

The economic opportunity of AI in Italy

Capturing the next wave of benefits from *generative AI*

An Implement Consulting Group study commissioned by Google
September 2024

The economic potential of AI can be boosted further by generative AI

The economic opportunity

Generative AI technology is developing faster than previously anticipated, and the peak economic contribution could come sooner than expected, in as little as ten years.

In the peak year, generative AI alone could boost Italy's GDP by

€150-170 billion

→

+8% GDP
annual contribution in ten years if Italy achieves widespread adoption of AI

Gains come from three sources ...



Productivity boost from people working with generative AI.



Freed-up time when generative AI helps to automate our work.



Re-prioritised and re-employed time for other value-creating activities.

The job implications

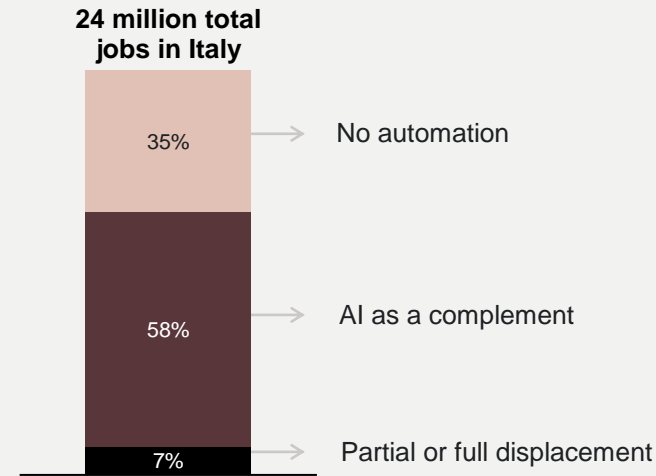
58% of jobs in Italy are estimated to work together with generative AI.

61% of large Italian companies claim to have started at least one AI project.

15% of Italian SMEs claim to have started at least one AI project.

Share of jobs exposed to automation by generative AI

% of total employment in Italy



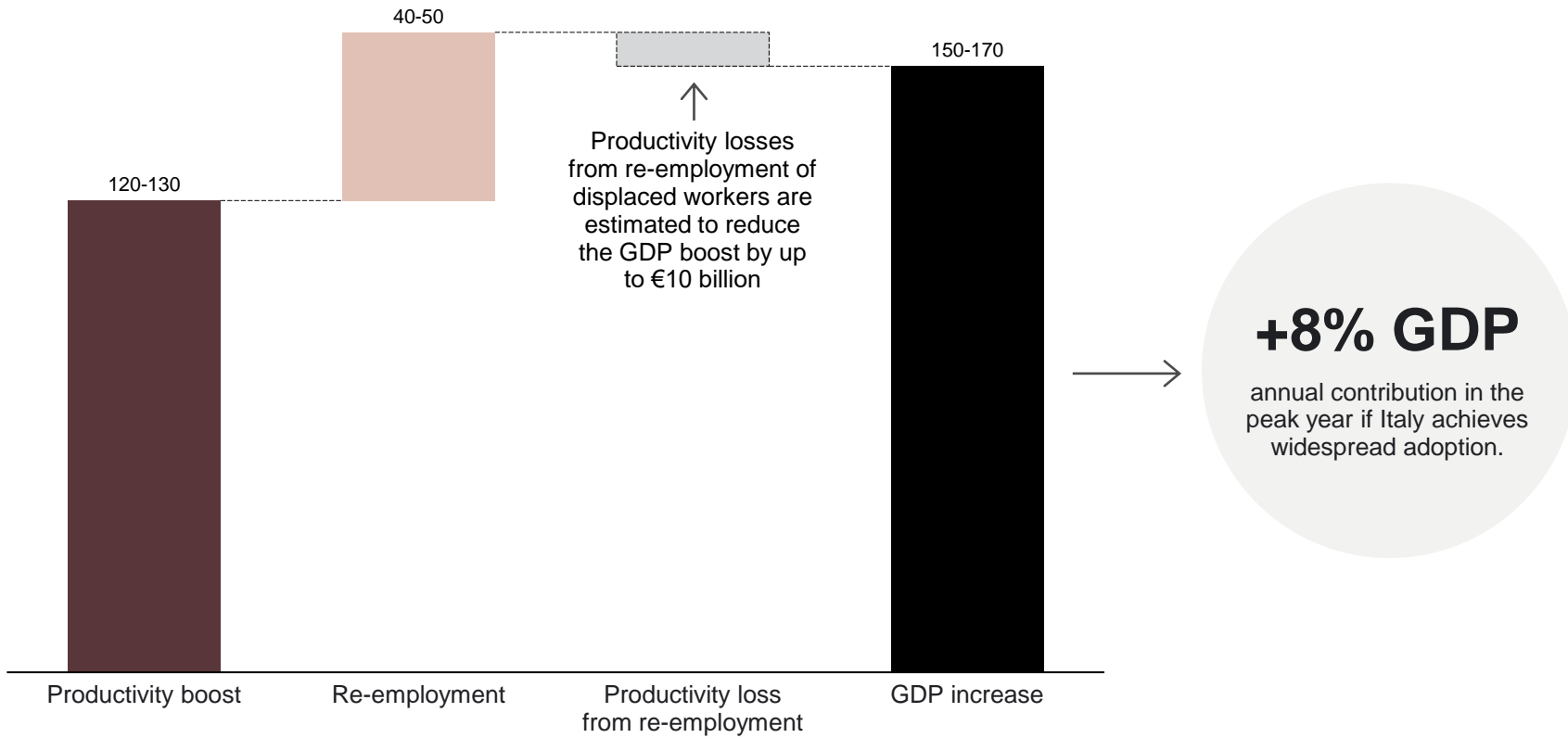
New jobs in the AI-powered economy are expected to replace those lost due to automation, resulting in a neutral, long-term impact on the total number of jobs. Short-term impacts will depend on retraining and skilling opportunities for workers.

The transition is expected to be gradual, allowing workers time to adapt to new tasks and develop new skills.

Generative AI could increase Italy's GDP by 8% in ten years

GDP potential of generative AI in Italy

€ billion annual increase from baseline GDP after a ten-year adoption period



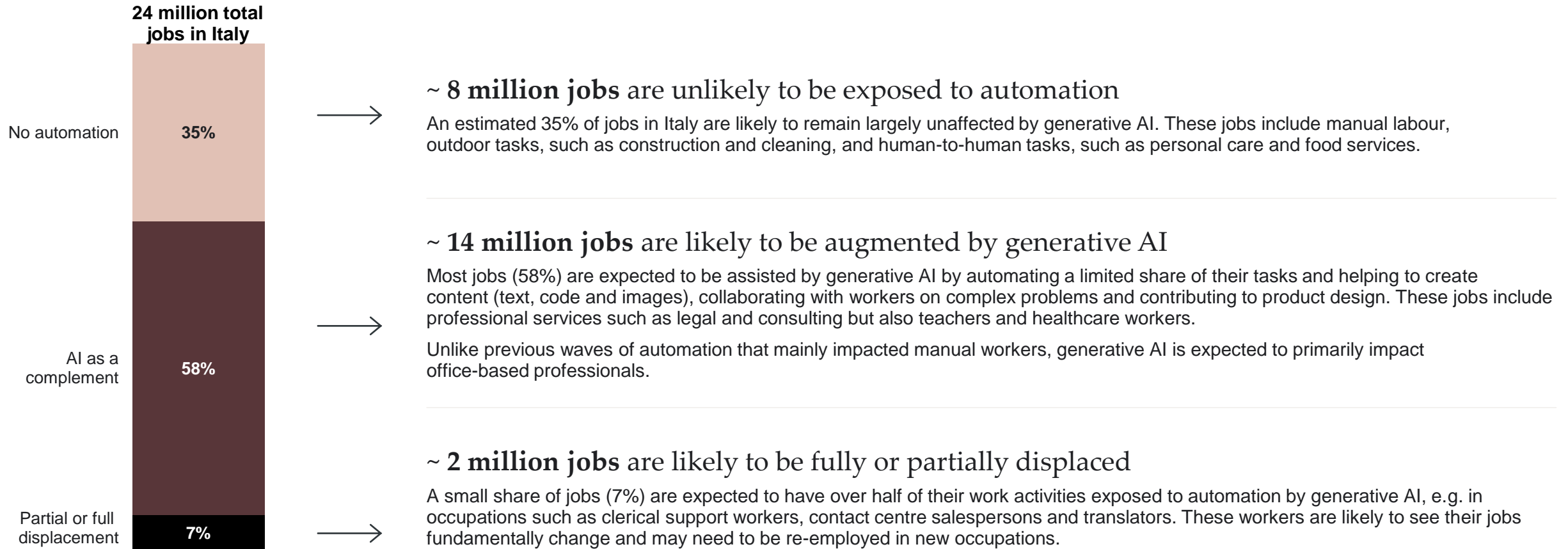
- If Italy achieves widespread adoption of generative AI, we estimate an annual GDP potential of €150-170 billion in the peak year, which could be as early as ten years from now.
- The dominant impact of generative AI is a productivity boost to the majority of workers (58%) by augmenting their capabilities, quality and efficiency which is estimated at €120-130 billion for Italy.
- The estimate includes the impacts of re-employment of a small share of workers (7%), for whom more than half of their work activities are exposed to automation by generative AI. The value created through their re-employment is estimated at €40-50 billion in Italy.
- The estimate accounts for the possible productivity loss from re-employment, reducing the impact by up to €10 billion.
- Generative AI is so powerful that Italy's future economic growth could exceed current long-term GDP forecasts, and leading banks are raising growth forecasts from as early as 2028.
- A five-year delay in capturing the benefits of generative AI is estimated to reduce the annual potential at peak from 8% (€150-170 billion) to only 2% (€30-40 billion) of GDP.

Note: The estimate assumes widespread adoption of generative AI over a ten-year period. There is a lot of uncertainty around the capability and adoption timeline of generative AI. The size of the productivity boost depends on the difficulty level of tasks that generative AI will be able to complete and the number of jobs it can automate. GDP is in 2022 levels. The average number of work activities that can potentially be performed by generative AI across all types of tasks for both complemented and highly exposed workers corresponds to 20-25%. Our estimate is the isolated potential of generative AI around ten years from now when the impact is assumed to peak in the widespread adoption scenario (see next page). The estimated boost from generative AI may not be fully additive to GDP trends, as the GDP forecast already assumes a growth contribution from new technologies and generative AI may substitute some of that. Also, the boost from generative AI may be partially offset by an underlying growth slowdown.
Source: Implement Economics based on Eurostat, O*Net, Briggs and Kodhani (2023a), BNP Paribas (2023), and Dell'Acqua et al. (2023).

Generative AI augments most jobs

Share of jobs exposed to automation by generative AI

% of total employment in Italy



Note: Based on Q3 2023 employment data. In accordance with Briggs and Kodnani (2023), "No exposure" are occupations with less than 10% exposure, "Medium exposure" are occupations with 10-49% exposure and "High exposure" are occupations with exposure of or above 50%. Note that percentages and absolute numbers are rounded.
Source: Implement Economics based on Eurostat, O*Net and Briggs and Kodnani (2023a).

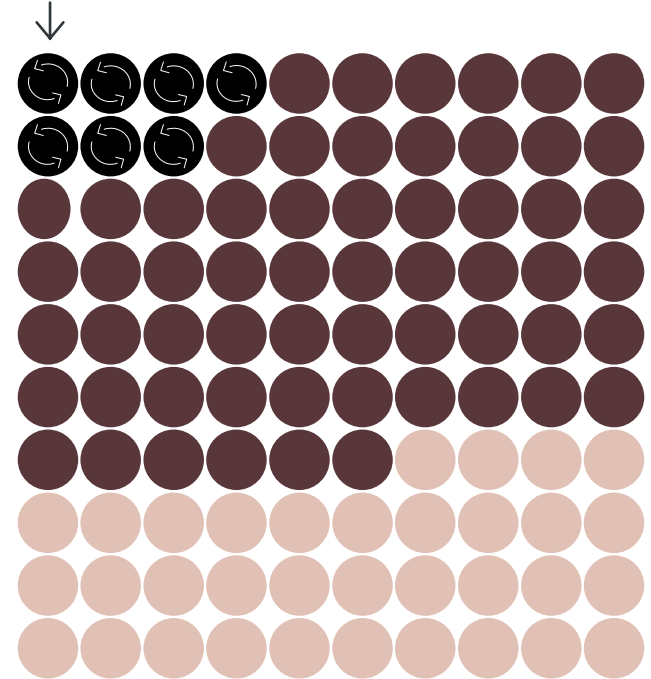
AI is expected to move some jobs around, but increased demand and new job types are anticipated to ensure successful job transitions

Share of jobs exposed to automation by generative AI

% of total employment in Italy

● Partial or full displacement ● AI as a complement ● No automation

7% of Italian jobs are estimated to be highly exposed to generative AI, leading to some job transitions.



At the same time, 58% of jobs will see a boost in productivity. This will create new jobs and ensure that there is no net job losses due to:

- I Increase in general demand for goods and services
With higher GDP growth, the AI-powered economy will demand more labour across a wide range of occupations and skill levels.
- II Creation of new AI-related tasks
Widespread use of AI will also create new jobs such as AI prompt engineers, AI content creators and data trainers – and create jobs we cannot preconceive.
- III Demand within occupation
Generative AI is expected to automate a significant share of the tasks in highly exposed jobs, such as customer service or translators, thereby making their services cheaper. As prices fall, the overall demand for a service can increase.

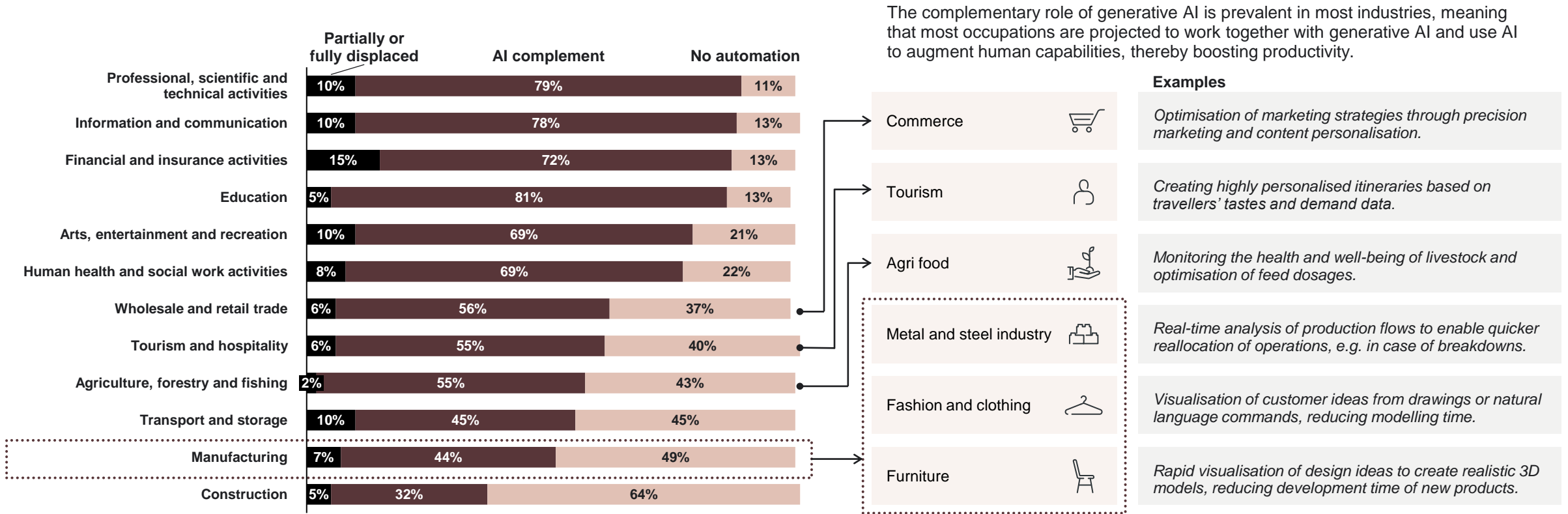
Job openings and closures from generative AI are small compared to the job openings and closures happening all the time in the Italian economy. Even with accelerated and broad adoption of generative AI over a ten-year period, only around 90,000-170,000 people in highly exposed jobs are estimated to need re-employment per year, which is low compared to the 1.1 million expected future job openings each year towards 2035 according to CEDEFOP.

- The isolated impact of generative AI on the labour market depends on the speed of adoption and the size of the productivity boost relative to the size of the displacement effect for those jobs that are highly exposed to generative AI.
- This report assumes full re-employment of displaced workers. This means no net change in total employment or unemployment.
- This assumption builds on the large size of the productivity boost compared to the relatively small share of displaced jobs. This suggests that the demand for new jobs will be sufficiently strong to create jobs for those exposed.
- Furthermore, economic theory suggests that long-term employment is determined by labour supply and skill mix of the workforce.
- The short-term job impacts will depend, among other things, on the flexibility of the labour market as well as retraining and skilling opportunities for workers.

Jobs in knowledge-intensive industries are more likely to be impacted by generative AI

Share of jobs exposed to automation by generative AI in Italy

% of total sector employment



Note: Sectors are aggregated according to NACE categorisation. "Tourism and hospitality" comprises accommodation.
 Source: Implement Economics based on Politecnico di Milano and Google (2024), Eurostat, O*Net and Briggs and Kodnani (2023a).



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Annex

Modelling the impacts of generative AI in Italy.

Bibliography and modelling method

Overview of the methodological approach to calculating economic growth and productivity impact from generative AI

The economic effects are calculated in the following steps

1

Automation potential of work activities: First, the exposure to generative AI is calculated by breaking down the automation potential of 39 different work activities/tasks in the occupational task database O*NET. The database includes an estimate of the share of each activity (e.g. getting information, performing administrative activities etc.) that can be automated by generative AI (if the activity is above level 4 on an O*NET-defined scale of difficulty 1-7, no automation potential is assumed).

2

Mapping automation potential of work activities to occupations: The automation potential of the work activities is mapped in ten European industry aggregates in two sub-steps. First, the 39 work activities for 900 US occupations are mapped using importance-average activities for each occupation, providing an estimate of the share of each occupation's total workload that AI has the potential to automate. Secondly, this number is projected from US to European occupations through the European Commission's crosswalk between ESCO and O*NET and finally compiled into aggregated occupations (using the sub-occupation employment). This leaves us with the three shares that describe how big a share of the work activities for each occupation is expected to see: No automation, AI complement and Likely replacement.

3

Quantifying productivity gains in each sector: Generative AI is assumed to affect the productivity of the work activities for each occupation as follows (see section 3 for further details). The "No automation" share of work activities is assumed to be unaffected by generative AI. "AI complement" work activities experience a productivity boost from automation. "Likely replacement" is the share of work activities in a sector that is expected to be entirely automated/replaced. These workers are expected to be re-employed in slightly less productive jobs. The three effects are calculated across sectors and scaled by each sector's value added to determine the full productivity potential/generation of new jobs from generative AI across the economy, once the technology adoption peaks.

4

Aggregate GDP impact: Based on the estimated increase in labour productivity resulting from AI adoption, the result is aggregated to an overall GDP. Only part of the total long-run productivity increases from generative AI is expected to materialise in the economy during the initial ten-year period of technology adoption following an S-curve adoption trajectory.

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