artificial Intelligence and automation in Europe is US$47Bn. CAGR 2024-2030- The size is expected to grow at an annual rate of 28.33%, resulting in ...



## Investment in AI and Automation in North America

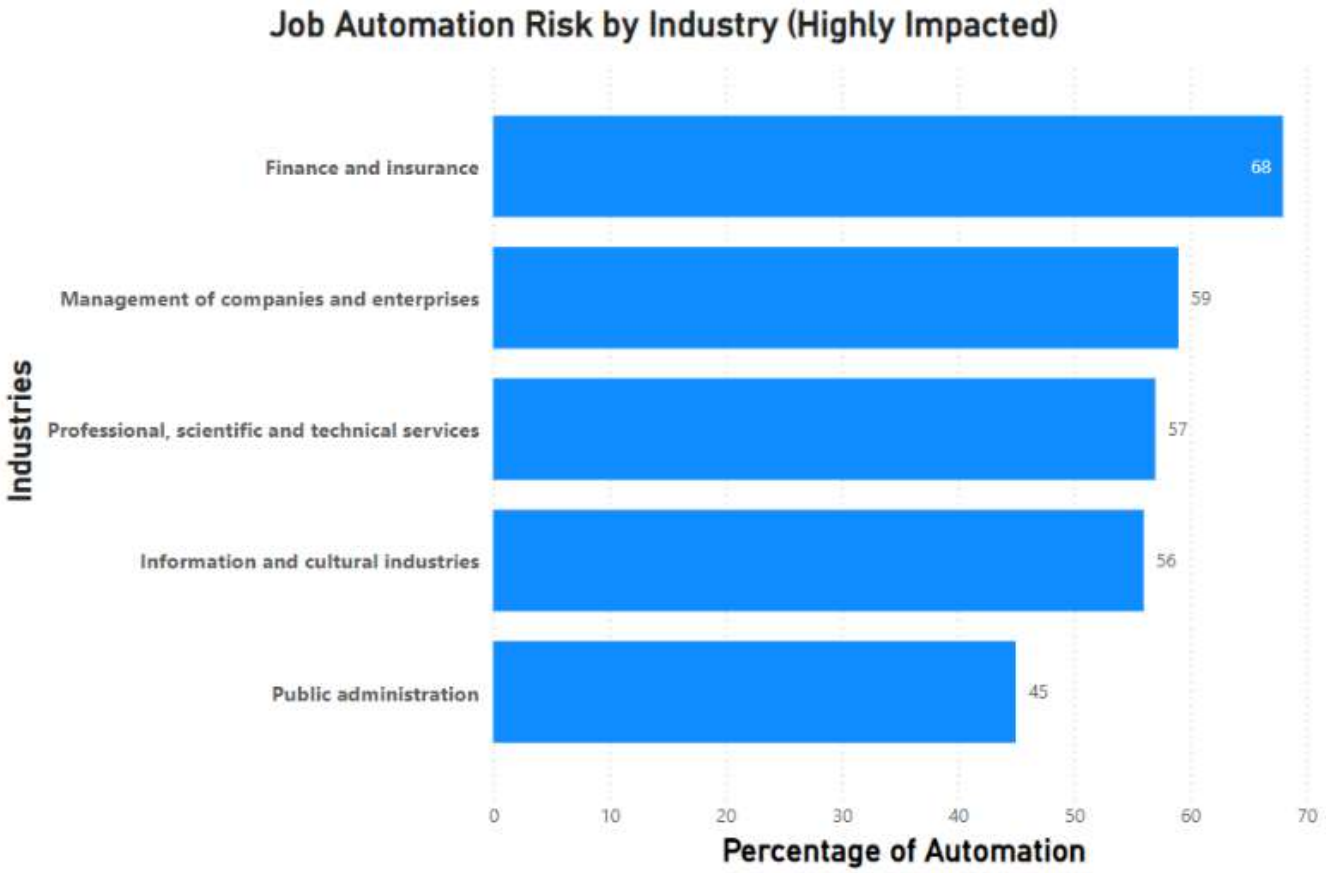
In 2024, the market size of Artificial Intelligence and automation in North America is US$57Bn. CAGR 2024-2030- The size is expected to grow at an annual rate of 28.33%,...



## Investment in AI and Automation in South America

In 2024, the market size of Artificial Intelligence and automation in South America is US$7Bn. CAGR 2024-2030- The size is expected to grow at an annual rate of 28.33%,...

## The impact of investments in Industries: Industry classification

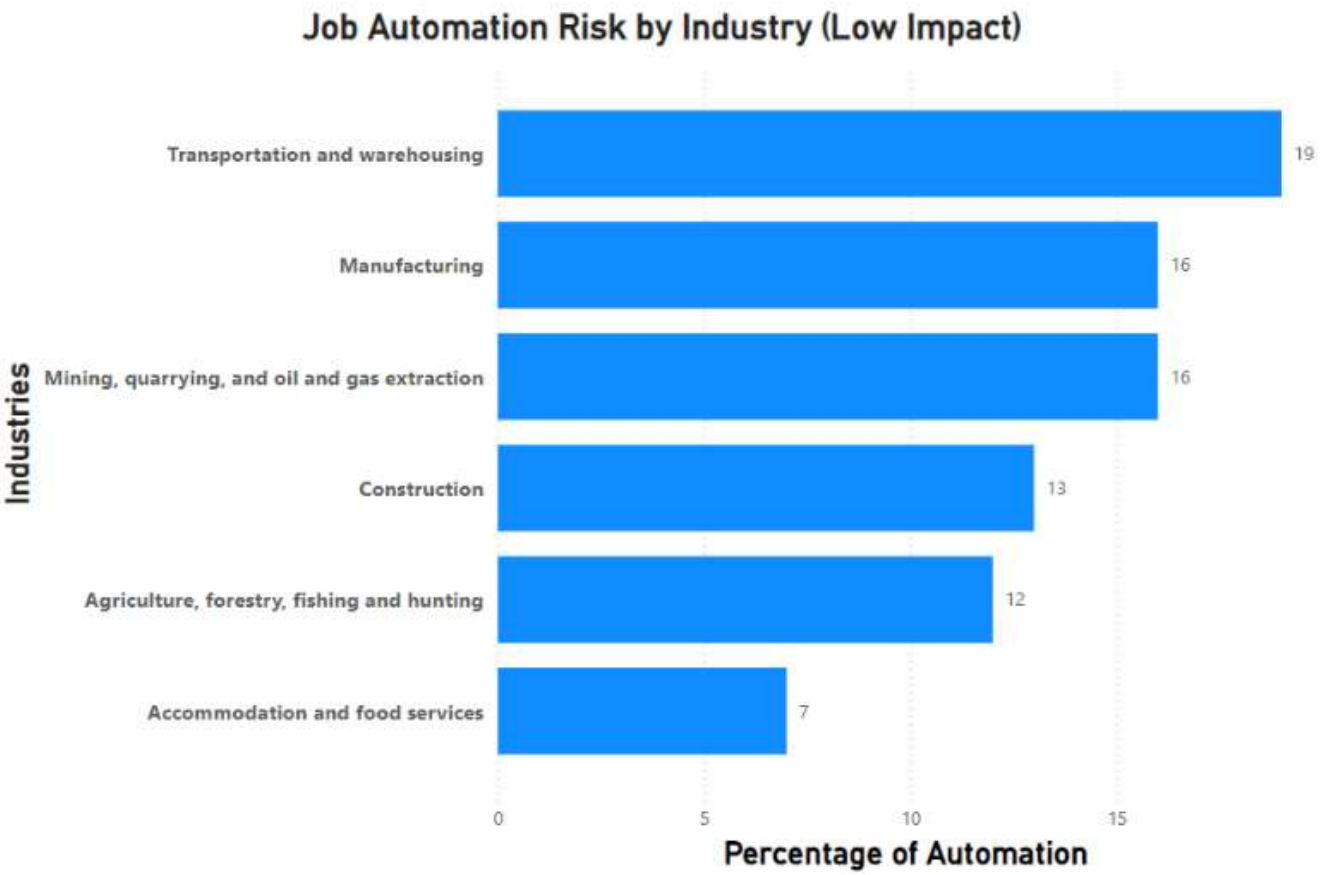



### How will industries be changed over time?

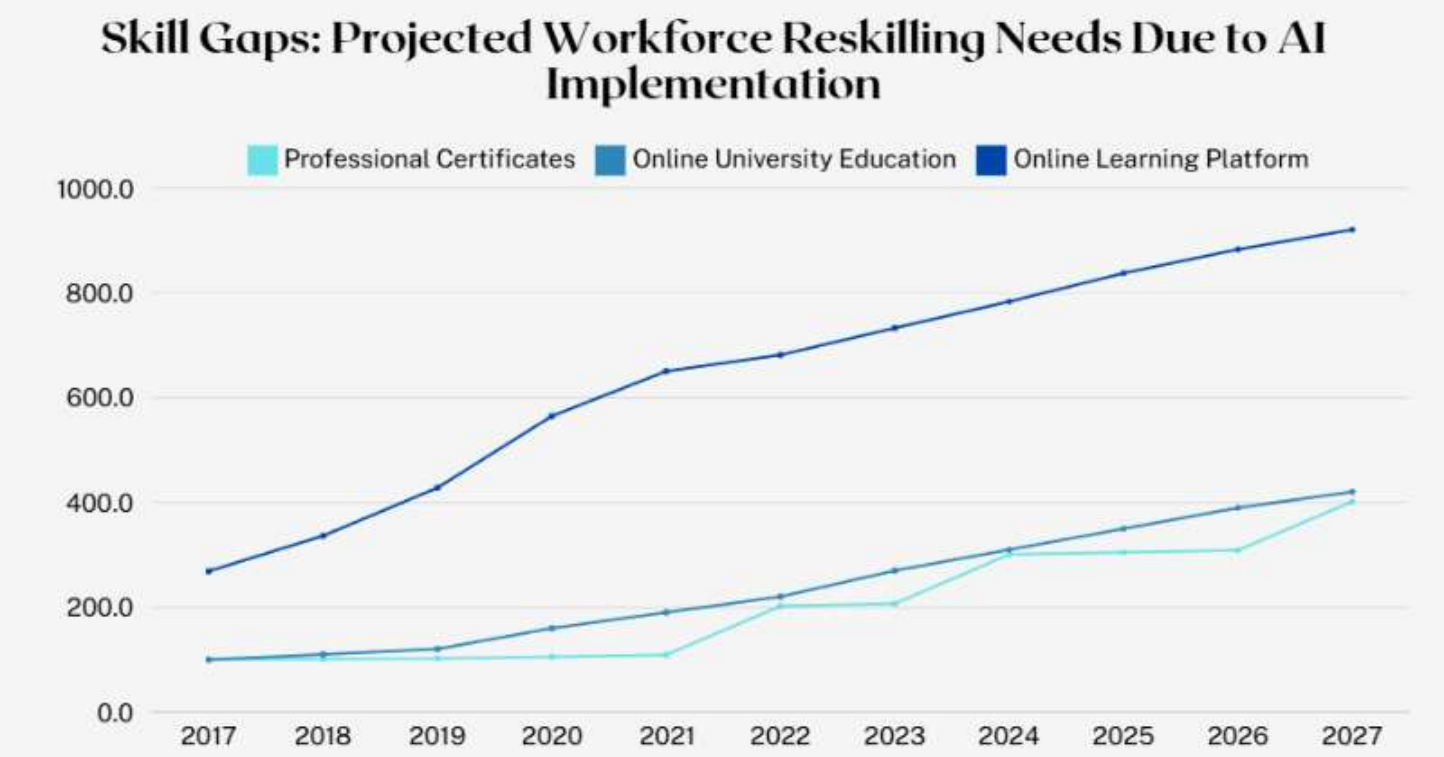
Today many companies are using different cutting age technologies such as machine learning, robotics, deep learning, and natural language processing to get valuable insights and optimizations.

As per the North American Industry Classification System, many employees are working in a role in industries such as information technology, management services, finance and insurance, and administrative works that are categorized as high-exposure and low-complementarity and over the time

those roles will be automated leading many layoffs across the industries.



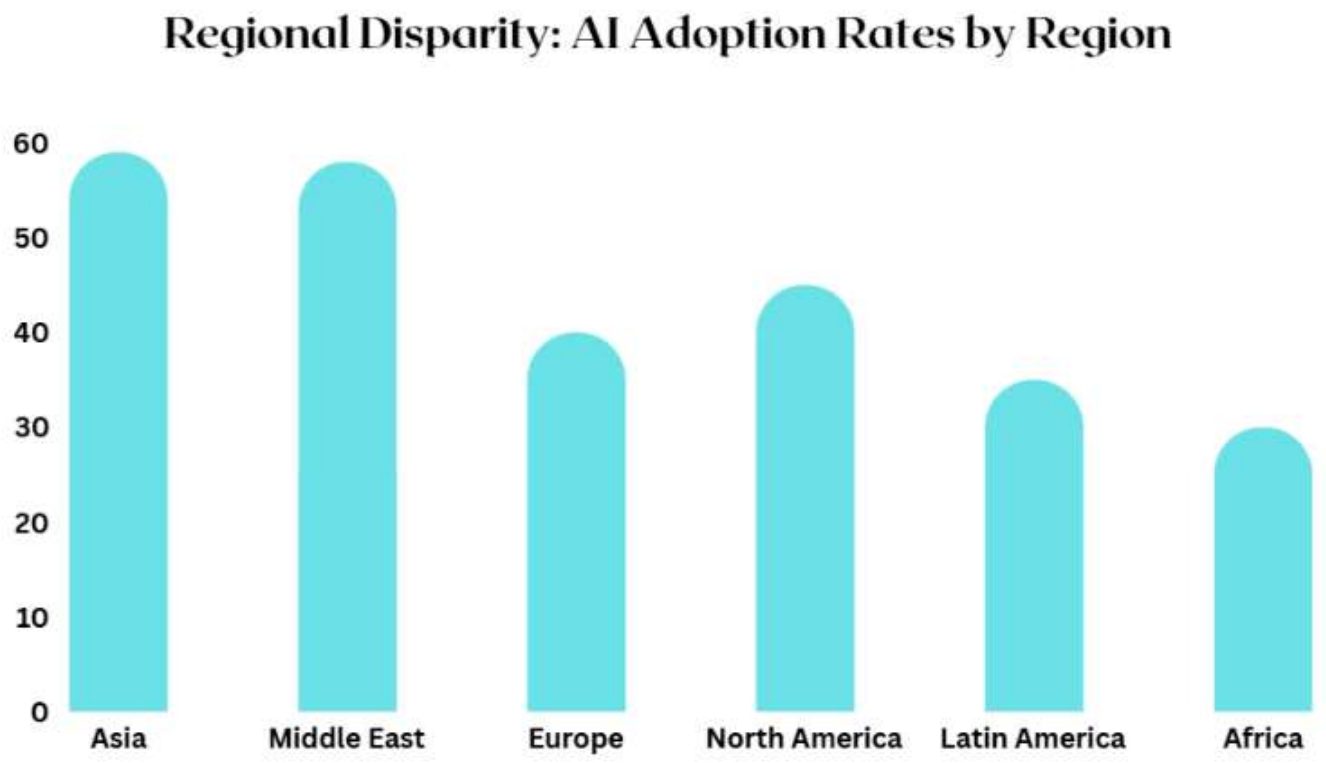

According to the North American Industry Classification System, many employees are working in a role in industries such as manufacturing, professional services, construction, agriculture, mining, housing, and transportation services that are considered to be at low risk of automation.



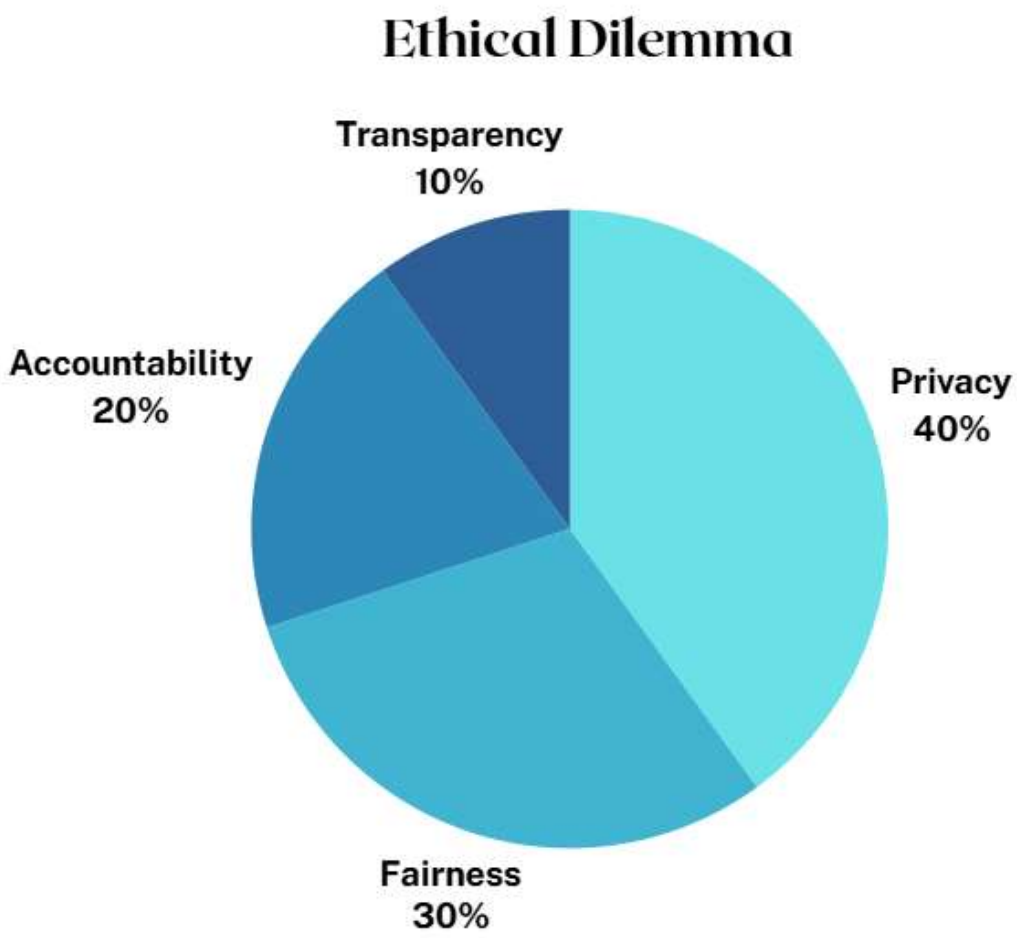

This data shows a shift toward more accessible, adaptable educational techniques to keep up with AI's growing inclusion into the workforce.

As AI technologies evolve from 2017 to 2027, the need for reskilling via online learning platforms skyrockets, while traditional Professional Certificates and Online University Education remain stable.

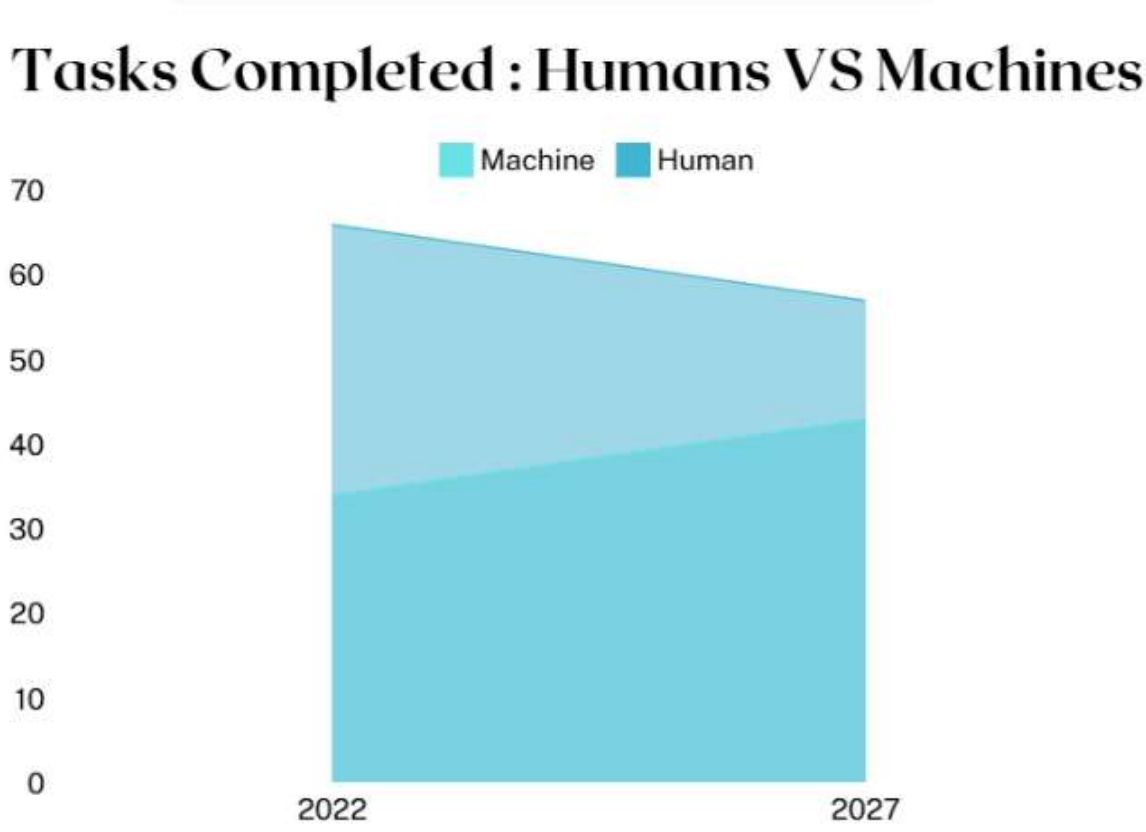
In essence, this chart emphasizes the importance of online learning in closing the skill gap, reminding us that in the age of AI, adaptability and lifelong learning are the keys to future success.



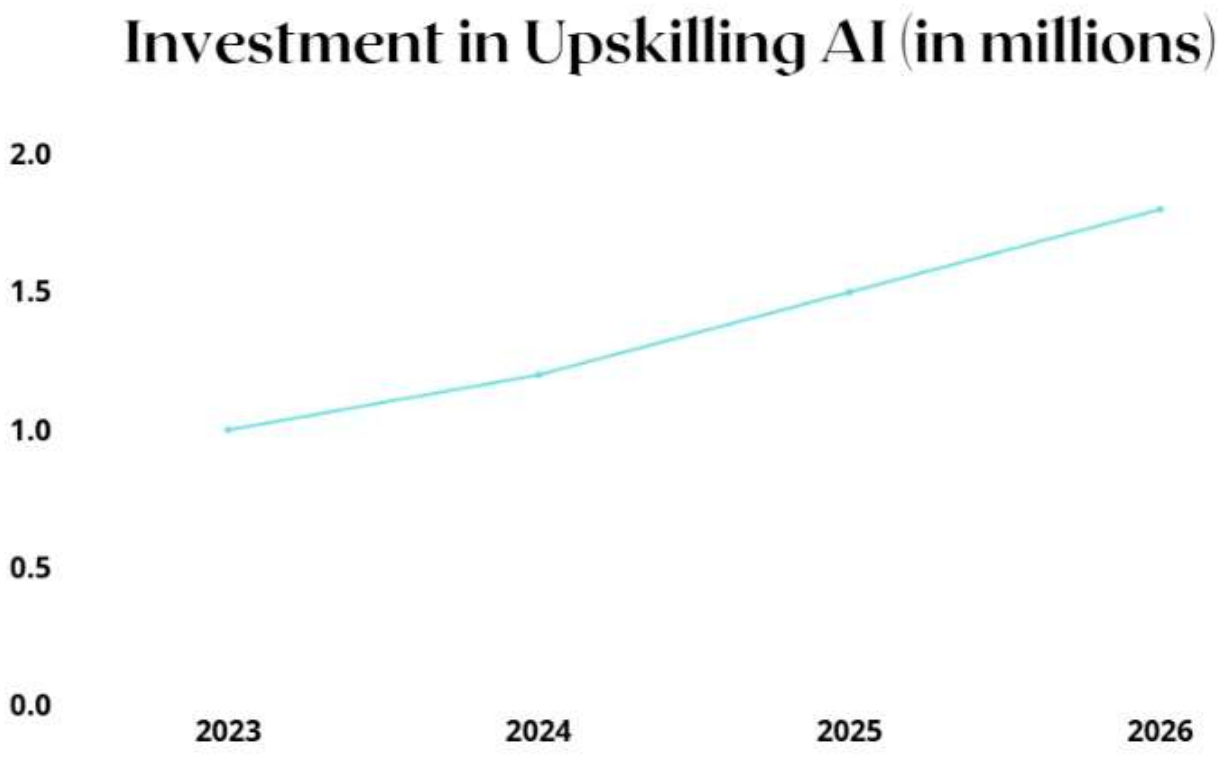

This research emphasizes the need for specific measures to overcome the AI adoption gap, thereby enabling inclusive global technology growth. The variations in AI adoption rates highlight the necessity of focused efforts by politicians, educators, and technology leaders to promote balanced AI growth around the world.




This chart emphasizes the many ethical concerns that must be addressed as AI continues to grow. Privacy concerns account for 40% of the landscape, indicating the necessity of protecting personal data. Fairness difficulties account for 30%, indicating the persistent challenge to prevent AI systems from perpetuating biases. Accountability accounts for 20%, stressing the importance of clearly defined accountability in AI decision-making. Finally, Transparency is 10%, emphasizing the importance of making AI processes understandable and transparent.

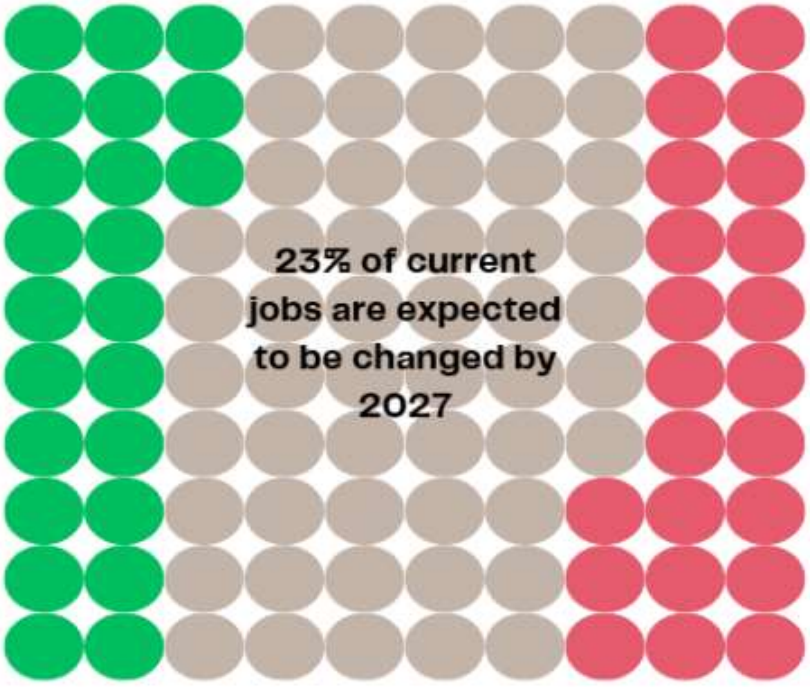



By 2022, machines will have surpassed humans in task completion rates. However, by 2027, this tendency will reverse as the proportion of work completed by humans climbs and tasks completed by machines decreases. This data emphasizes the dynamic nature of task allocation and the changing role of human labor in the AI era. It emphasizes the importance of constant adaptation and skill improvement in order to remain relevant in the ever-changing landscape of task distribution between humans and machines.

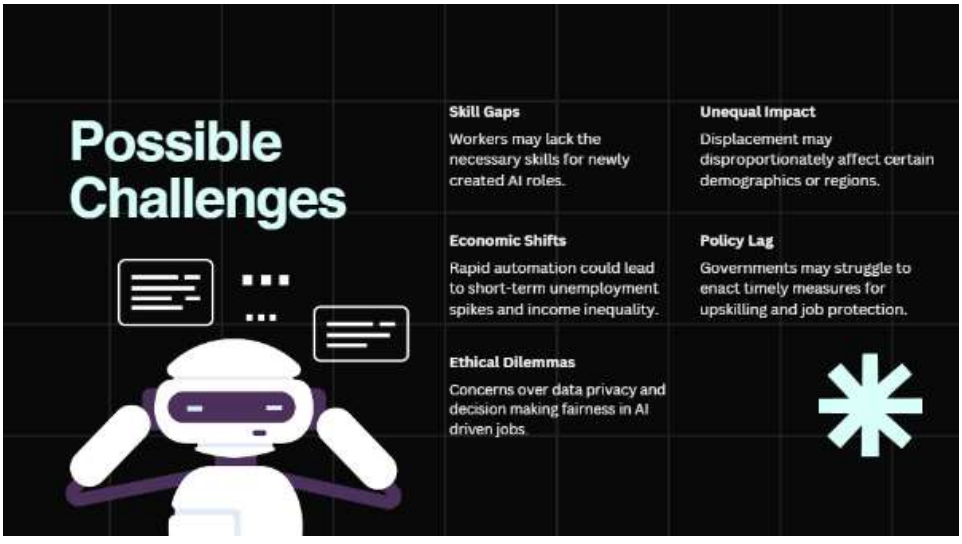


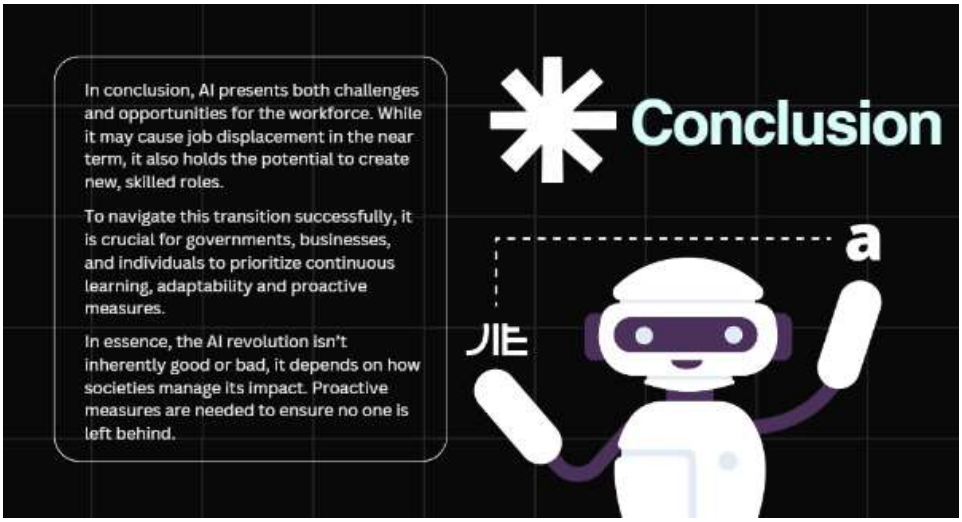

The steady increasing trajectory demonstrates a commitment to preparing employees for the future of work. Starting at 1 million in 2023, investments will reach 2.0 by 2026. This trend emphasizes the growing relevance of workforce development, as firms prioritize upskilling and reskilling to meet shifting employment demands and technology improvements.


This data emphasizes the crucial need of focused reskilling activities and strategic planning in ensuring workforce readiness in a dynamic labor market. A grid of colored squares illustrates numerous categories in the graphic representation of workforce training needs and accessibility predictions until 2027. By 2027, 39% of the workforce will not require training, 18% will have been upskilled, 12% will need training but it will not be available until 2027, 16% will have been reskilled and redeployed, and 15% will still be unable to obtain training.




The graphic grid depicts the projected job changes by 2027, with 23% of present positions forecast to change. This underlines the importance of technical improvements and economic shifts on the labor market. The research emphasizes the importance of workforce adaptation and ongoing learning in navigating these forthcoming changes successfully.




In conclusion, AI presents both challenges and opportunities for the workforce. While it may cause job displacement in the near term, it also holds the potential to create new, skilled roles.
To navigate this transition successfully, it is crucial for governments, businesses, and individuals to prioritize continuous learning, adaptability and proactive measures.
In essence, the AI revolution isn't inherently good or bad, it depends on how societies manage its impact. Proactive measures are needed to ensure no one is left behind.
Conclusion
a