



AI in the EU:

2024 Trends and Insights from LinkedIn

LinkedIn

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The world of work has changed dramatically in recent years. Now, emerging technologies—in particular artificial intelligence (AI) and generative artificial intelligence (GAI)—are poised to introduce changes that are even more significant, at a pace that is unprecedented. As the potential of these technologies becomes clearer, governments and industries alike are recognising the need to stay ahead in this rapidly evolving landscape.

Boosting economic competitiveness and prosperity is the overarching priority for the 2024-29 European political mandate. In this context, policymakers are focused on enhancing European capabilities in emerging technologies. These technologies, including AI, have the potential to bolster innovation and productivity across different sectors of the economy. Upcoming initiatives from the European Commission, including the Apply AI Strategy and the AI Factories Initiative, will aim to accelerate AI uptake across industries, fostering use cases that enhance competitiveness and productivity.

Europe nevertheless faces significant challenges in meeting these objectives. The recent report by Mario Draghi on the future of EU competitiveness highlighted the wide benefits that AI can bring to the EU economy. At the same time, the report acknowledged Europe's considerable digital skills gaps which hinder digitalisation and limit its ability to benefit from these new technologies, indicating that 42% of Europeans lack basic digital skills, including 37% of those in the workforce. To drive future AI innovation and widespread application across the economy, effective skills policies - underpinned by data-driven insights and skills intelligence - are critical.

Building on the momentum of the 2023 European Year of Skills, the Political Guidelines from European Commission President von der Leyen reinforce that skills will continue to be a priority for the next five years. The vision of creating a new 'Union of Skills' and a strong overarching skills strategy aligns with LinkedIn's own vision for a skills-based approach to identifying, hiring and nurturing talent – i.e. moving beyond traditional indicators of talent, such as degrees and job titles, to recognise the inherent value of skills — whether they are acquired through formal education, professional experience, or personal initiatives. At LinkedIn, we gather and analyse actionable insights on skills that inform policies, programs and investment decisions. Our skills intelligence has supported the work of the EU

for many years, and we look forward to continuing to provide the insights needed across sectors and industries to support the European Commission's skills ambitions.

This report leverages anonymised and aggregated data from the LinkedIn platform in 2024, used by more than a billion members worldwide, to explore how AI is impacting the EU economy and workforce. The first section, "The AI talent landscape," assesses EU workers' adoption of the highly specialised technical skills required to develop and implement AI technologies. The second section, "The impact of GAI on the EU workforce," examines the jobs, population segments, and industries that face the most substantial changes as GAI adoption accelerates.

As our findings show, we're on the cusp of profound changes that will reverberate throughout the EU and the global economy. At LinkedIn, our ambition is to partner with the EU and its citizens - in tackling challenges, unlocking opportunities, and shaping AI into a powerful lever for human prosperity.



Key findings

The EU's AI Talent is growing, but still niche

The share of AI talent within the EU workforce today is 124% larger than it was in 2016. Even so, AI talent makes up 0.41% of EU workers, compared to 0.35% in the UK and 0.34% in the US.

Leading with responsible AI

Among EU AI talent, Responsible AI was number eight on the list of 2023's fastest-growing skills. Among global AI talent, responsible AI ranked 14th.

AI and Green twin transition

AI professionals in the EU are increasingly learning green skills: the capabilities that allow workers in any role or industry to perform their jobs in a more environmentally sustainable way. Today, 8.1% of AI talent in the EU have at least one green skill, compared to 5.8% in the US and 7.4% in the UK.

Gender gap in AI talent

Just 26.3% of the EU's AI professionals are women, lower than the UK (27.7%) and the US (29.8%). They are also underrepresented compared to their overall representation in the EU, where women make up 46.4% of workers. While the gap has narrowed slightly since 2016, it would take 162 years to achieve gender parity at the current pace.

Key findings

GAI likely to accelerate skill change

28% of EU LinkedIn members are in occupations that could be augmented by GAI—meaning that with the right skills, workers could leverage GAI to boost their productivity and efficiency. However, 33% of EU LinkedIn members are in jobs that could be disrupted by GAI—increasing the urgency of skill-building.

Broad impact on industries

As of today, GAI could augment or disrupt up to 75% of EU workers in the Technology sector. Other sectors likely to be highly impacted include Financial Services (74%), Accommodation and Food Services (72%), and Professional Services¹ (72%). This highlights that GAI will likely have a more immediate impact across white collar professionals than past technological disruptions.

Disproportionate impact of AI on the workforce

Women and younger workers are likely to be disproportionately impacted by GAI. Jobs that are likely to be disrupted by AI and tend to be held by women include medical clerk (85% of EU members in this role are women), clinical research assistant (84%), and sales operations assistant (83%). Moreover, younger workers, particularly Gen Z, are both most potentially impacted and best positioned to adapt to AI, as they adopt new AI literacy skills and acquire people skills as they develop their careers.

¹ Includes Services for Renewable Energy, Architecture and Planning, Accounting, Design Services, Research Services, Legal Services, Engineering Services, IT Services and IT Consulting, Business Consulting and Services, Advertising Services, Veterinary Services, and others.

Section 1

The EU AI talent landscape

Key definitions

AI skills: There are roughly 40,000 standardised skills in LinkedIn’s skills taxonomy, of which more than 100 have been designated by experts as AI skills. Examples include machine learning, natural language, and deep learning.

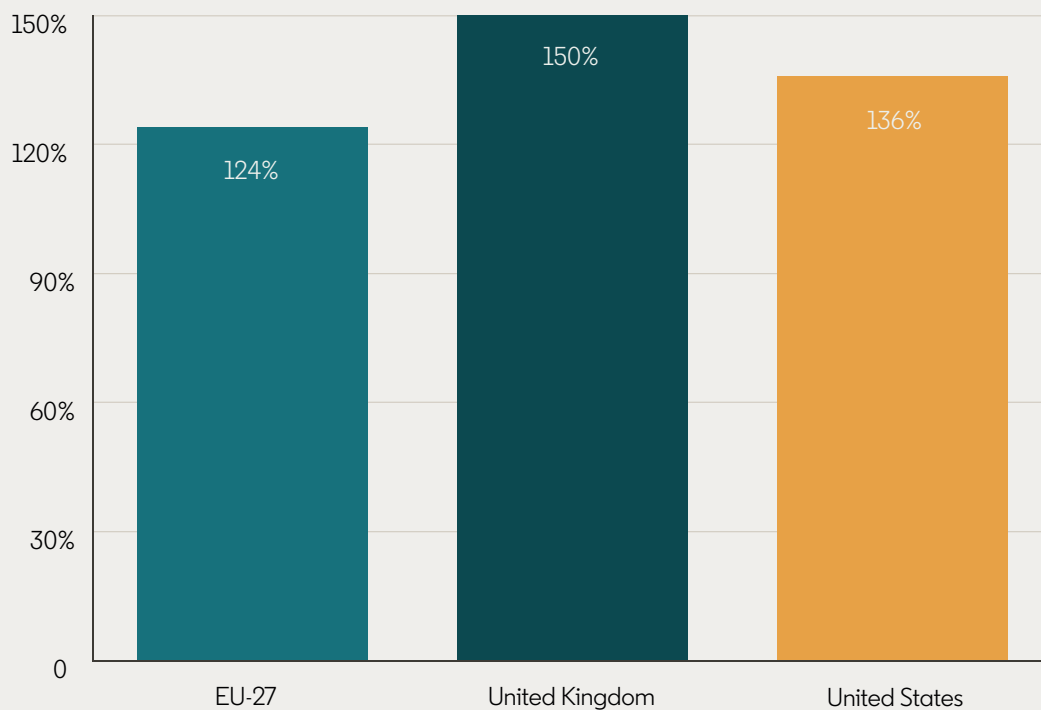
AI talent: This group consists of members who are employed in an AI job (like machine learning engineer, for example) or list at least two AI skills on their LinkedIn profiles.

The EU’s AI talent pool is growing, but it remains small. The share of AI talent within the EU workforce—a metric we call “AI talent concentration”—has more than doubled since 2016, and currently stands 124% larger than eight years ago. But growth has been quicker in the UK, where the share of AI talent is now 150% greater than in 2016, and the US (136% greater). Today, AI talent constitutes just 0.41% of the EU workforce, compared to 0.36% in the UK and 0.35% in the US.

Several countries have made notable strides in recent years. The AI talent concentration has more than tripled in Lithuania (where the share of AI talent today is 258% larger than in 2016), Cyprus (250% larger than in 2016), and Estonia (239% larger than in 2016). These countries are starting to catch up with those that got an early start developing AI talent—but they haven’t caught up yet. The countries with the largest share of AI talent in their workforces today were all early movers: Luxembourg (where 0.70% of LinkedIn members are considered AI talent), Finland (0.68%), and Germany (0.66%), while Lithuania, Cyprus, and Estonia have lower shares of AI talent: 0.37%, 0.38% and 0.52%, respectively.

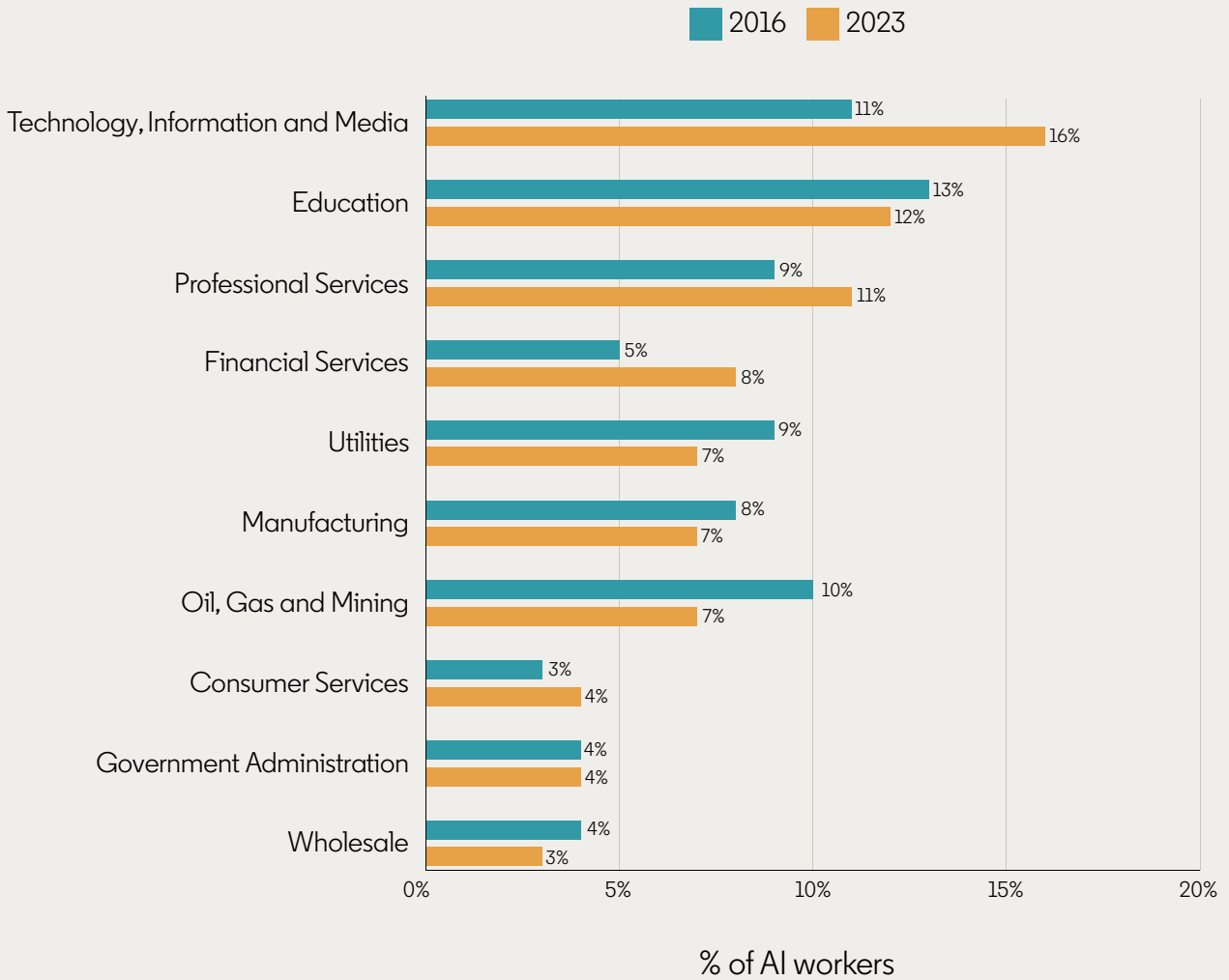


2023 Growth in AI talent concentration (compared to 2016)



Most industries are growing their AI talent pools, but the technology industry remains the leading hub. The tech industry employs 16% of the EU's AI talent, up from 11% in 2016. Other industries that are quickly amassing AI talent include professional services (which employs 11% of the EU's AI talent, up from 9% in 2016), financial services (8%, up from 5% in 2016), and consumer services (4%, up from 3% in 2016). On the other hand, industries including oil, gas, and mining, utilities, and manufacturing have smaller portions of the AI talent pie now than they did in 2016. The largest drop was in oil, gas, and mining, which employs 7% of AI talent—down from 10% in 2016. This decline is likely due to less aggressive hiring and skilling in these sectors compared to others.

Distribution of AI talent across industries, EU-27

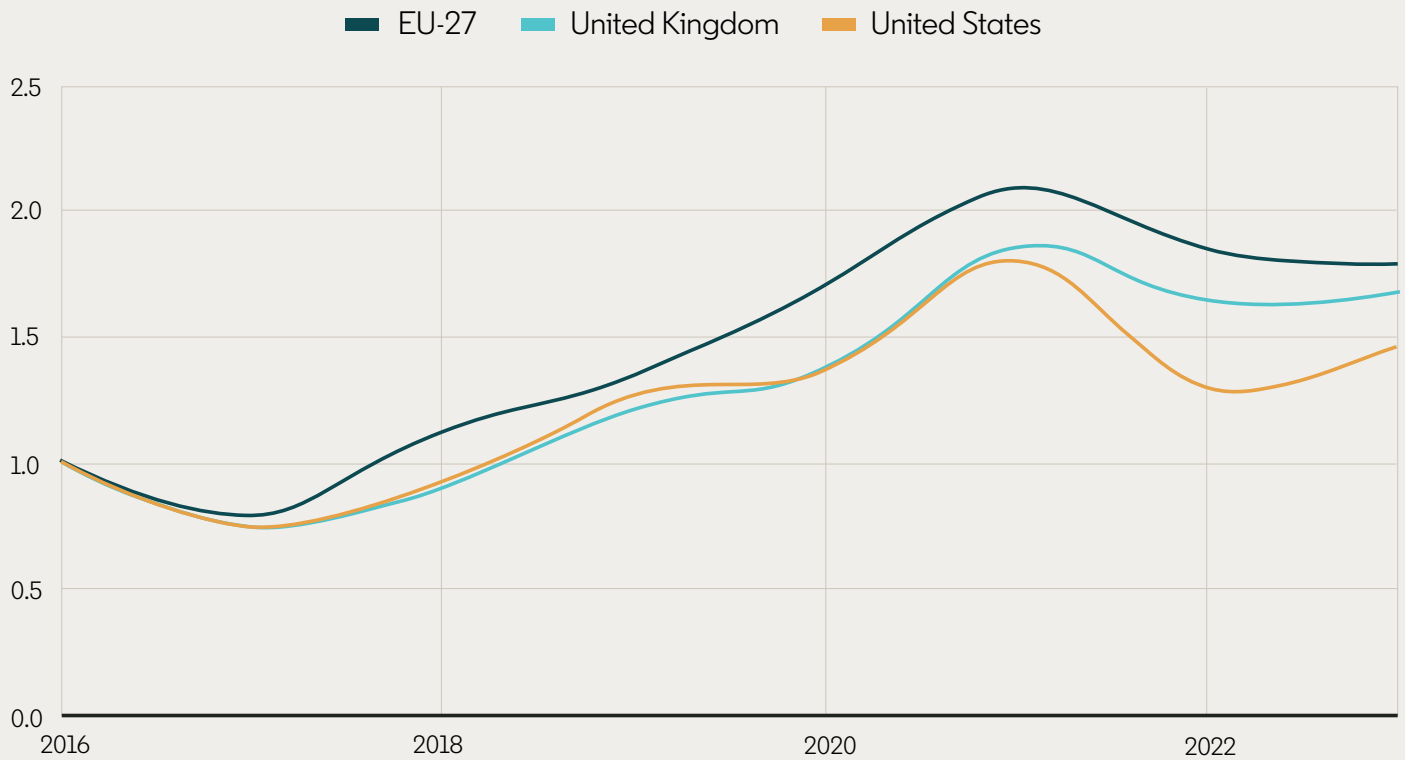


Following a pandemic-era surge, hiring rates for AI talent are stabilising. Hiring rates for AI talent grew at an unprecedented pace during the global pandemic, but they have begun to stabilise. An analysis using the AI LinkedIn hiring rate (LHR) shows that average AI hiring across the EU kept growing year over year, while at a slower pace since the end of 2021. In fact, it remained 78% higher than the 2016 average—similar to the US and slightly below the UK. The countries experiencing the most active AI hiring relative to their 2016 levels were Greece (2023 hiring 263% above 2016 levels), Portugal (193%), and Croatia (178%).



The AI LinkedIn Hiring Rate

Hiring rates are indexed to the average month in 2016; for example, an index of 1.05 indicates a hiring rate that is 5% higher than the average month in 2016.



Upskilling and reskilling are increasingly critical. Skills newly added to LinkedIn members' profiles suggest that throughout 2023, AI talent focused on amassing skills specific to GAI. In fact, while the share of EU members adding skills to their profiles remained stable, the share of members adding AI skills grew by 71% year over year in 2023. In the EU and worldwide, the fastest-growing skills among AI talent were GAI and related skills like large language models (LLMs), transformer models, and generative neural networks.



EU workers lead the way in responsible AI. While employees in the EU added many of the same skills as workers elsewhere, there was one notable exception: Responsible AI, an area of increased focus for the region. While there are multiple definitions, Responsible AI is generally understood as an approach to developing, assessing, and deploying AI systems in a safe, trustworthy, and ethical way. Among EU AI talent, responsible AI ranked eighth on the list of AI talent’s fastest-growing skills. Among global AI talent, it ranked 14th.

Fastest growing AI skills, 2023

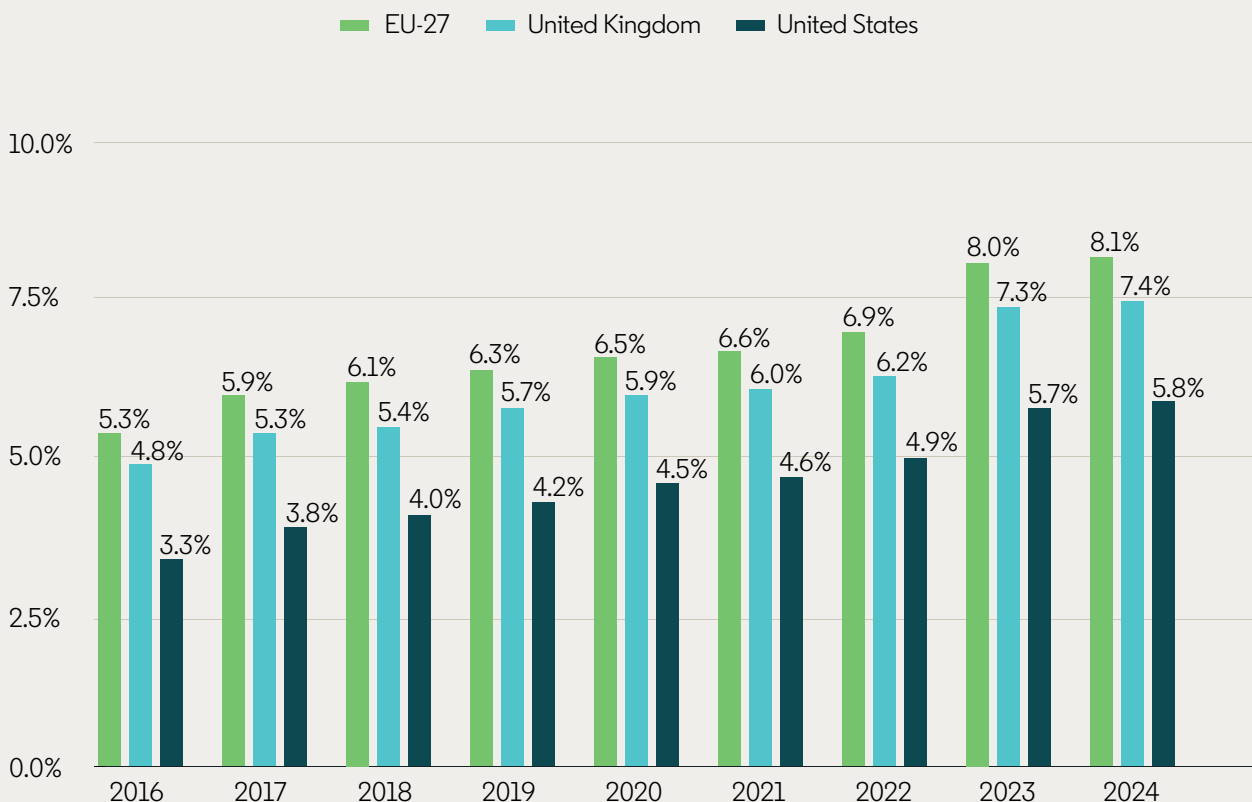
EU-27	Global
Generative AI	Generative AI
Large Language Models (LLM)	Large Language Models (LLM)
Transformer Models	Variational Autoencoders (VAEs)
Hyperparameter Tuning	Generative Neural Networks
Generative Neural Networks	Probabilistic Generative Models
Graph Networks	Transformer Models
Image Generation	Text-to-Image Generation
Responsible AI	Video Generation
Model Training	Graph Networks
Hyperparameter Optimization	Image-to-Image Translation

AI and sustainability

AI may become a valuable tool in the fight against climate change, but its impact depends on responsible development and consideration of potential challenges. Already, the technology is being used to expand renewable energy, optimise transportation systems, enhance environmental monitoring, and mitigate environmental risks. To maximise AI's contribution to climate sustainability, it's important that workers with AI skills also develop green skills—the capabilities that allow workers in any role or industry to perform their jobs in a more environmentally sustainable way.

Yet another twin transition: AI talent is increasingly learning green skills, especially in the EU. Technology and sustainability are two forces that are shaping the workforce. The two go hand in hand, as many green solutions are based on technological innovations, and AI is no exception. Today, 8.1% of AI talent in the EU have at least one green skill, up from 5.3% in 2016. That's a greater share than in the UK (7.4%) and U.S. (5.8%).

Share of AI talent with at least 1 green skill



Green skills are those that enable the environmental sustainability of economic activities, such as skills in pollution mitigation and waste prevention, environmental remediation, sustainable procurement, energy generation and management, etc.

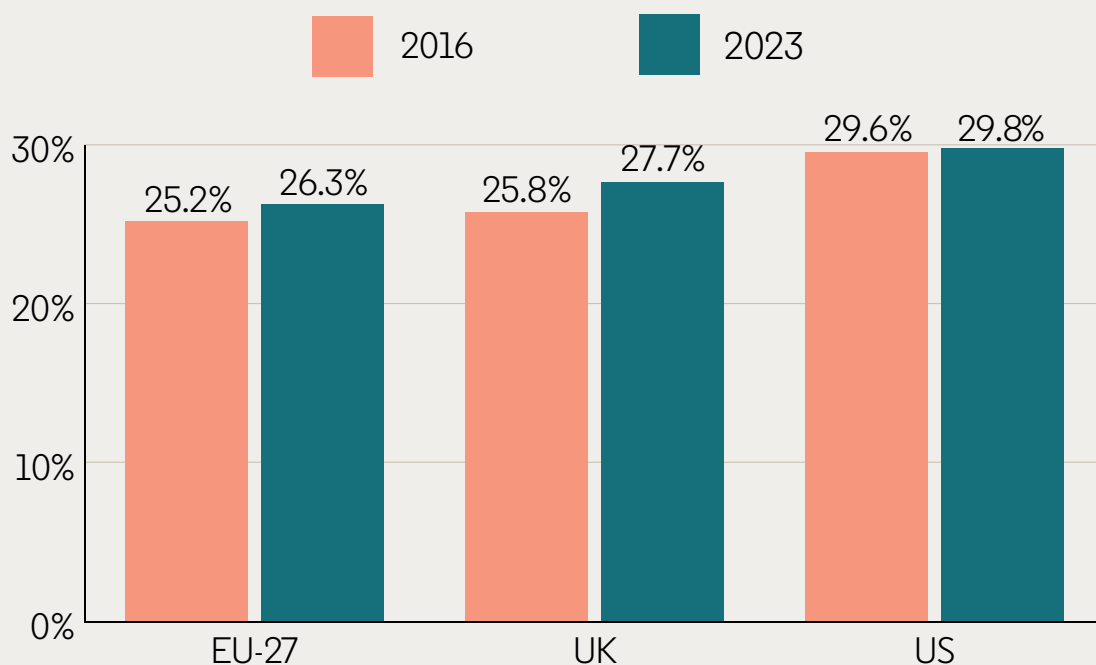
AI and gender

The gender gap among AI talent is wide, especially in the EU². Across the EU, just 26.3% of AI professionals are women. That's lower than in the U.S. (where women make up 29.8% of the AI talent pool) and the UK (27.7%). While the EU's gender gap has narrowed slightly since 2016, when women made up 25.2% of AI talent, parity remains elusive. At the current pace, it would take the region 162 years to achieve gender parity.

Some EU countries excel, while others lag. Behind the regional average, there is wide variation. In Romania, Finland, and France, roughly one in three AI professionals are women (33.9%, 33.8%, and 32.0%, respectively). In the Czech Republic, Germany, and Austria, the figure is closer to one in five (20.3%, 20.7%, and 20.9%, respectively).

² While we acknowledge that gender is a spectrum, due to data limitations we restrict our analysis to the binary classification of men and women.

Female representation among AI talent (%)



Female representation among AI talent measures the share of AI talent that is identified as women. EU-27 results reflect the country average across the EU-27.

Section 2

The impact of GAI on the EU workforce

Given its potential to perform tasks and enhance human productivity, GAI is poised to have a profound impact on the global workforce. GAI is a technology that uses AI models to create new content. GAI can write text, compose music, design visuals, and perform other functions that were, until recently, the sole domain of humans. At the same time, GAI can also boost human productivity and efficiency—driving a growing number of employees and organisations to experiment with it.

The skills that workers need are always in flux, but GAI will likely accelerate this movement. If GAI didn't exist, we estimate that the skills required for the average job in the EU would have changed by 50% between 2016 and 2030—meaning that half of the skills required in 2016 would remain relevant, while the other half would be superseded by new skills. We expect GAI to accelerate this change, to the point that 67% of the skills required throughout the EU economy will be different in 2030.



Technological inflection points, such as the one we are currently experiencing with GAI, often result in widespread impact across entire economies over time. Until new GAI related jobs arise, the most immediate impact will likely be on transforming roles that will continue to exist but must evolve with AI in mind. This is why GAI is a conversation about skills.”



Karin Kimbrough,
LinkedIn Chief Economist

However, GAI will not impact all workers and industries equally.

To assess how GAI is likely to affect various segments of the EU workforce, we developed a framework based on LinkedIn's taxonomy of roughly 40,000 skills. By analysing data on the skills listed by LinkedIn members through the lens of GAI's evolving capabilities, we have identified:

- The roles, population segments, and industries that rely most heavily on skills that GAI is likely to replicate—increasing the urgency of reskilling, upskilling, and other future-proofing efforts.
- The segments that stand to benefit the most from investing in skill-building efforts that 1) boost workers' ability to leverage AI technologies, and/or 2) strengthen employees' skills in areas that are unique to humans (for now, at least) and will remain important.

We identified three pivotal categories of skills:

GAI-replicable skills are the 500-plus skills that GAI is most likely to be able to replicate. Examples include writing, editing, translation, content creation, data analysis, and programming languages.

People skills are the 800-plus skills that technology can't yet replicate—and are critical to the implementation of GAI and other technologies. Examples include leadership, teamwork, negotiation, problem solving, people management, and relationship building.

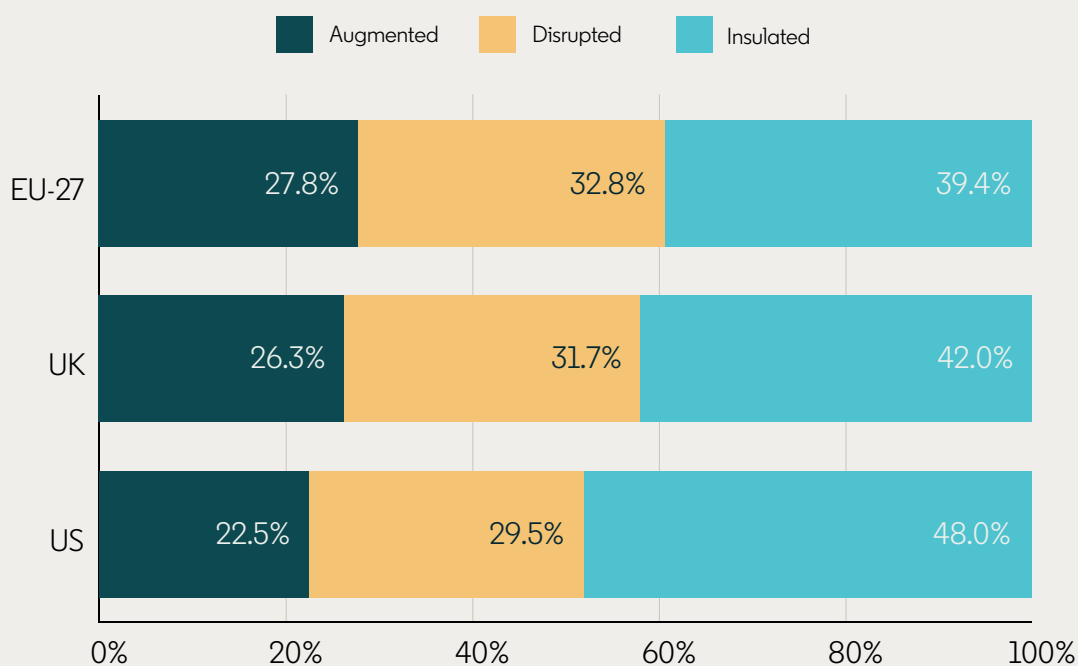
AI literacy skills are the 10-plus skills required to use and manage new AI technologies such as ChatGPT, Copilot for Microsoft 365, and Github Copilot.



We estimate that roughly 60% of EU LinkedIn members will see their jobs change due to GAI. We have grouped occupations into three categories, based on skill composition:

- 1 Augmented by GAI.** These jobs require a significant share of both GAI-replicable and people skills. Data analysts, for example, can use GAI to automate the computation and interpretation of metrics—allowing them to focus on complementary people skills like cross-functional influencing and stakeholder engagement. **Our analysis suggests that 28% of EU LinkedIn members are in occupations that could be augmented by GAI.**
- 2 Disrupted by GAI.** These jobs require a large share of GAI-replicable skills but a relatively low share of people skills—meaning that those who hold them will likely need to adapt their skills relatively quickly. Language translators, for example, may shift from doing translations from scratch to reviewing and certifying machine-generated translations, or to specialising in, for example, legal or literacy domains that require more nuance. **We estimate that 33% of EU LinkedIn members are in jobs that could be disrupted by GAI.**
- 3 Insulated from GAI.** These jobs require a relatively small share of GAI-replicable skills. Real estate agents, for example, might use GAI to write enticing descriptions of houses—but their relationship management skills are unlikely to be replicated by GAI. Some jobs in this category may be susceptible to other forms of automation, like robotics. **This study estimates that 39% of EU LinkedIn members are in jobs that could be disrupted by GAI.**

Composition by GAI segment

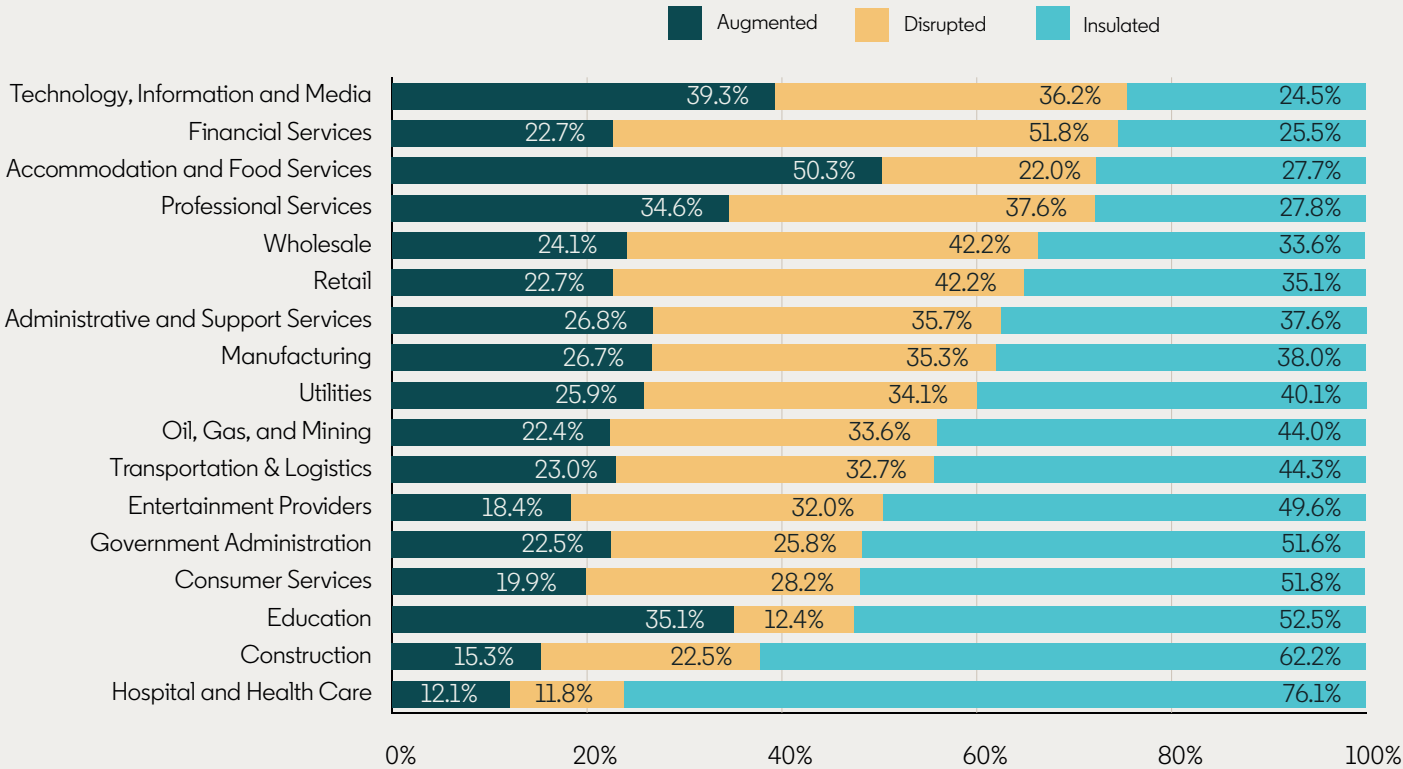


Industry lens

As GAI evolves and adoption increases, jobs across all sectors are likely to change. While the Technology sector has moved more quickly than others to amass AI talent, GAI’s impact will extend well beyond the tech world. Our analysis indicates that industries in the Technology sector are likely to change the most, with 75% of EU tech workers potentially augmented or disrupted. But several other industries closely follow, including Financial Services (74%), Accommodation and Food Services (72%), and Professional Services (72%).



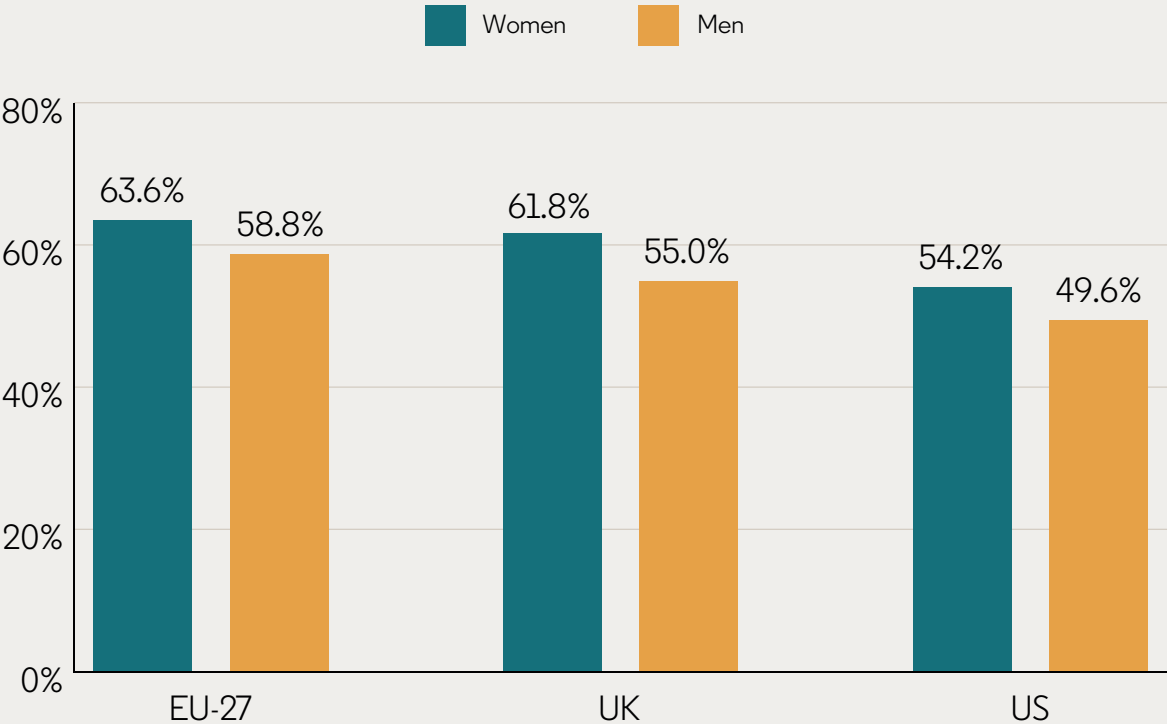
Industry composition by GAI segment, EU



Demographic lens

Women may be disproportionately impacted by GAI. Historically, women tend to be overrepresented in certain types of jobs, and many of these jobs stand to change due to new technologies. In the EU, 63.6% of women are in roles that stand to be augmented or disrupted by GAI as compared to 58.8% of men. This trend is similar in the UK and the US, where 61.8% and 54.2% of women stand to be augmented or disrupted by GAI, respectively, compared to smaller share for men. In the EU, jobs that are likely to be augmented by GAI and are predominantly held by women include communication disorders specialist (88%), nutrition assistant (88%), and healthcare assistant (78%). Jobs that are likely to be disrupted by AI and tend to be held by women include medical clerk (85%), clinical research assistant (84%), and sales operations assistant (83%).

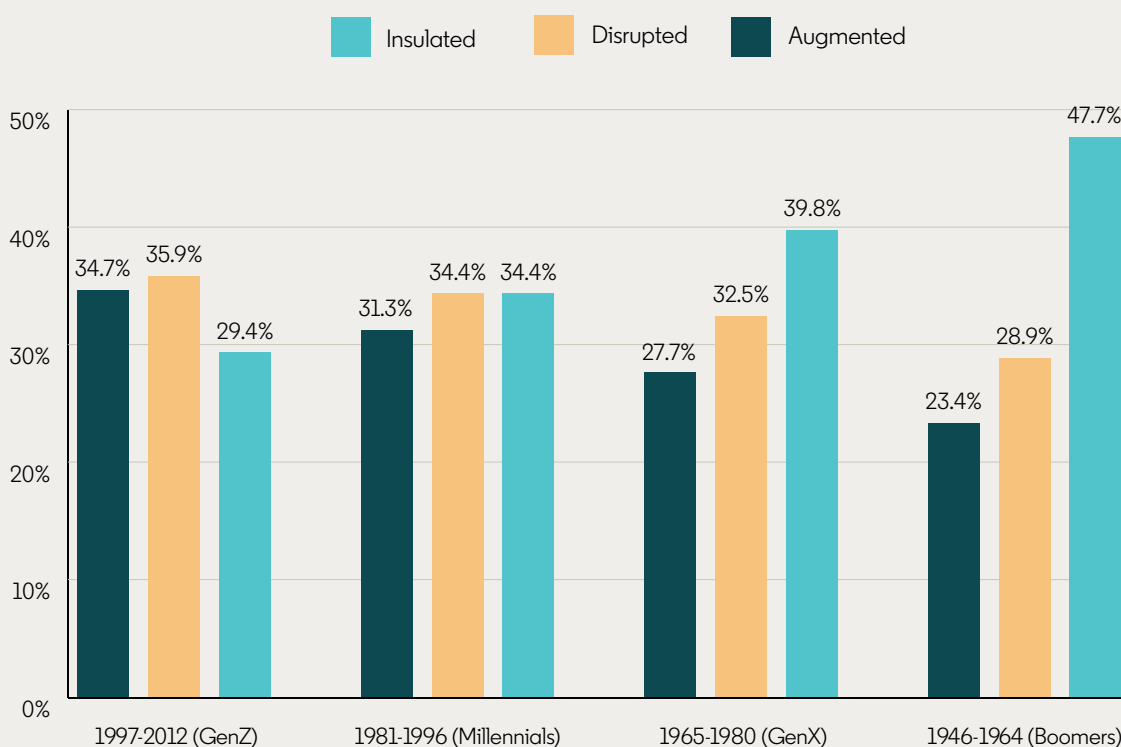
Share of men and women likely to be augmented or disrupted by GAI



In the short term younger workers may be disproportionately impacted by GAI, but they are also in a stronger position to adapt. When people embark on their careers, they often draw on GAI-replicable skills like writing or analytics. Only over time do they cultivate significant people skills, in areas like leadership or negotiation. Jobs that are likely to be augmented by AI and are often held by members of Generation Z, or Gen Z (those born between 1997 and 2012), include academic tutor (41% of EU members in this role are Gen Zers), marketing assistant (39%), and graphic design assistant (35%). Jobs that are likely to be disrupted by GAI and are often held by Gen Zers are business development analyst (59% of EU members in this role are Gen Zers), corporate communications assistant (45%), and business development associate (37%). At the same time, younger workers have a head start in adapting to the changes that GAI will usher in.

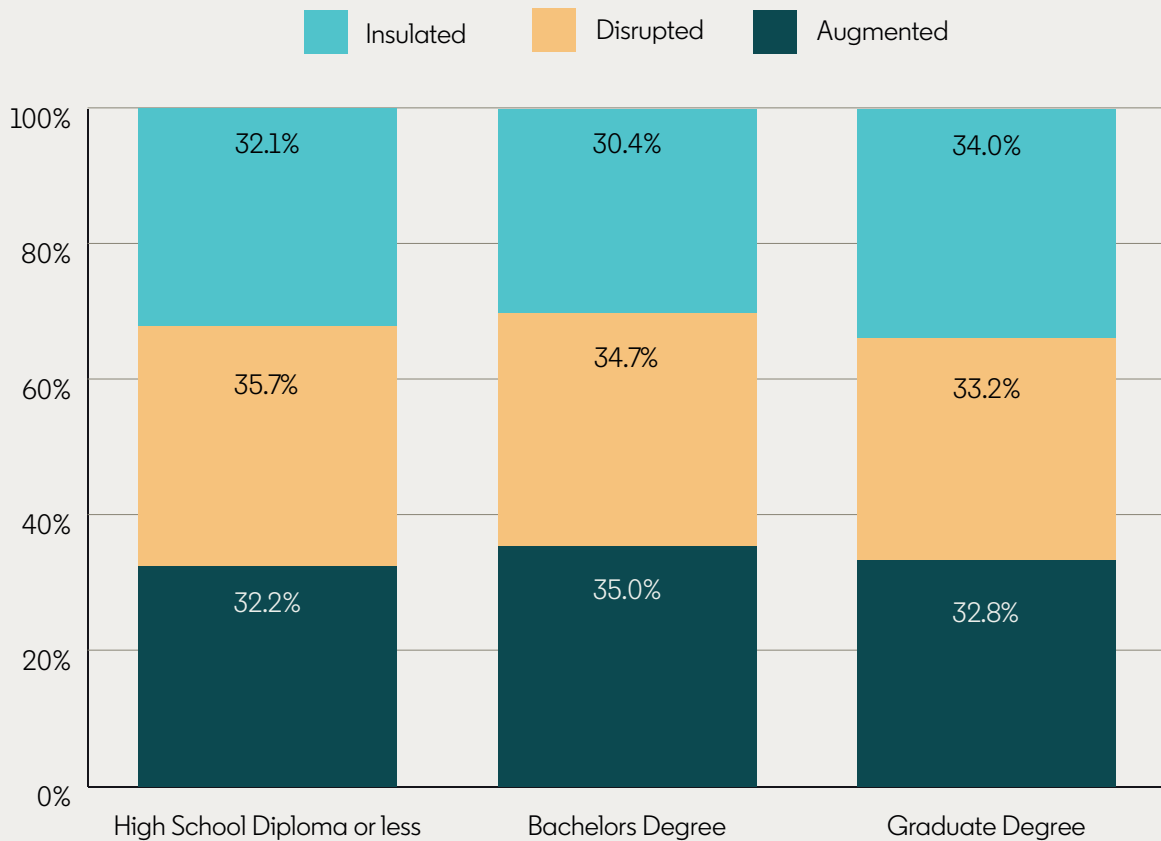


Age group composition by GAI segment, EU



Workers with undergraduate degrees are likely to be the most heavily impacted by GAI. Previous technological revolutions have disproportionately impacted lower-skilled workers. But that’s not the case with GAI, which can partially replicate skills used in many jobs that require an undergraduate college/ bachelor’s degree. Those with graduate degrees, however, are most likely to be insulated from GAI (34.0%, compared with 30.4% of those with undergraduate degrees, 32.1% of those with a high school diploma or less, and 33.6% of those with an associate’s degree). Graduate degrees imply a level of specialisation that GAI may not be able to replicate.

Educational composition by GAI segment, EU



EU members are rapidly adopting AI literacy skills, reflecting a dynamic and flexible workforce. As new AI tools and technologies emerged throughout 2023, EU workers seized on the opportunity to experiment heavily and integrate them into their daily workflows. LinkedIn data shows that the share of members adding AI literacy skills (such as Copilot for Microsoft 365, Github Copilot, and ChatGPT) was 80 times greater in 2023 than 2022.

Looking ahead

AI innovation and its application across the economy will be a key priority for the EU in the years ahead. As AI continues to transform industries and the global workforce, the skills that are critical for employees and businesses will evolve. The capabilities that drive success today are likely to differ significantly from those that will be needed in the future as AI technology advances and its adoption grows.

To enhance its economic competitiveness, productivity and prosperity, the EU will need to design and implement effective skills policies. Granular skills intelligence can support this process by helping the European workforce to develop the capabilities needed to secure high-quality jobs, as well as enabling businesses to access the talent required for success. When applied to AI and other emerging technologies, these insights can accelerate the growth of digital skills across Europe, ensuring that the region fully capitalises on the opportunities AI offers.

For the first time in history, we have the ability to track and analyse anonymised and aggregated data, in real time, to monitor the trajectory of economic transformation—and act on data-generated insights to create a transformation that's equitable, just, and beneficial to society.

At LinkedIn, we're committed to using our data-rich economic platform to give policymakers, business leaders, and workers detailed visibility into the momentum underway. We hope to be a resource for the EU and its citizens, to ensure that AI technology is a net benefit to the region and is grounded in European realities and goals.



Section 3

Methodology

AI talent concentration measures the share of LinkedIn members classified as AI talent. By indexing to a baseline year, 2016, we can compare growth across regions. EU-27 figures are calculated by averaging the AI talent concentration of every country in the region.

The distribution of AI talent across industries measures the share of AI talent in each industry for the selected years. EU-27 results reflect the country average across the EU-27.

The AI LinkedIn hiring rate is a measure of hires normalised by LinkedIn membership. It is computed as the percentage of LinkedIn members who are considered AI talent and added a new employer in the same period the job began, divided by the total number of LinkedIn members in the corresponding location. EU-27 results reflect the country average across the EU-27.

The Fastest Growing AI skills in 2023 list the skills that experienced the fastest growth in terms of being added by members as compared to the previous year. EU-27 results reflect the regional-level aggregation.

Resources

Interested in learning more about AI? Check out our data sharing partnerships and reports:



interface I



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Credits

A special thanks to our LinkedIn economists, data scientists, and all who contributed to this report:

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Head of AI and Skills Research

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Lead Data Scientist, EMEA

Kory Kantenga

Head of Economics, Americas

Karin Kimbrough

Chief Economist



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