McKinsey & Company

Is technology the answer to flagging global productivity?

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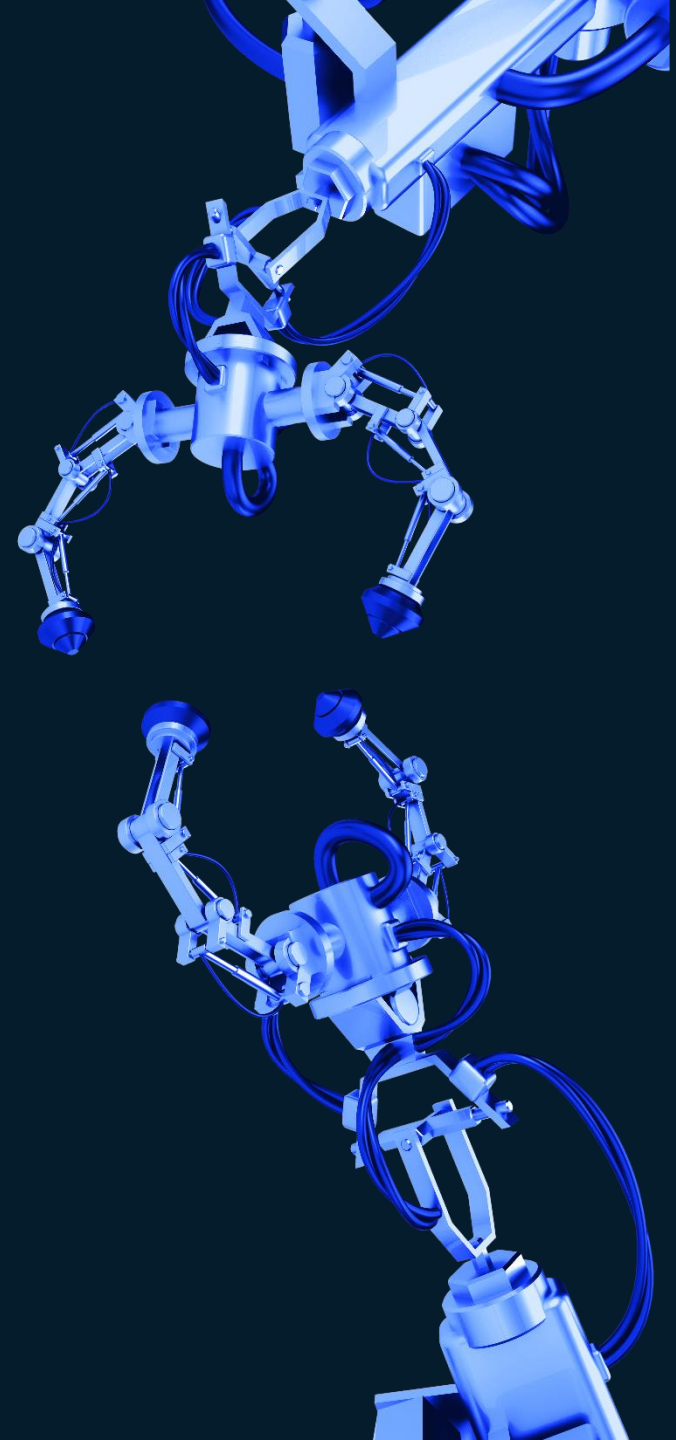
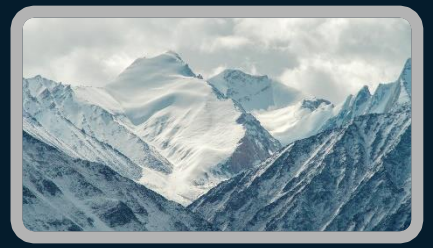


AI and automation: implications for productivity and jobs



Potential — Huge, but varied

Adoption — Fast, but uneven

Jobs — Growing, but transformed

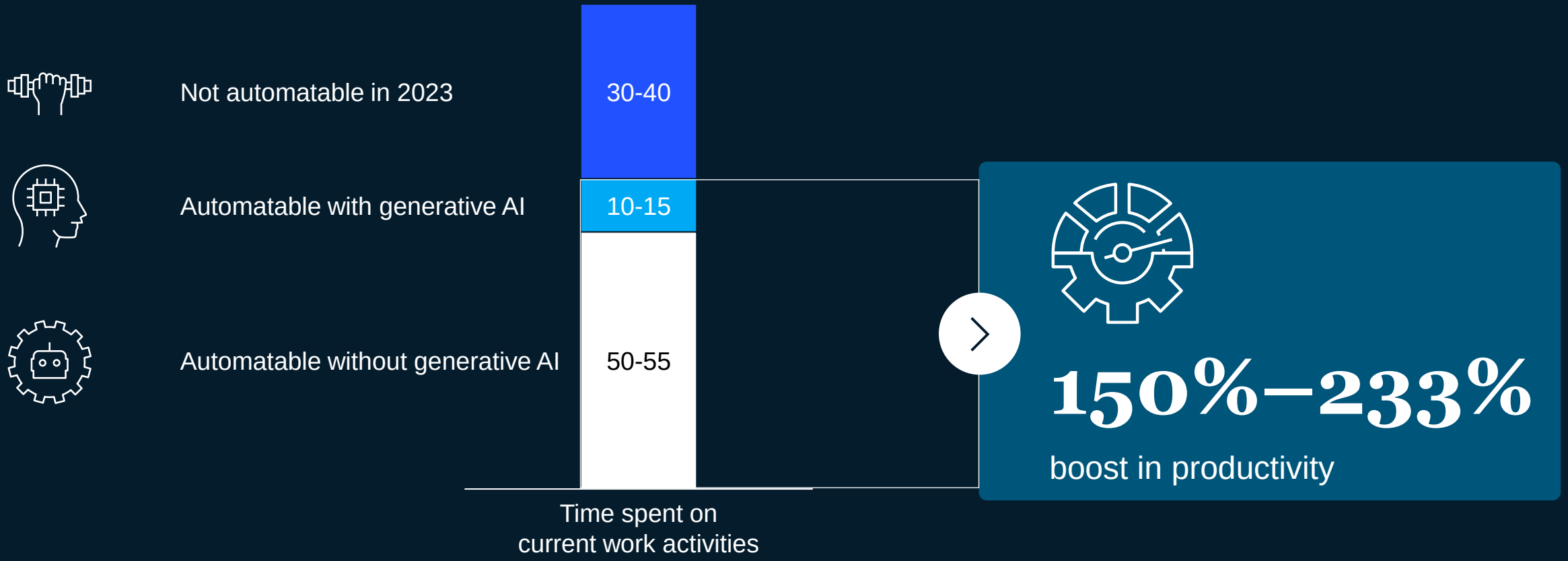
Productivity — Improved, but in bursts

Growth — Boosted, but not enough

Generative AI has boosted automation potential: around 60-70% of hours worked globally could be automated using today's technology

Technical automation potential globally[1] in mid-point scenario in 2023

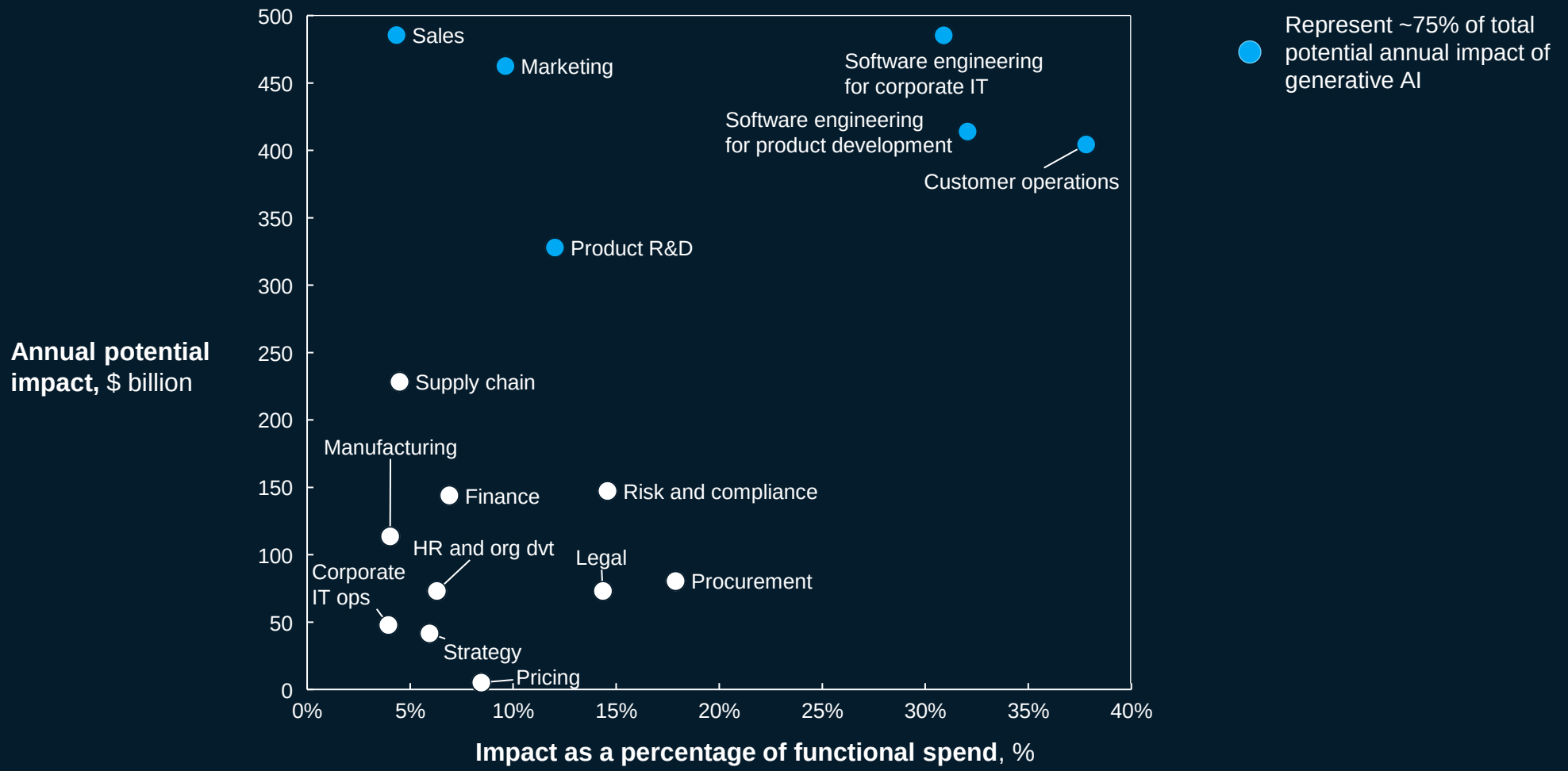
% of time spent on current work activities



1. Based on data from 47 countries which represent 80% of employment globally.

Source: "The economic potential of generative AI", McKinsey & Company, June 2023

A large proportion of generative AI's impact is likely to be concentrated in just a few functions and use cases

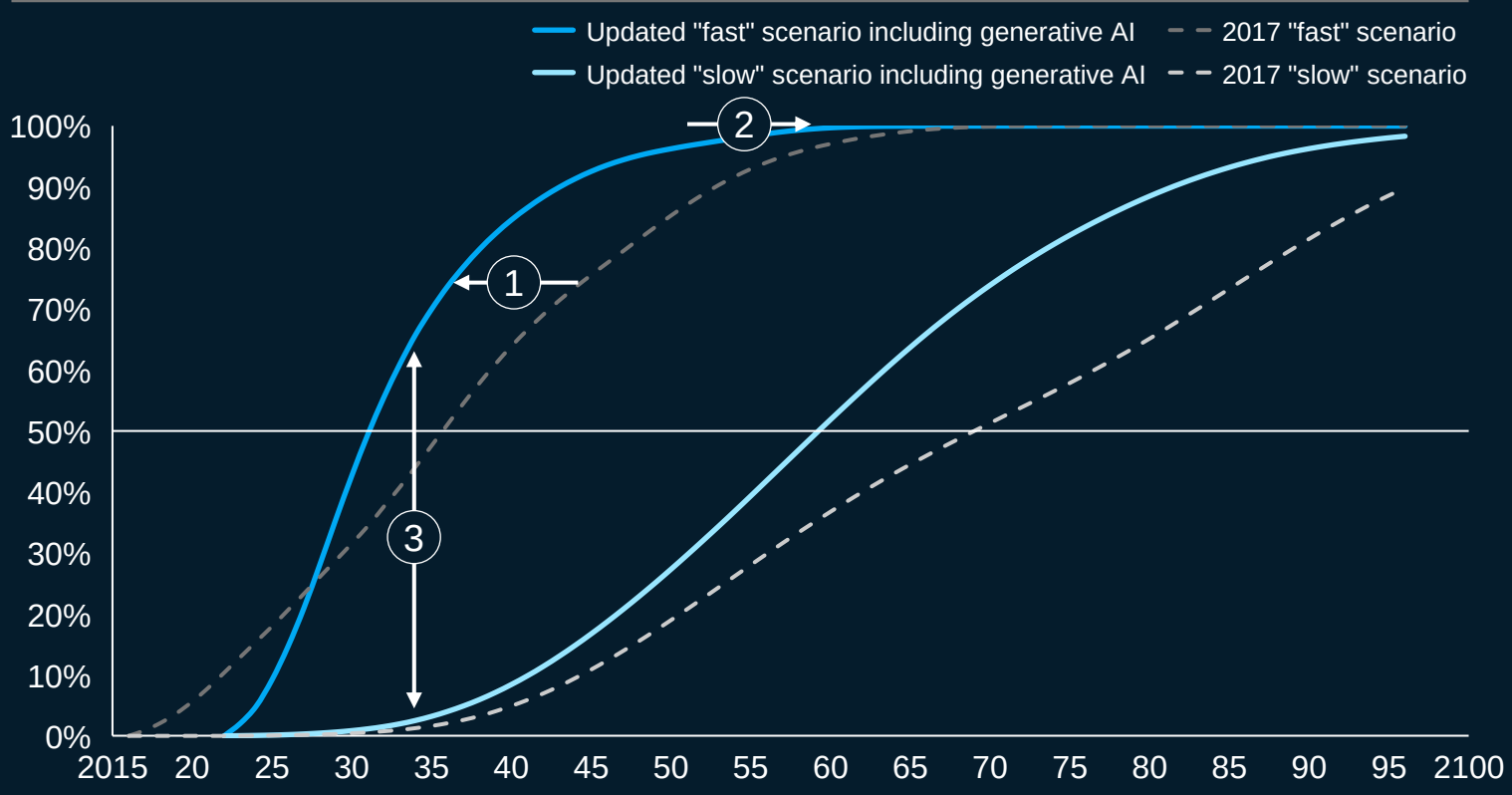


Source: Comparative Industry Service (CIS), IHS Markit; Oxford Economics; McKinsey Corporate and Business Functions database; McKinsey Manufacturing and Supply Chain 360; McKinsey Sales Navigator; McKinsey analysis

Generative AI is speeding up adoption, but the range of scenarios remains very wide

Adoption scenarios for global automation[1]

% of time spent on current work activities



1. Includes data from 47 countries representing about 80% of employment across the world. 2017 estimates are based on the activity and occupation mix from 2016. Scenarios including generative AI are based on the 2021 activity and occupation mix.

Source: McKinsey Global Institute analysis

1. Automation adoption is now expected to be faster than earlier estimates
2. In a “fast” adoption scenario, 100% of current work activities could be automated by 2060
3. However, range of adoption scenarios is huge, as dependent on multiplicity of factors

ChatGPT alone has amassed more than 180 million users and recorded more than 1.5 billion website visits in September 2023

ChatGPT

180+ million

users in August 2023

1.5 billion

website visits in September 2023

3%

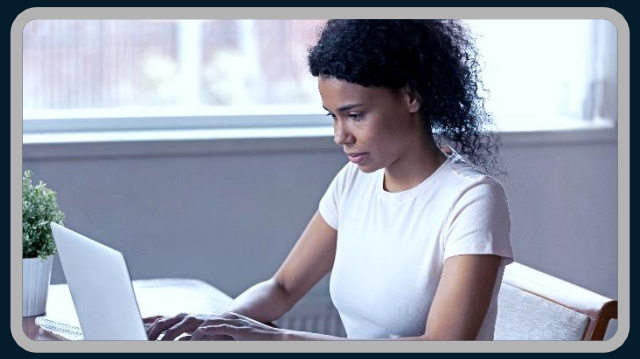
of global working-age population

7 minutes

average time spent on site by visitor

Source: Reuters; Similarweb; ILO; McKinsey analysis

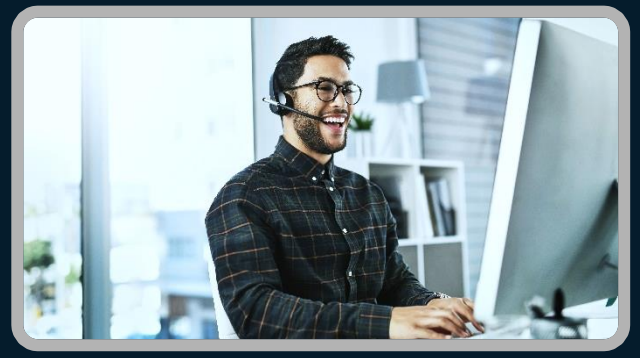
Generative AI has the potential for enormous productivity gains for individual tasks – but economy-wide impacts are uncertain



Task level example

70%

productivity improvement for generating new code



Occupation level example

14%

improvement in call center agents' overall productivity

Economy level example

<30%

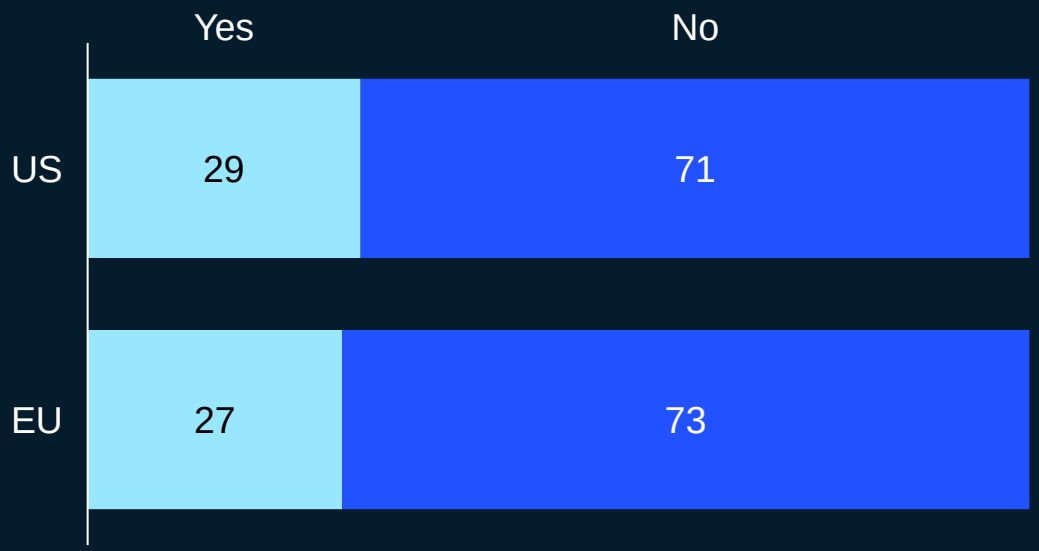
of global employment made up of jobs where generative AI could automate more than 15% of time spent on current work activities

Source: "Unleashing developer productivity with generative AI", McKinsey & Company, June 2023; "Generative AI at Work", Brynjolfsson et al, NBER, April 2023; "The economic potential of generative AI", McKinsey & Company, June 2023; McKinsey analysis

Broader adoption of digital technology, automation and AI is not yet wide-spread or necessarily speeding up

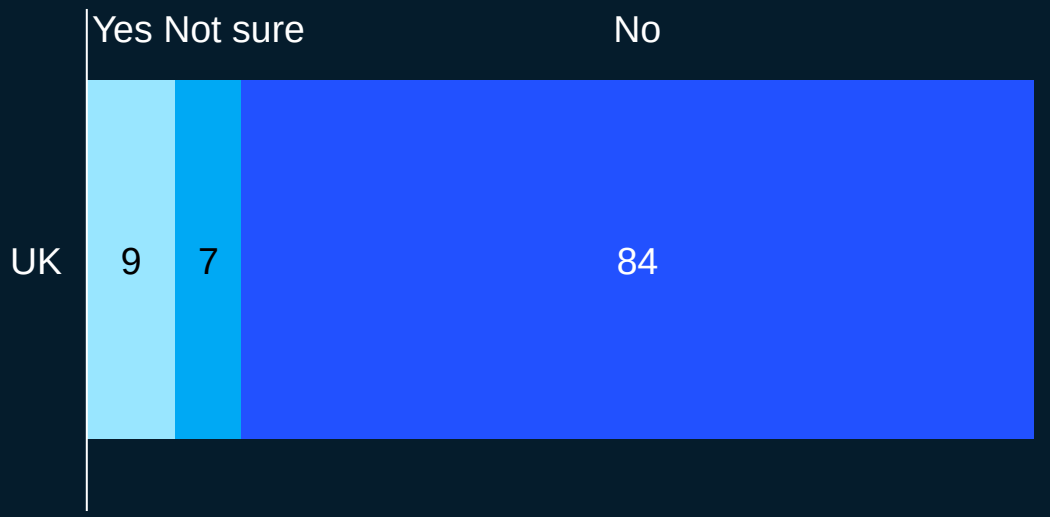
Adoption of big data and AI, US and EU, 2022

% of businesses



Adoption of AI technologies, UK, September 2023

% of businesses



1.Micro < 10 employees, small 10-49 employees, medium 50-249 employees, large 250+ employees.
2.Extent of overlap between currently using and planning to adopt not known.
Source: EIB Investment Survey; ONS; McKinsey analysis

Generative AI could be a levelling force, but lower-paying jobs are still more vulnerable

Automation adoption by wage quintile in advanced economies[1] in 2030

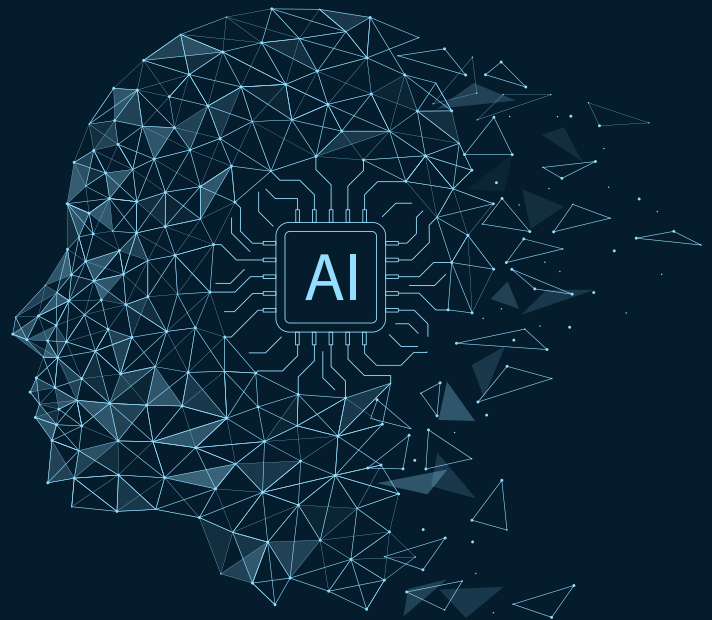
% of hours worked, midpoint scenario

1. Unweighted average of the US, UK, Germany, and France.

Source: "The economic potential of generative AI", McKinsey & Company, June 2023; McKinsey analysis.

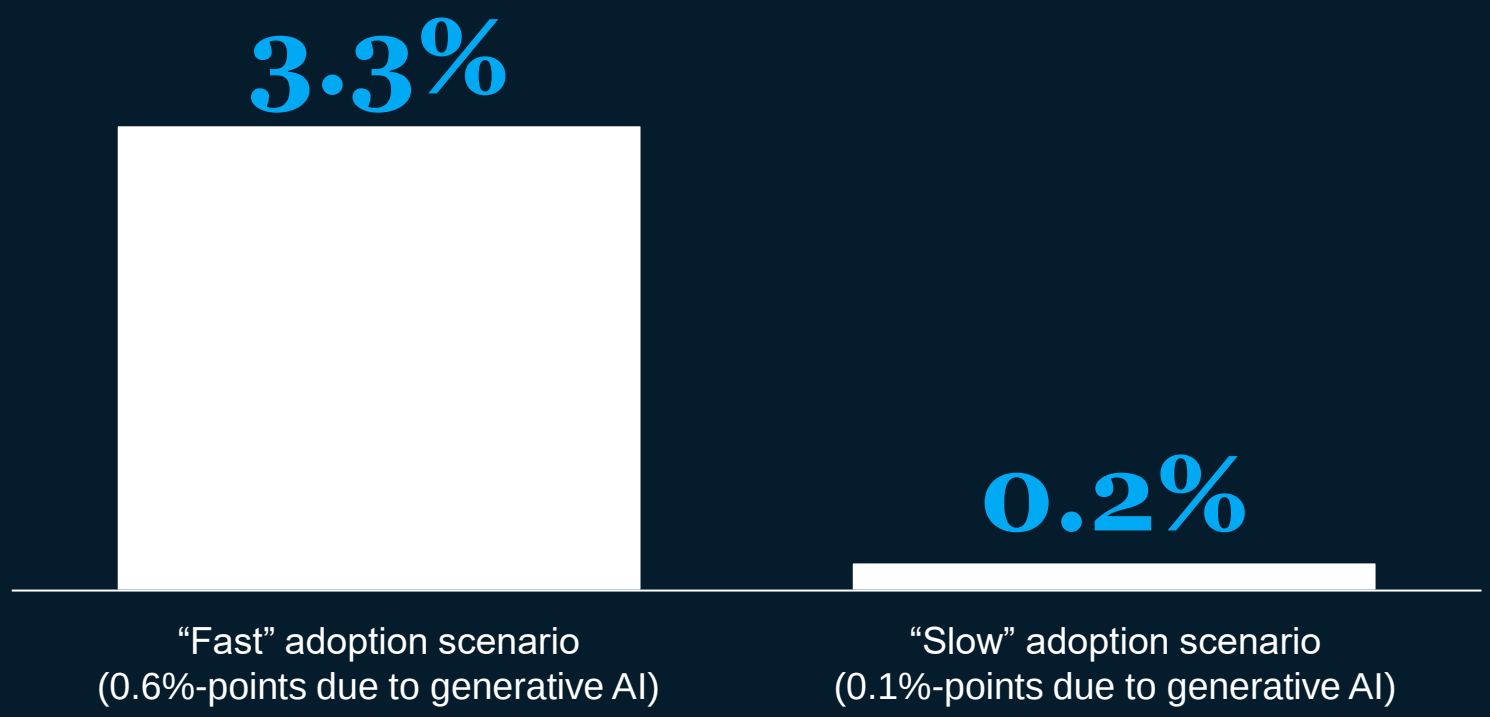
1. **Lowest-paid jobs now least likely to be automated**
   - Often physically unpredictable
   - Cost-savings from automation low
2. **Second-lowest wage quintile still most likely to be automated**
   - Many routine, predictable, simple cognitive tasks
   - Cost-savings outweigh costs of automation
3. **Nearly a third of the highest-wage workload could be automated by 2030**
   - Many tasks amenable to generative AI
   - Significant cost-savings from automation

Automation and generative AI *could* make a very material contribution to productivity growth



Productivity impact from automation by scenario globally[1], 2022-40[2]

% growth per annum



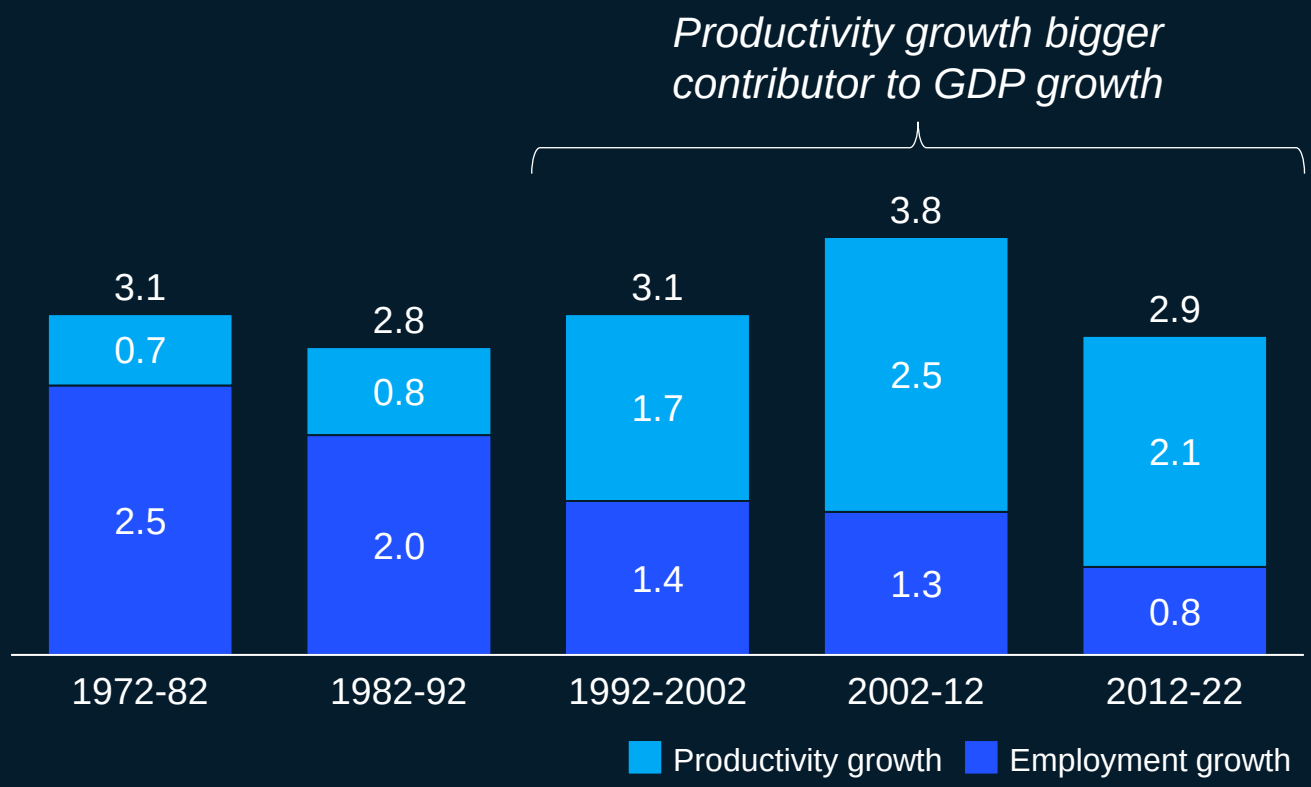
1. Based on 47 countries, representing about 80% of world employment.
2. Based on the assumption that automated work hours are reintegrated in work at productivity level of today.

Source: The Conference Board Total Economy database; Oxford Economics, McKinsey Global Institute analysis

Productivity growth is sorely needed as demographics reduce contribution from employment growth

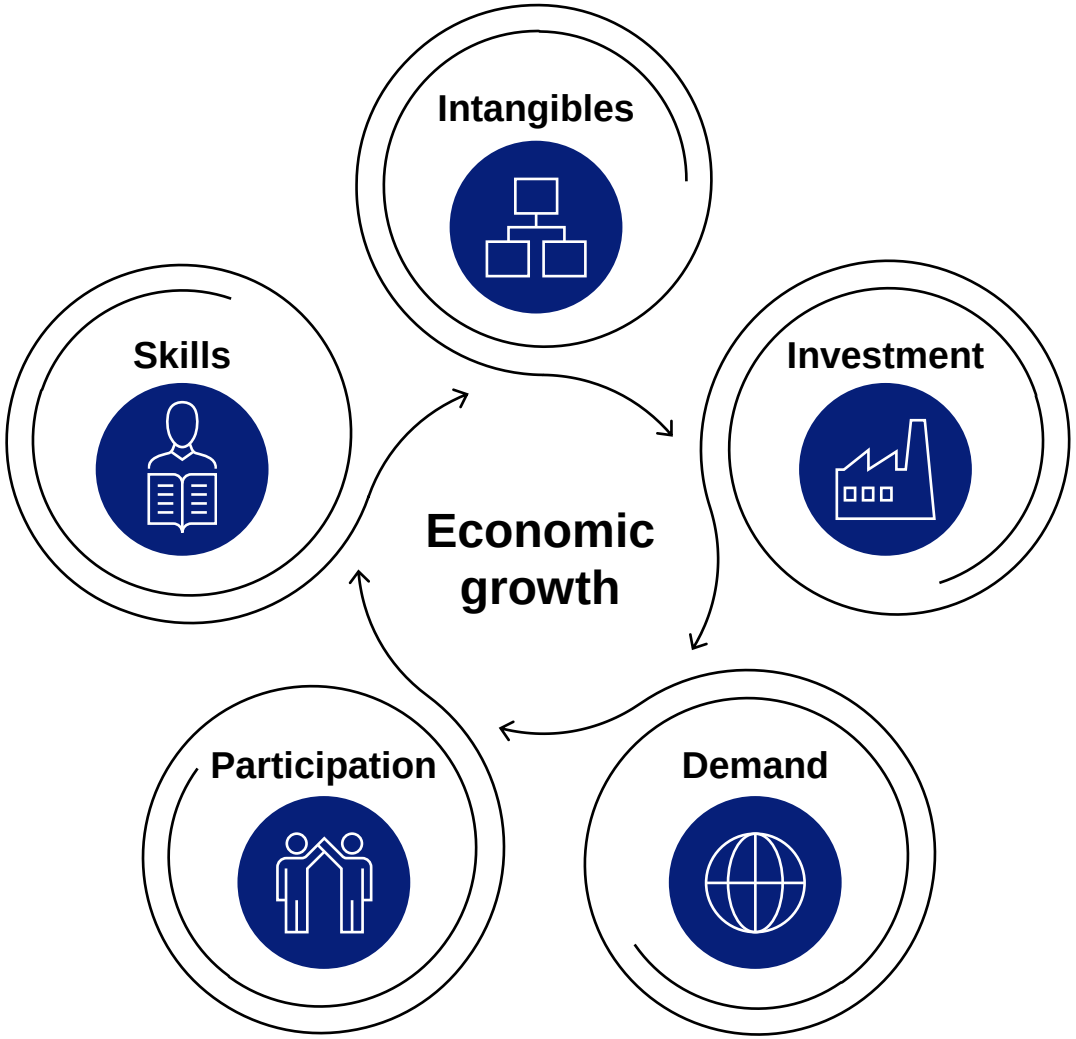
Real GDP growth contribution of employment and productivity growth, 1972 – 2022

Global GDP growth, CAGR, %



Source: Conference Board Total economy database; McKinsey Global Institute analysis

Reigniting global growth requires a lot more than automation technology



Automation and AI can unleash both top-line growth and efficiency, driving job creation and productivity gains

But capturing the benefits will require significant complementary investments in additional human, physical and intangible capital

None of this is sufficient if global demand, workforce numbers, or other factors create strong headwinds

And, of course, growth is not the ultimate objective function – we will need to steer the course to mitigate risks and smooth transitions