Beyond the Buzz: Is AI the next industrial revolution or a bubble that's about to burst

Dr. Christopher Laney
VP, Public Sector Impact & Labor Economist

Lightcast

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Trusted by:

67 of Fortune 100 **Companies**

1,000+ **Educational** Institutions

775 **Government** Organizations

Lightcast powers strategic decisions that drive clarity and impact

Founded over 20 years ago, Lightcast created the category of *labor market intelligence* to help companies, educators, and governments make strategic decisions about their people.

When building a skill-based, future-ready workforce, start with Lightcast.

Lightcast Data

Comprehensive, Contextualized, Actionable.

Lightcast combines 18B+ data points from job postings, profiles, and pay into clear labor market insights - powered by 25 years of expertise, machine learning, and skills taxonomies.

- Cuts through fragmented data to give clear signals
- Helps employers build workforce strategies
- Supports educators design future-ready programs
- Informs policymakers on economic and skills trends

The big idea: Data triangulation is key.

No single dataset answers all labour market questions.

- **LMI:** baseline context (unemployment, wages, demographics)
- **Postings:** current demand (competitors, hiring trends, pay rates)
- **Profiles:** supply side (talent depth, mobility, pipelines)

→ Together: move decisions from guesswork to evidence

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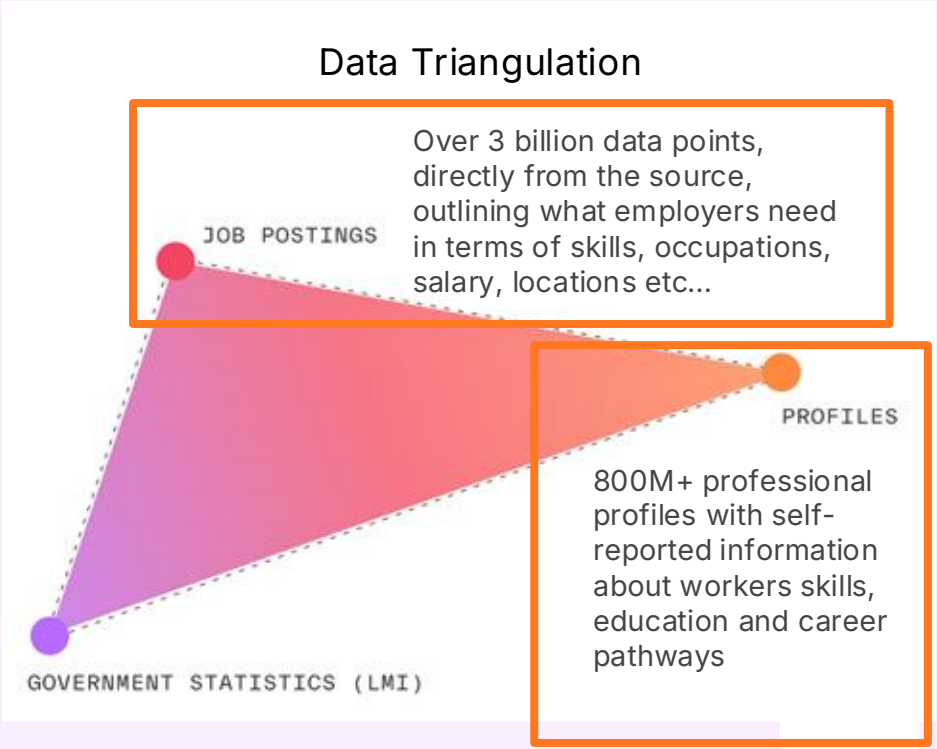
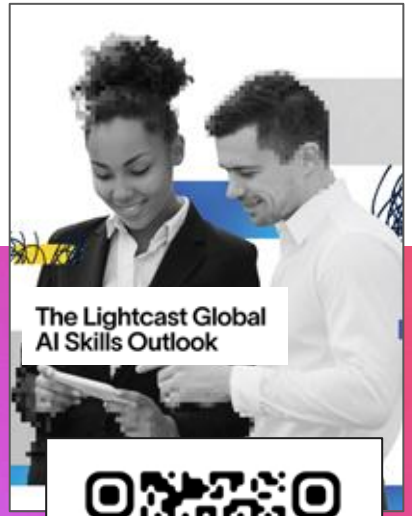


Lightcast Research on Artificial Intelligence in 2025

IMPACT ON SKILLS

GLOBAL TRENDS



US INSIGHTS

AI SKILLS TO CULTIVATE

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Stanford University’s AI Index Report

ORGANIZING THE WORLD’S AI SKILLS

Our 2025 partner releases

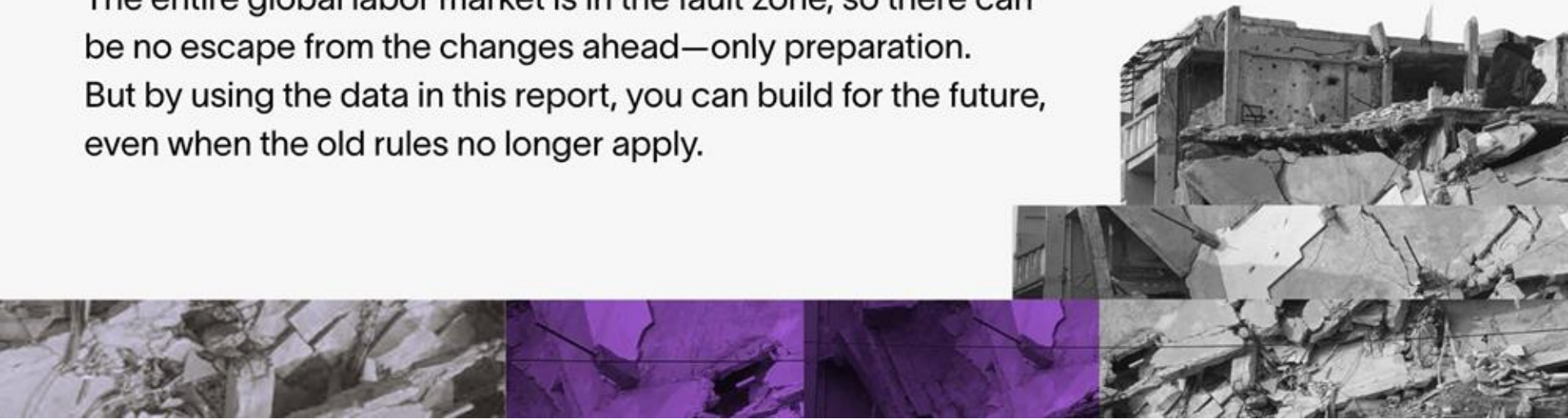
The Lightcast AI methodology sets the standard and is used in academia and policy


Lightcast
FAULT
LINES

Introduction

A fault line is a place where pressure is building, creating the conditions for an earthquake.
We're seeing fault lines in the global labor market.

The entire global labor market is in the fault zone, so there can be no escape from the changes ahead—only preparation. But by using the data in this report, you can build for the future, even when the old rules no longer apply.



The Fault Lines

Geopolitics

Geopolitics has upended the movement and cost of talent worldwide. Countries are de-risking their exposure to the existing world order by developing their own capacity, but because of distrust and demographics, immigration has slowed, and workers are hard to find.

Artificial Intelligence

AI has promised efficiency but delivered confusion. The sectors that need the most help are the ones AI is furthest from helping, while at the same time skills are changing faster and faster, making it harder and harder to plan ahead.

Labor Shortages

Labor shortages compound the challenge, reducing the number of workers available and making every workforce decision more difficult.

If your labor market strategy relies on doing things because that's the way you've always done them, you will find yourself losing customers, students, or
residents to competitors who have recognized that their existing pipelines won't last forever, and are making active adjustments in response.

ARTIFICIAL INTELLIGENCE

We're used to technology that developed at a manageable pace, and skills that lasted from graduation to retirement.

Instead, we're going to see disruption that moves faster than anyone can respond to it—and a gold rush of investment.

1

AI is not solving shortages; supply and demand are misaligned

The sectors facing the most severe labor shortages are precisely those where AI adoption is lowest. Hospitality and healthcare, two of the most talent-starved industries in the labor market, have AI adoption rates of 0.4% and 0.7%, respectively.

2

AI's diverse impact requires specific adoption strategies

Every function and occupation demands to be considered individually. The highest share of AI job postings are found in IT roles (20% of the total), but the jobs most vulnerable to AI are elsewhere—including executive assistants, editors, and interpreters/translators (where over 70% of their skills are exposed to AI).

3

As countries race for AI talent, it's not clear who will win

Our existing systems are built on the assumption of a near-constant flow of millions of workers from country to country. This assumption will not hold true for long.

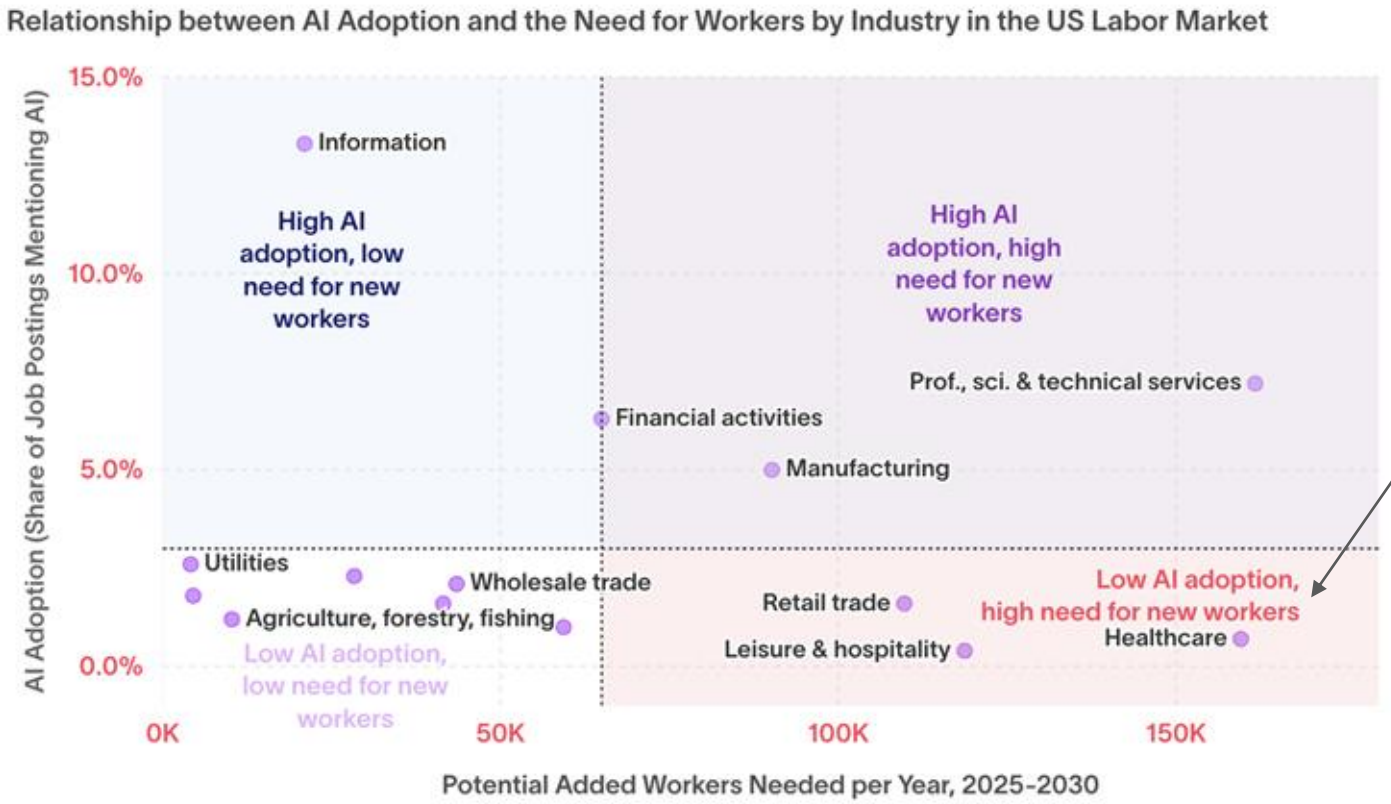
4

The connection between education and business has fractured

While in the past, education institutions could develop programs in response to business needs, now both are rushing to adapt to AI as fast as they can. AI engineers tend to be highly educated—more than five times more likely to have a PhD than the average worker—but only 11% have AI-related qualifications.

AI KEY TAKEAWAYS

AI adoption is lowest where workers are needed most.



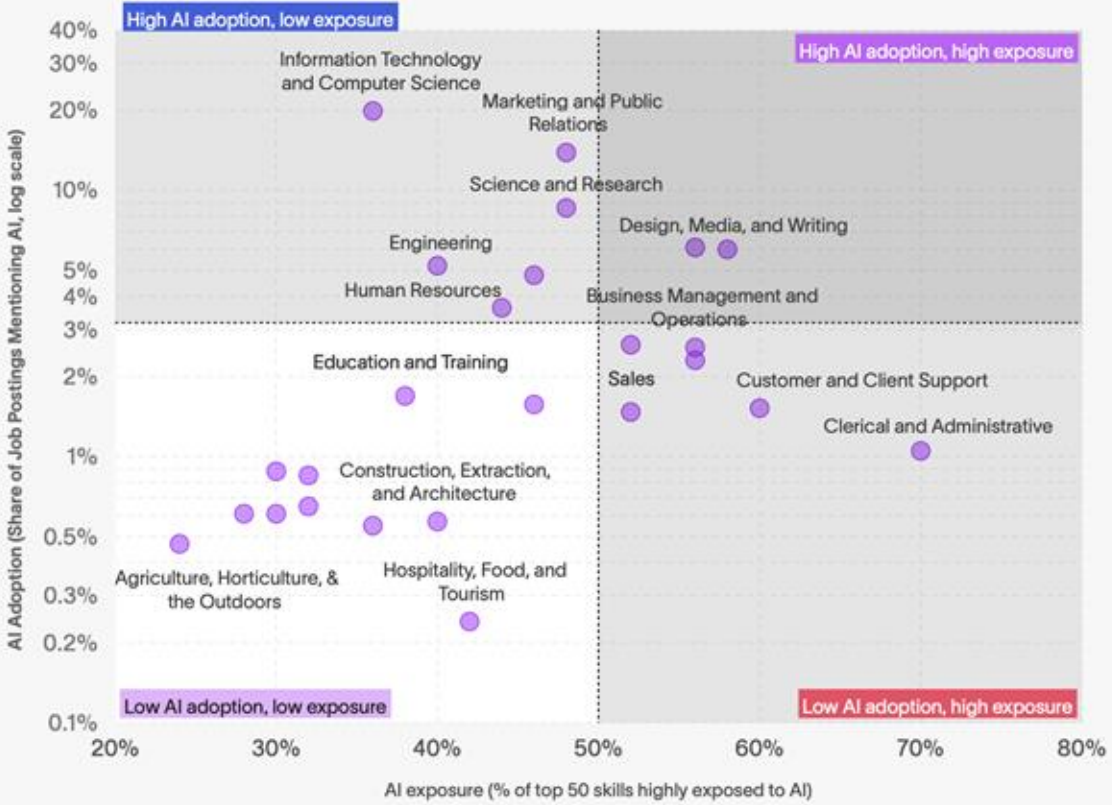
Healthcare has a

.07%

AI adoption rate.

AI transformation is happening at the skills and task level, affecting jobs differently.

AI Exposure and AI Adoption by Job Function



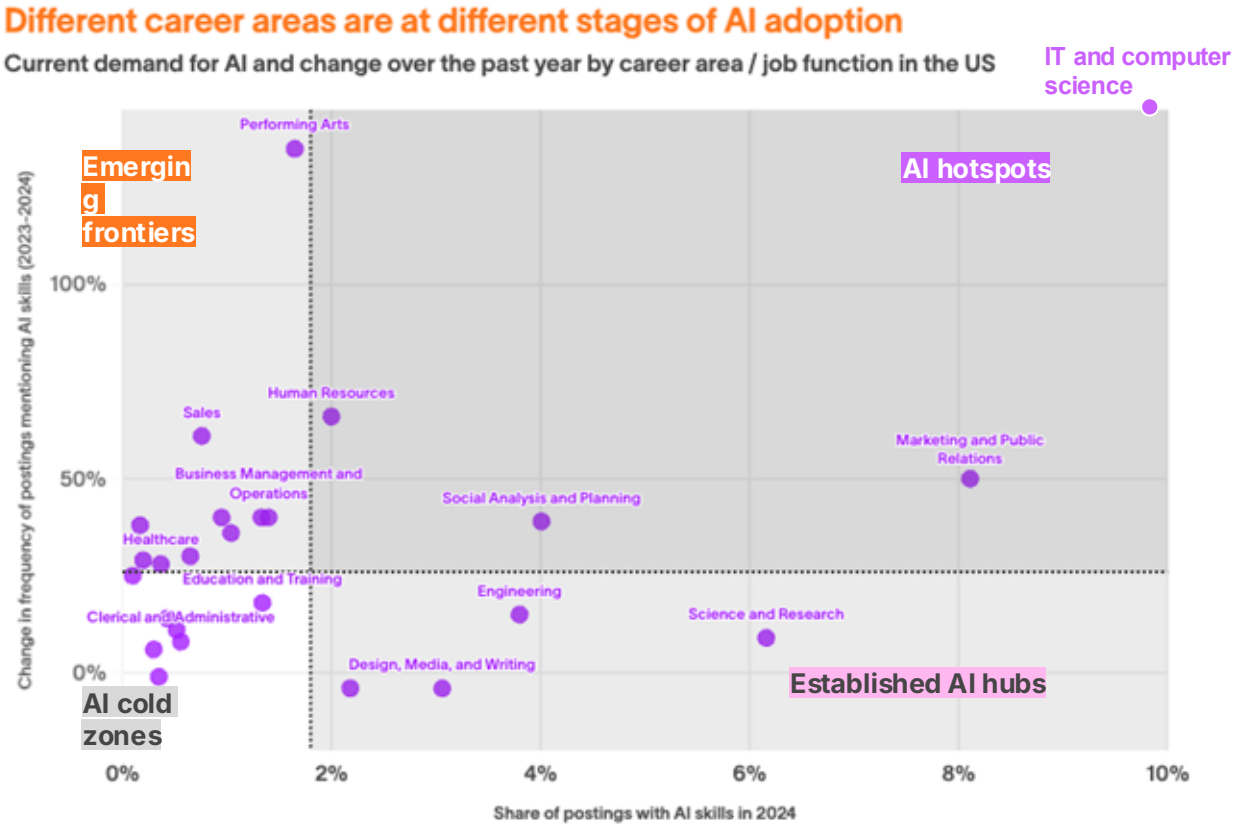
Source: Lightcast Job Postings Data

But… different jobs = different journeys with AI

And therefore, different strategies are required.

Let's *zoom in:*

1. **AI Hotspots** demand immediate, comprehensive action.
2. **Emerging Frontiers** represent the highest-opportunity investments.
3. **Established AI Hubs** need evolution, not revolution.
4. **AI Cold Zones** are in a position to respond proactively.



Source: Lightcast job postings data

Jobs with a large share of their skillset exposed to AI are at higher risk of displacement.

Share of Top 50 Skills that Are Highly Exposed to AI, by Occupation

Occupation (Lightcast Occupation Taxonomy)	AI Exposure		
MOST AI-EXPOSED		LEAST AI-EXPOSED	
Executive Assistant	78%	Nurse Anesthetist	14%
Editor	74%	Physician	12%
Interpreter	74%	Driller / Drill Operator	12%
Office/Admin	74%	Emergency Medical Technician	10%
Proofreader	72%	Firefighter	8%
Data Entry Clerk	72%	Paramedic	8%
Court Reporter	70%	Art Therapist	8%
Legal Secretary	70%	Cardiovascular Technician / Technologist	8%
Underwriter	70%	Respiratory Therapist	8%
Receptionist	70%	Dialysis Technician	6%

Some countries will face intense competition for talent with AI-related skills.

Hiring Difficulty Score: Easiest (0) to Hardest (5) to find

	Natural Language Processing	Robotics	Machine Learning	Deep Learning
India	1.1	0.5	0.6	1.1
Canada	1.4	3.1	1.1	0.6
Germany	1.4	1.3	1.1	1
United States	1.6	2	1.6	1.8
United Kingdom	1.9	2.5	1.9	2.5
Ireland	3.5	0.9	3.9	1.9
Singapore	4.6	2.8	4.6	4.8

AI could serve as a

great leveler

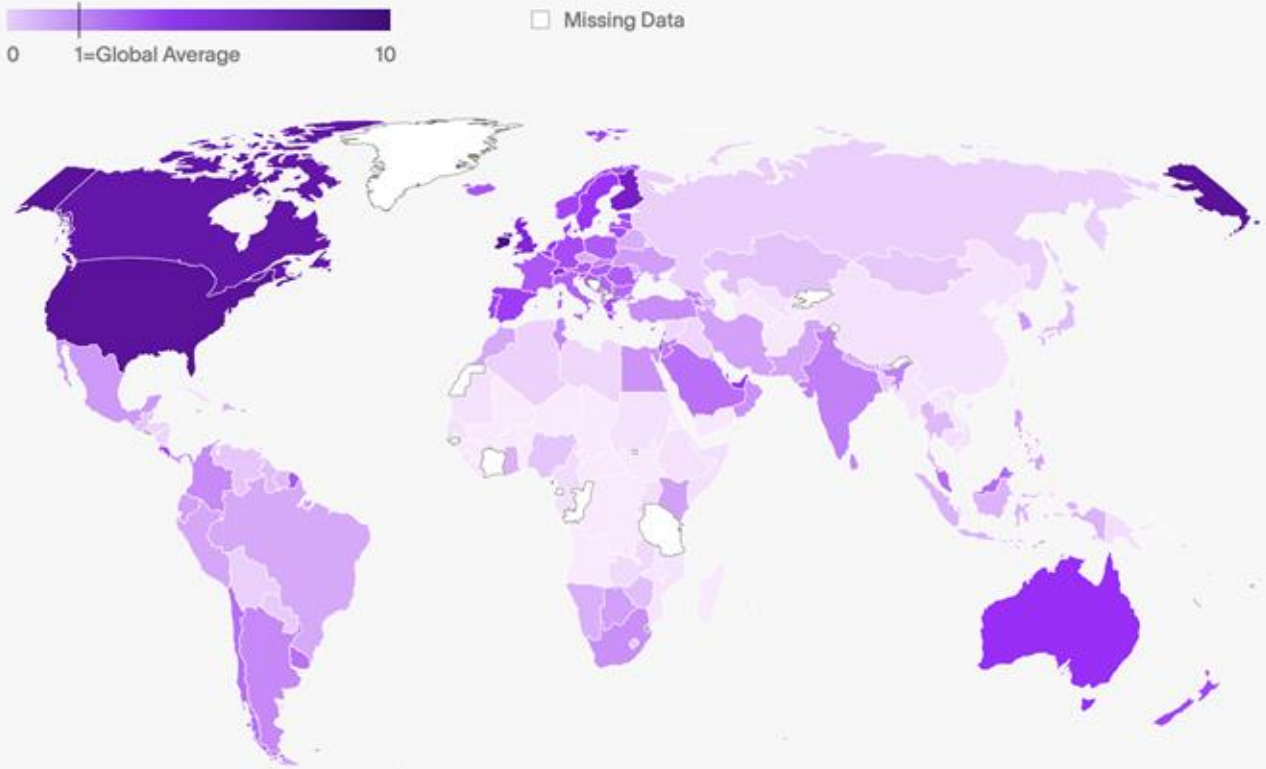
-or-

deepen inequality

We don’t know yet which it’ll be.

AI talent is unevenly distributed globally.

Relative Concentration of World's AI Talent



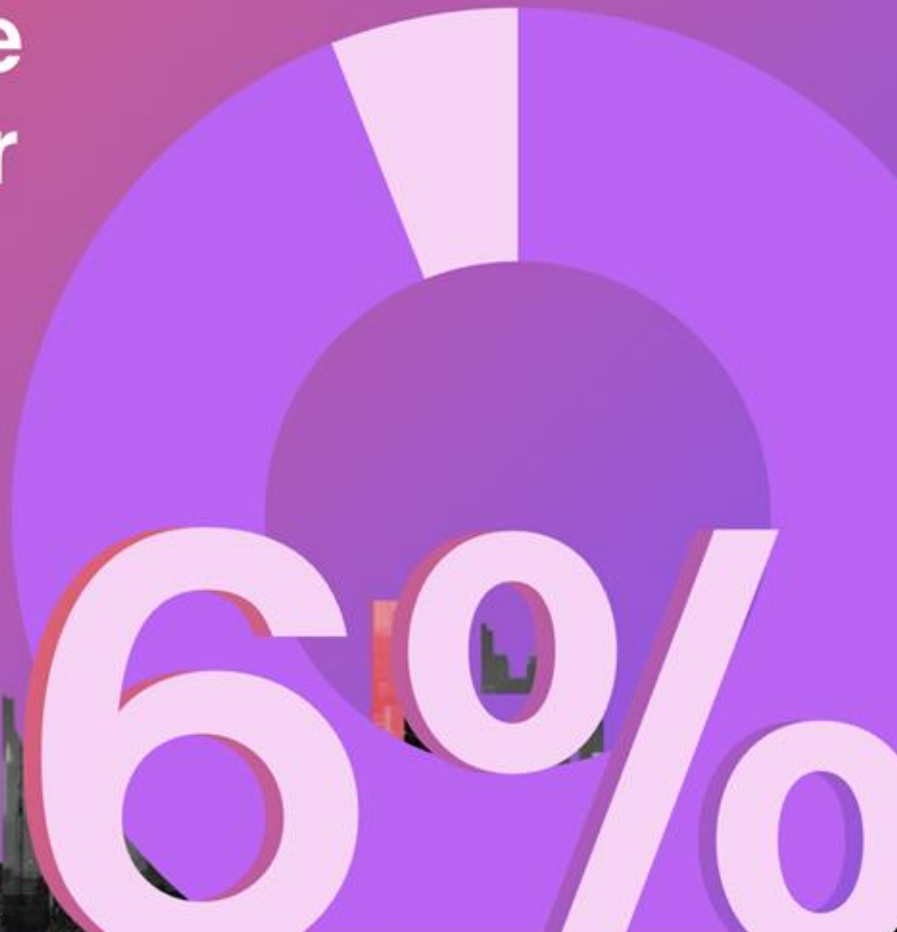
Over 1/3 of all AI workers work in the US.

Source: Lightcast Profiles Data

Note: Data on Hong Kong, which is more readily accessible, might be used as a proxy to give some sense of AI adoption in Chinese cities.

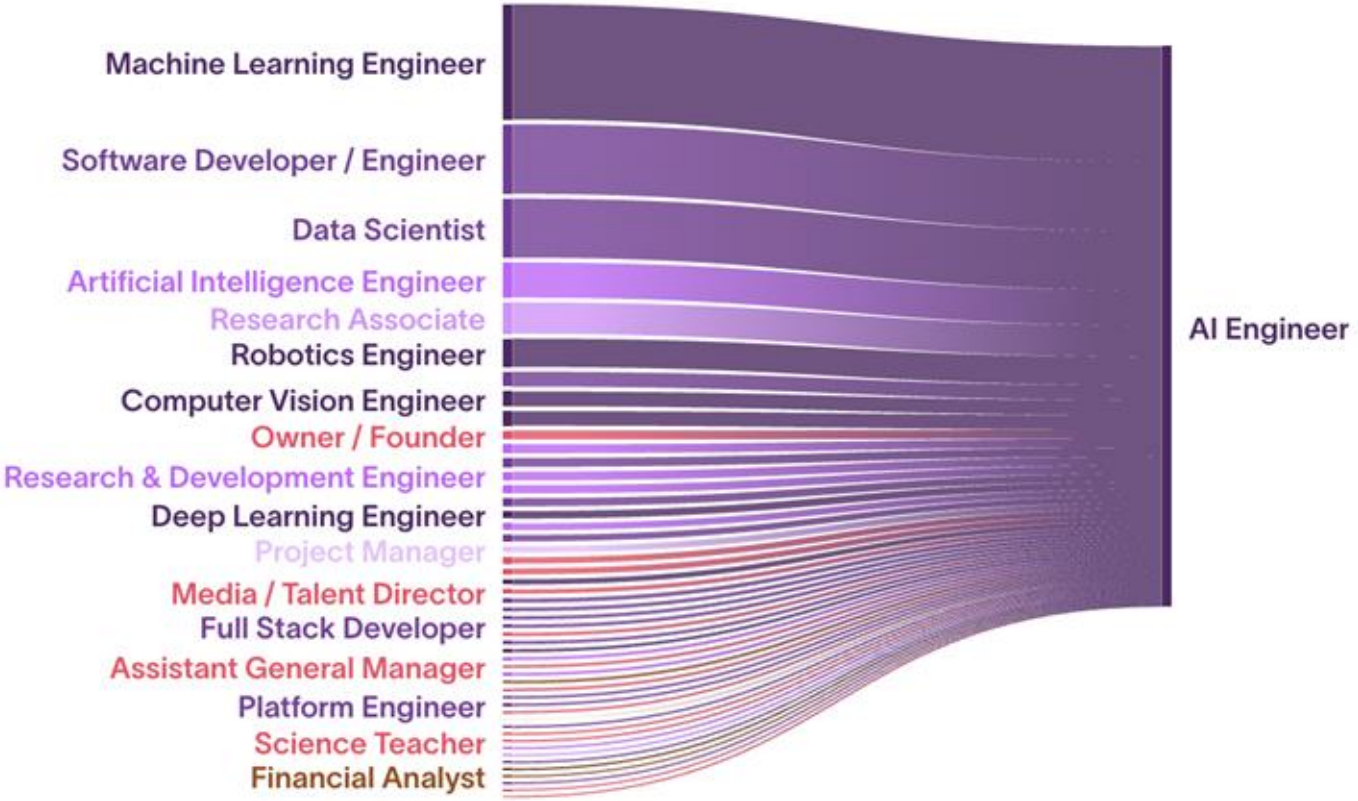
AI has fractured the educator-employer connection

Only 6% of AI workers' degrees are AI-related.

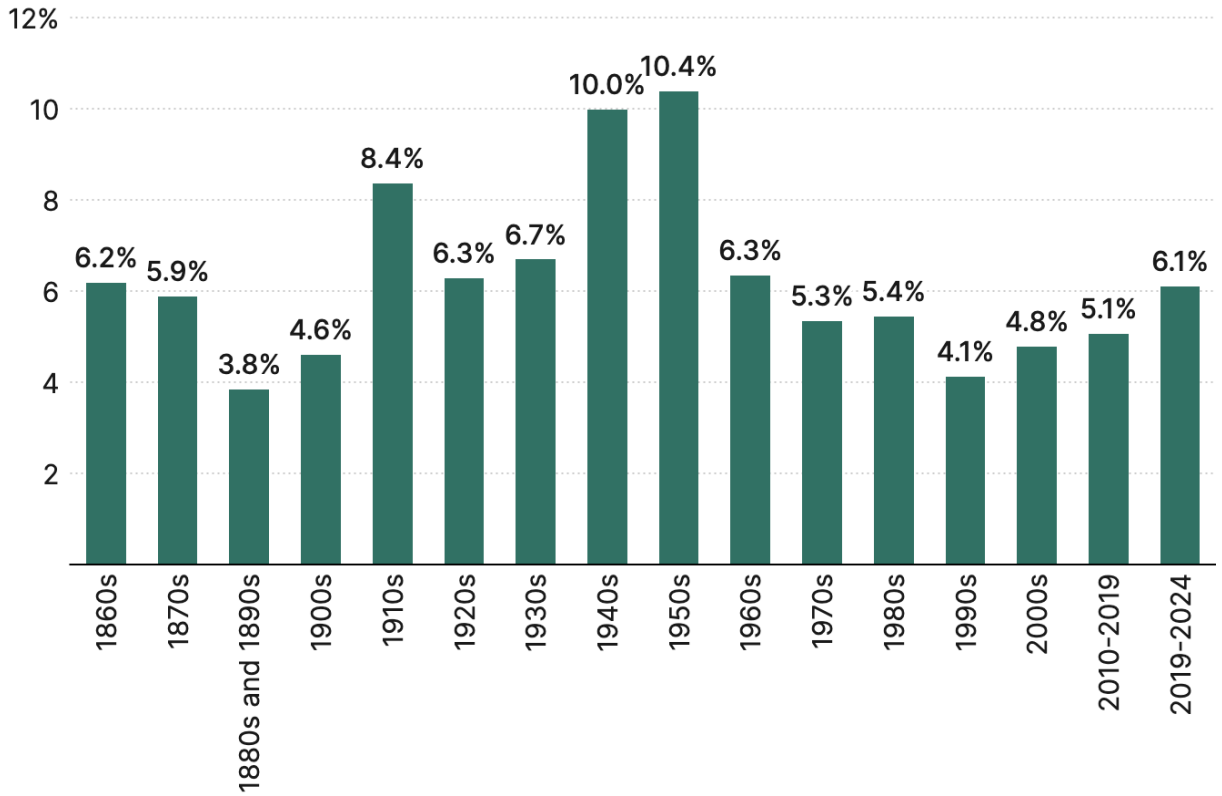


Only a third of AI engineers started their career in AI.

Most Common First Jobs for AI Engineers



Rate of change of occupational mix, by decade



Source: Kolko 2018; Census Bureau n.d.; Ruggles et al. 2025.

Note: Bars represent rate of change across occupational sectors, by decade or by decadalized rate for non-decade time periods. Update to Kolko (2018); Jed Kolko analysis of Census Bureau decennial Census and American Community Survey data, via IPUMS.

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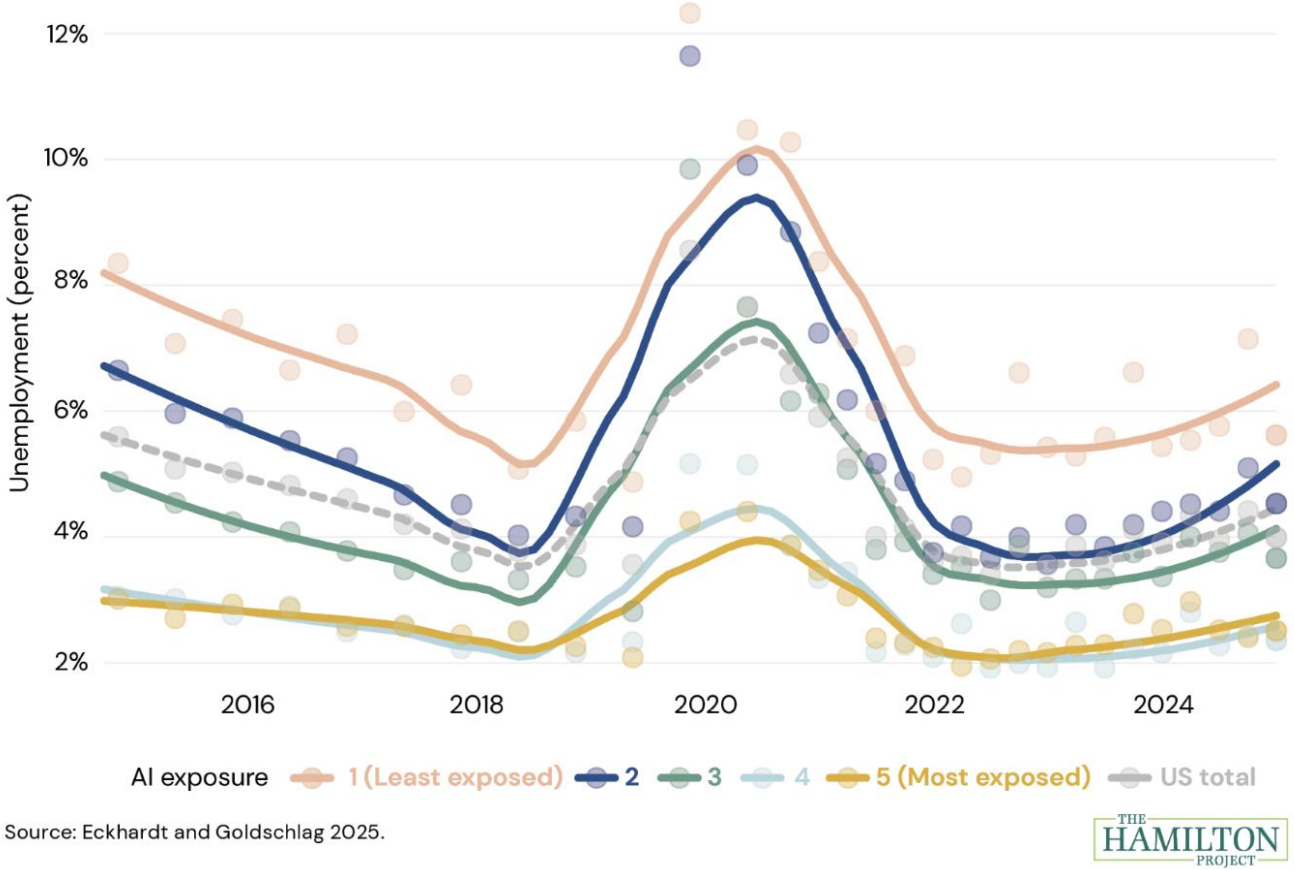
Unemployment Rate by AI Exposure Quintile



Source: Eckhardt and Goldschlag 2025.

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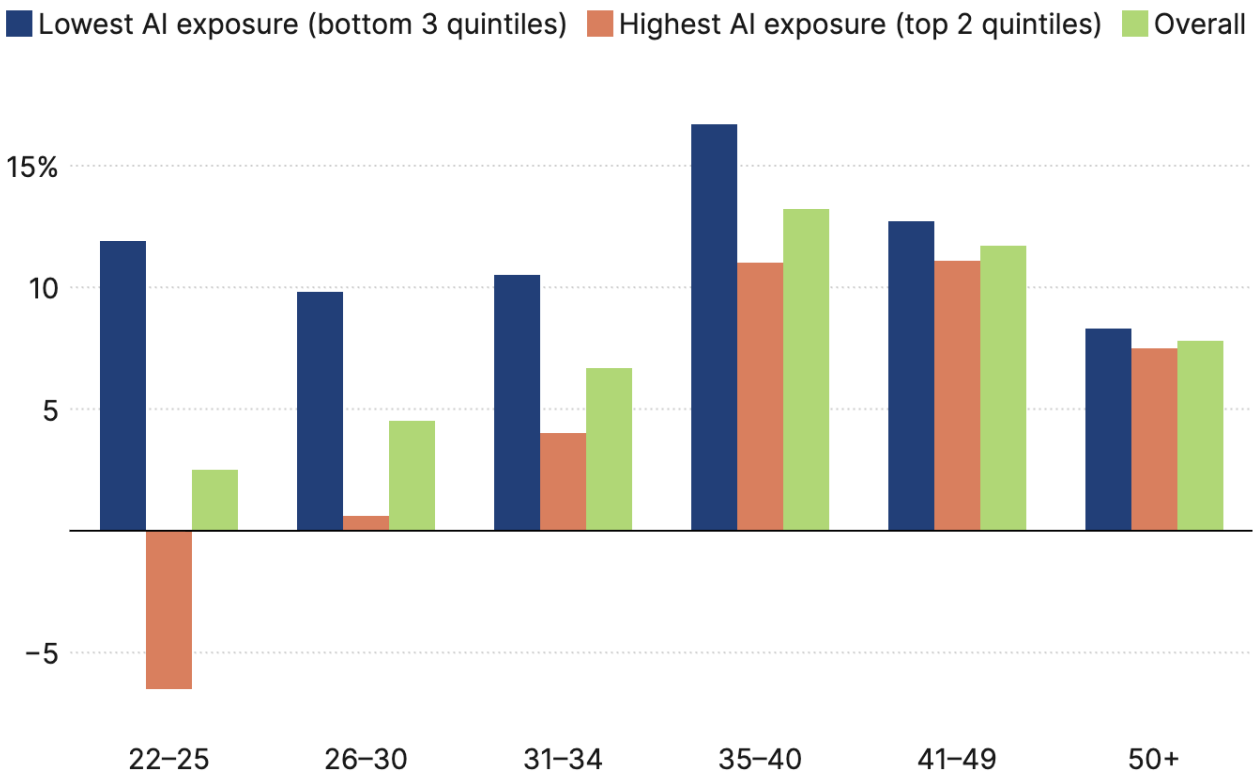
Employment Growth Decomposition, by age and AI Exposure



Source: Brynjolfsson, Chandar, and Chen 2025.

Note: Updated data from Brynjolfsson, Chandar, and Chen (2025) shows growth in employment between October 2022 and December 2025 by age and GPT-4 β-based AI exposure group.

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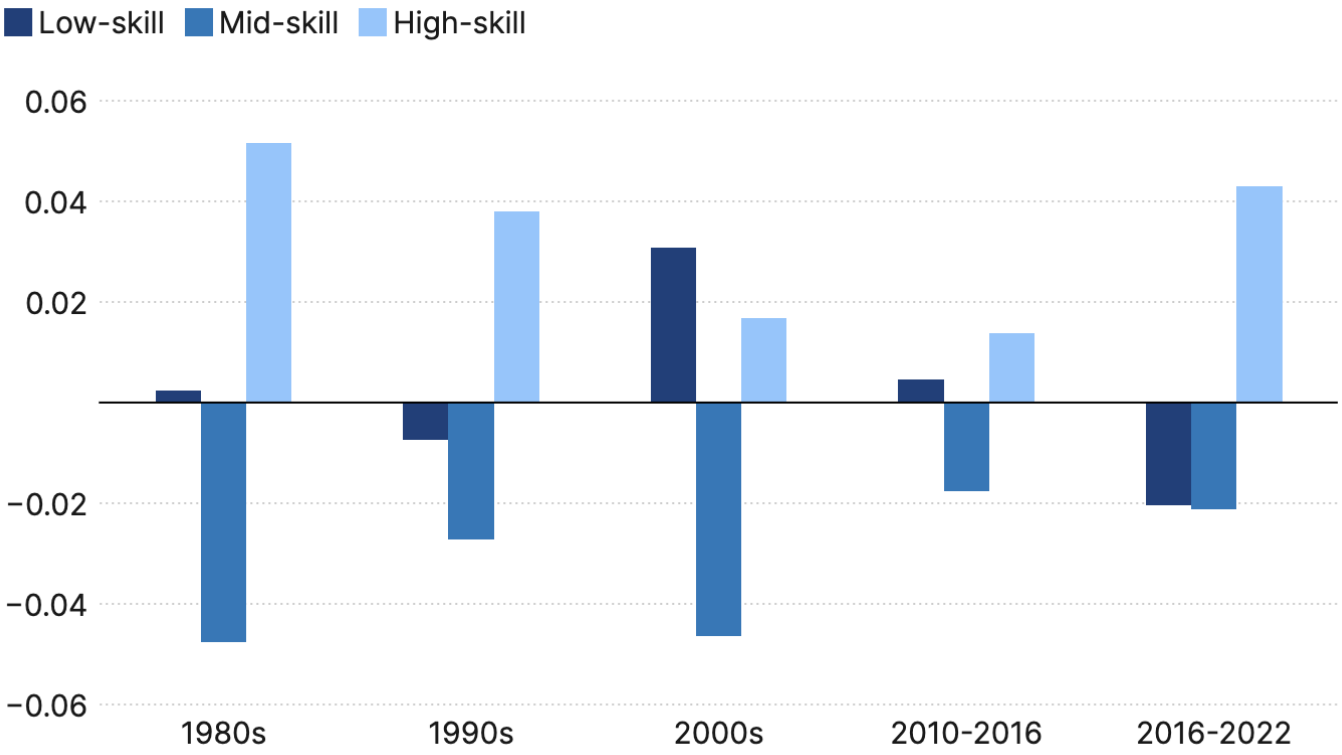
Employment Growth by Job Skill Level, 2000 - 2022



Source: Deming, Ong, and Summers 2024.

Note: See Data Appendix of Deming, Ong, and Summers (2024) for description of occupations included in each skill bucket.

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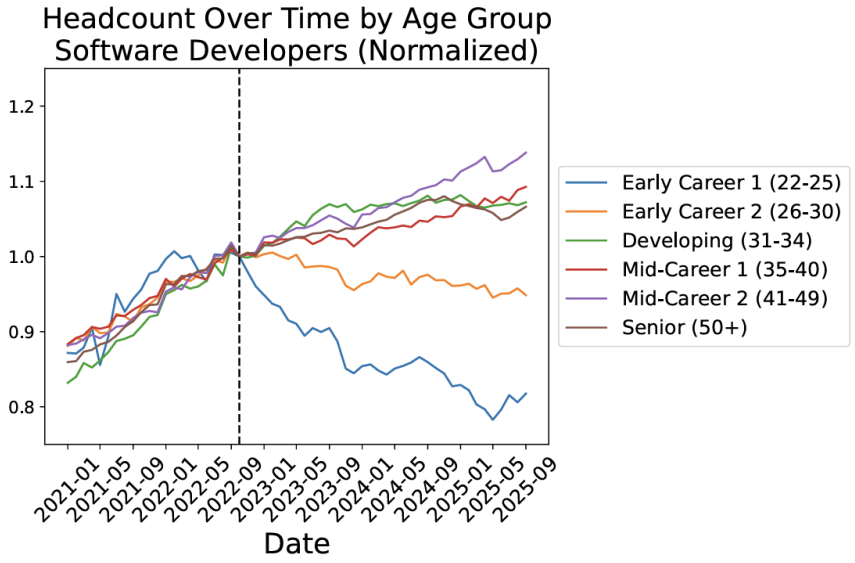
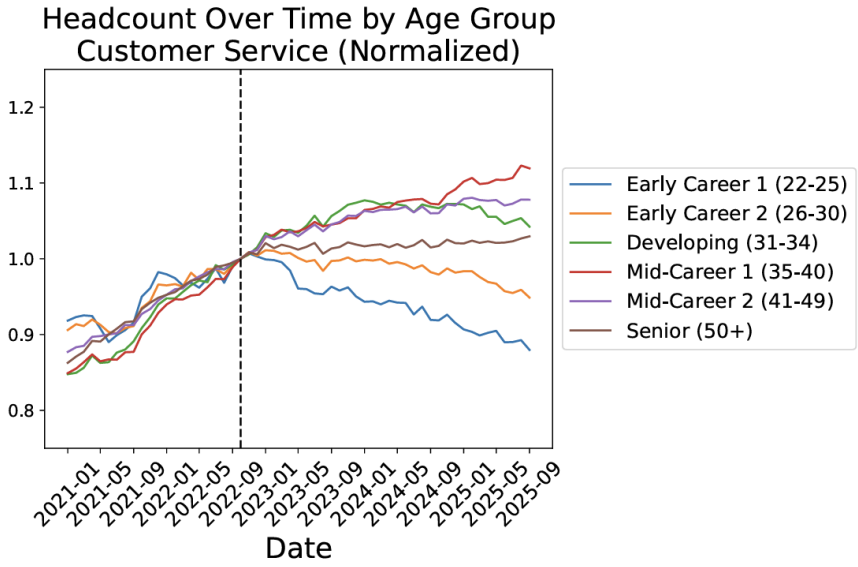
How is AI Changing the Demand for Occupations with High AI Exposure





Source: Standard Digital Economy Lab

AI is no longer just a “tech thing”

Demand for AI is growing across all career areas

2024: 51%
of AI job postings were outside IT & computer science

2019: 39%
of AI job postings were outside IT & computer science

AI skills are now increasingly in-demand in a range of career areas / functions

Share of postings in each occupation area mentioning AI skills %

	2016	2018	2020	2022	2024
Information Technology and Computer Science	4.33%	7.55%	9.02%	11.06%	14.00%
Marketing and Public Relations	2.27%	3.58%	4.76%	5.25%	8.11%
Science and Research	2.63%	3.86%	4.13%	5.49%	6.16%
Social Analysis and Planning	2.02%	2.29%	3.42%	3.87%	4.01%
Engineering	1.85%	2.74%	3.06%	3.83%	3.80%
Design, Media, and Writing	0.97%	1.16%	1.57%	1.78%	3.06%
Military	0.53%	0.79%	0.88%	2.11%	2.18%
Human Resources	0.79%	1.36%	1.15%	1.53%	2.00%
Performing Arts	0.50%	0.69%	0.58%	1.00%	1.65%
Business Management and Operations	0.54%	0.81%	0.74%	1.03%	1.40%
Education and Training	0.71%	0.73%	0.79%	1.10%	1.34%
Finance	0.45%	0.70%	0.62%	1.01%	1.33%
Customer and Client Support	0.46%	0.64%	0.57%	0.87%	1.04%
Law, Compliance, and Public Safety	0.36%	0.52%	0.41%	0.69%	0.95%
Sales	0.20%	0.43%	0.46%	0.61%	0.76%
Maintenance, Repair, and Installation	0.21%	0.39%	0.49%	0.41%	0.65%
Clerical and Administrative	0.26%	0.36%	0.31%	0.56%	0.56%
Manufacturing and Production	0.26%	0.37%	0.32%	0.46%	0.52%
Community and Social Services	0.33%	0.38%	0.29%	0.35%	0.43%
Healthcare	0.14%	0.20%	0.24%	0.28%	0.37%
Agriculture, Horticulture, & the Outdoors	0.40%	0.61%	0.46%	0.37%	0.35%
Construction, Extraction, and Architecture	0.16%	0.18%	0.18%	0.29%	0.30%
Transportation	0.10%	0.15%	0.13%	0.16%	0.20%
Personal Services	0.10%	0.11%	0.10%	0.16%	0.17%
Hospitality, Food, and Tourism	0.09%	0.09%	0.06%	0.07%	0.10%

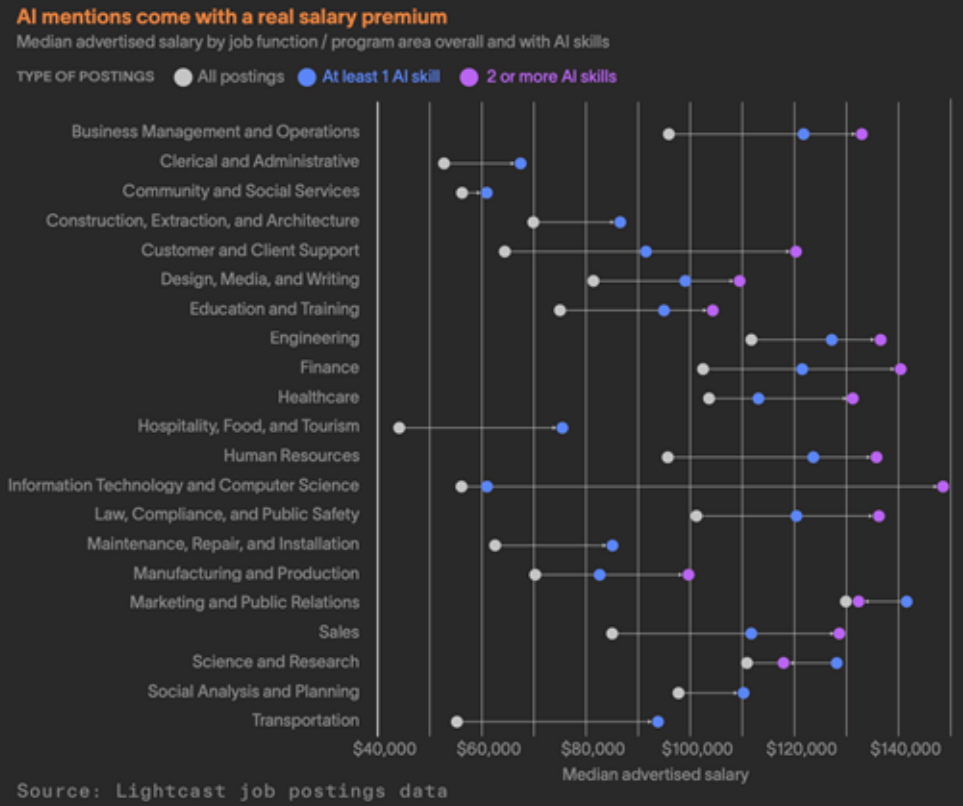
Source: Lightcast job postings data

AI skills carry a real salary premium

Across job functions / program areas

28% salary premium

In median advertised salary in job postings with at least one AI skill compared to similar roles w/out AI.



Which skills should you teach *right now*?

Introducing the AI Skill Disruption Matrix

The Common Foundation

A number of skills are essential to AI jobs, across career areas

- Some, like communication, management and leadership are highly demanded across all jobs, not just AI jobs
- Others, like research, are more likely to be among the top mentioned skills in AI job postings across functions vs. other job postings

Skill name	Description
Communication	Communication is the ability to effectively interact, convey information, and collaborate with others in a clear and understandable manner.
Artificial Intelligence	**This skill encompasses the development of algorithms and models that enable machines to perform tasks such as learning, reasoning, problem-solving, and understanding natural language.**
Management	Management is a set of skills that involve a variety of tasks, such as planning, organizing, leading, and controlling resources to achieve specific goals.
Operations	Operations is a fundamental skill that involves managing and overseeing the day-to-day activities of a business or organization.
Leadership	Leadership is a skill that involves the ability to motivate and guide a team towards achieving common goals.
Research	Research is a skill that involves gathering and analyzing information to answer questions or solve problems. It involves identifying reliable sources of information, evaluating the credibility of those sources, and synthesizing the information to draw meaningful conclusions.
Machine Learning	**Machine Learning is a subset of artificial intelligence that involves the development of algorithms and statistical models that enable systems to perform tasks without explicit instructions.**
Customer Service	Customer service is a necessary and common skill in almost every field and industry. It involves effectively communicating with customers to understand their needs,answering their questions or concerns, and providing them with excellent support and service.
Writing	Writing is a skill that involves putting thoughts and ideas into words through the use of language. It is an essential communication tool used to convey messages, express thoughts and emotions, and share information.
Problem Solving	Problem solving is the process of identifying, analyzing and resolving problems that can arise in any situation. It involves identifying the root cause of a problem, generating possible solutions, evaluating those solutions and implementing the best one.

Specific AI skills needed vary

While some skills are needed across the board, AI skills training needs to be tailored to the requirements of each specific role

AI skill requirements vary by career areas

Share of AI postings requiring a given set of AI skills

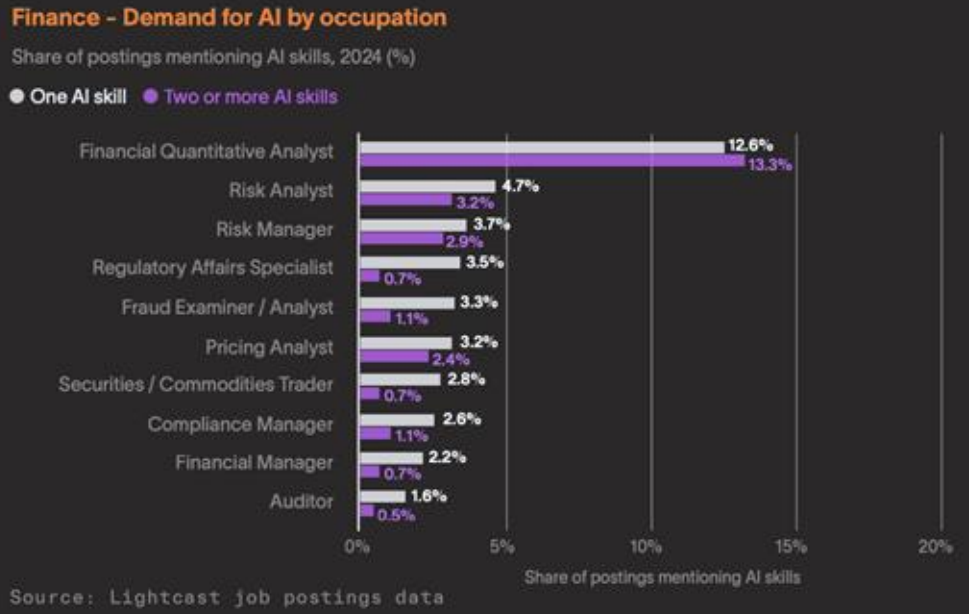
	AI Ethics, Governance and Regulations	Artificial Intelligence	Autonomous Driving	Generative AI	Machine Learning	Natural Language Processing	Neural Networks	Robotics	Visual Image Recognition
Business Management and Operations	1%	63%	5%	8%	33%	9%	1%	1%	2%
Clerical and Administrative	0%	59%	3%	6%	17%	20%	0%	1%	2%
Community and Social Services	0%	70%	1%	2%	10%	20%	0%	1%	0%
Construction, Extraction, and Architecture	0%	41%	12%	1%	17%	8%	9%	14%	3%
Customer and Client Support	0%	69%	1%	7%	20%	17%	1%	1%	1%
Design, Media, and Writing	0%	62%	5%	17%	17%	23%	1%	1%	2%
Education and Training	1%	60%	5%	10%	36%	12%	4%	2%	4%
Engineering	0%	36%	22%	4%	37%	3%	4%	18%	9%
Finance	1%	56%	1%	8%	48%	8%	2%	1%	1%
Healthcare	0%	49%	2%	2%	18%	16%	1%	15%	6%
Hospitality, Food, and Tourism	0%	46%	5%	3%	38%	11%	0%	2%	1%
Human Resources	0%	62%	2%	8%	29%	19%	1%	1%	1%
Information Technology and Computer Science	1%	51%	5%	16%	71%	14%	15%	2%	6%
Law, Compliance, and Public Safety	1%	60%	6%	8%	30%	12%	1%	1%	3%
Maintenance, Repair, and Installation	0%	20%	38%	1%	11%	4%	0%	24%	4%
Manufacturing and Production	0%	45%	3%	3%	34%	7%	1%	11%	6%
Marketing and Public Relations	0%	60%	1%	16%	38%	19%	2%	0%	2%
Sales	0%	68%	3%	11%	28%	11%	2%	1%	3%
Science and Research	1%	43%	14%	10%	60%	11%	17%	2%	15%
Social Analysis and Planning	1%	41%	11%	6%	49%	11%	1%	0%	4%
Transportation	0%	39%	40%	4%	19%	4%	2%	2%	4%

Source: Lightcast job postings data

Finance

Examples of AI applications:

- Automated financial reporting
- Regulatory compliance monitoring
- Credit default predictions
- Real-time transaction processing
- Algorithmic trading strategies

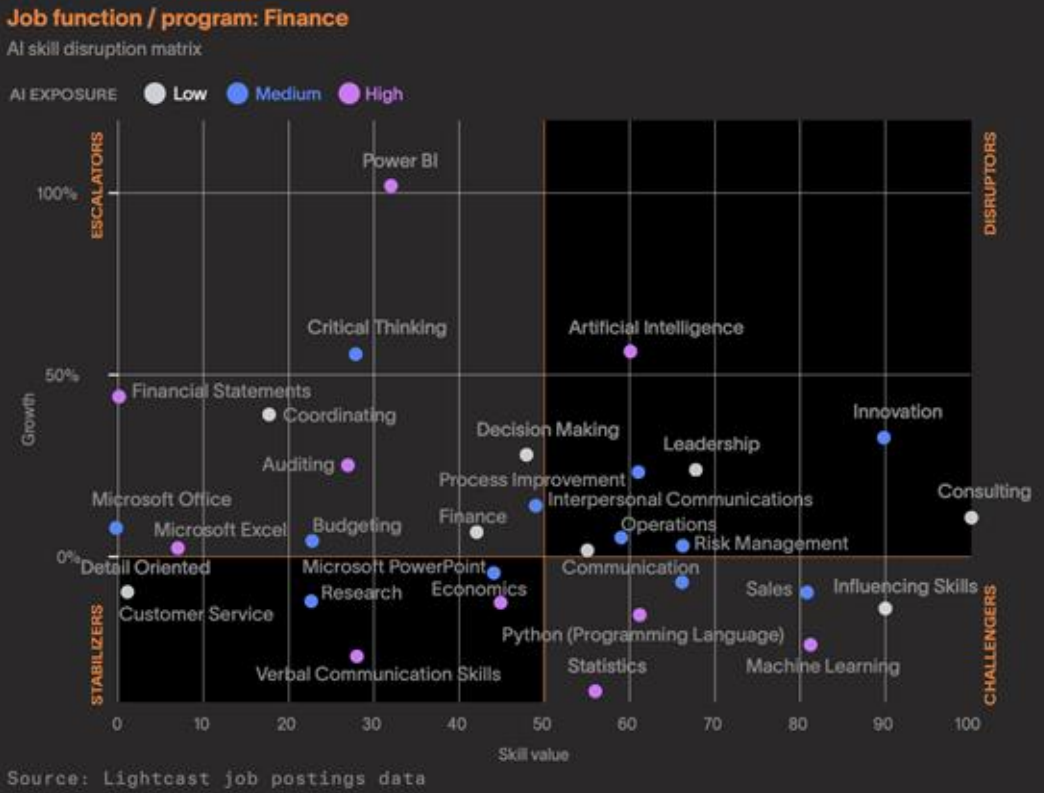


The AI skill disruption matrix for Finance

Immediate focus: Financial analysts and risk managers need comprehensive AI training in machine learning and predictive modeling.

Universal requirement: Build foundational AI literacy across analytical roles.

Strategic balance: Combine technical AI capabilities with high-value consulting and governance skills that maintain low AI exposure.

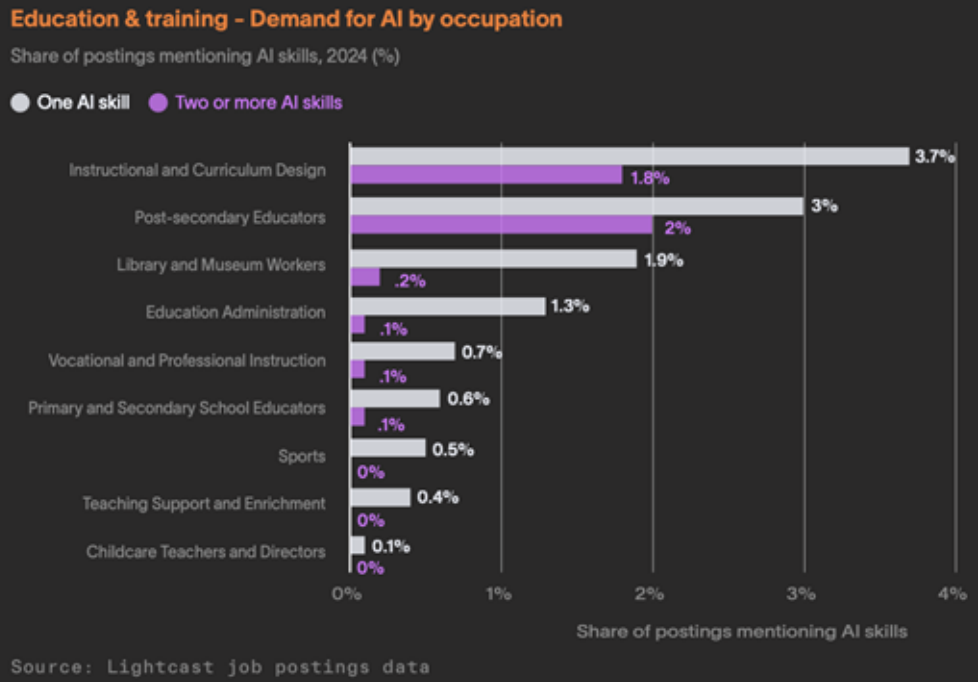


Source: Lightcast job postings data

Education and training

Examples of AI applications:

- Personalized learning path creation
- Adaptive curriculum design
- Educational material creation
- Lesson plan creation
- Automated assessment feedback



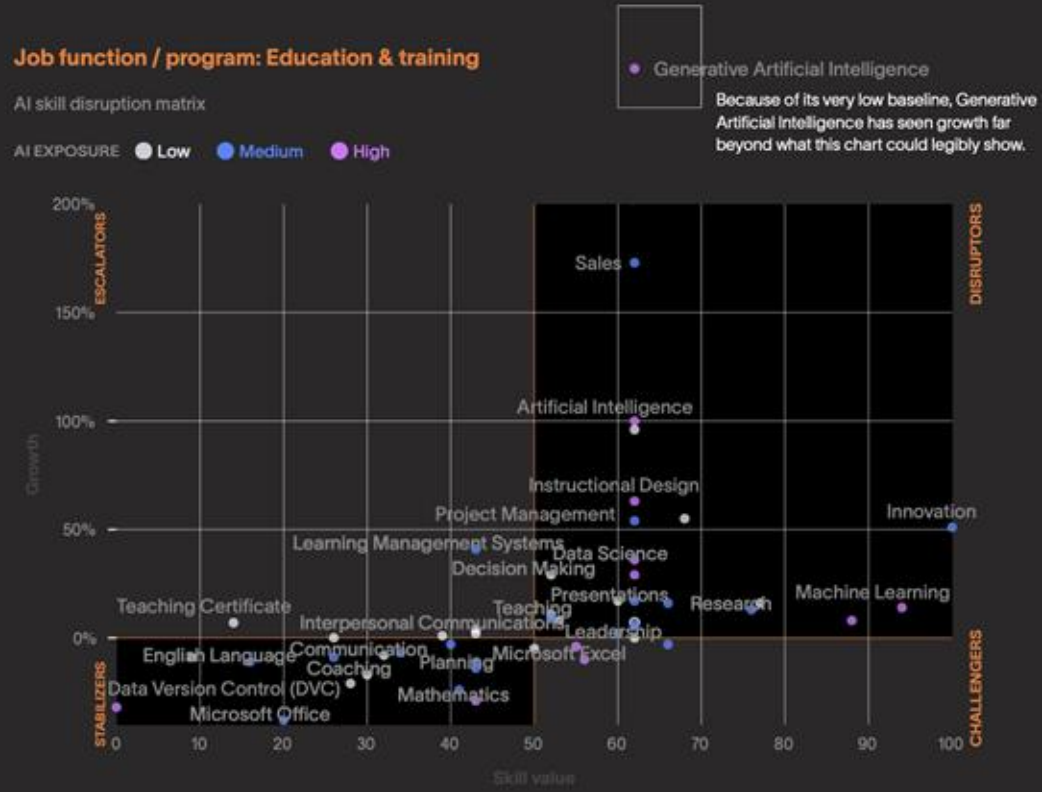
Source: Lightcast job postings data

The AI skill disruption matrix for Education and training

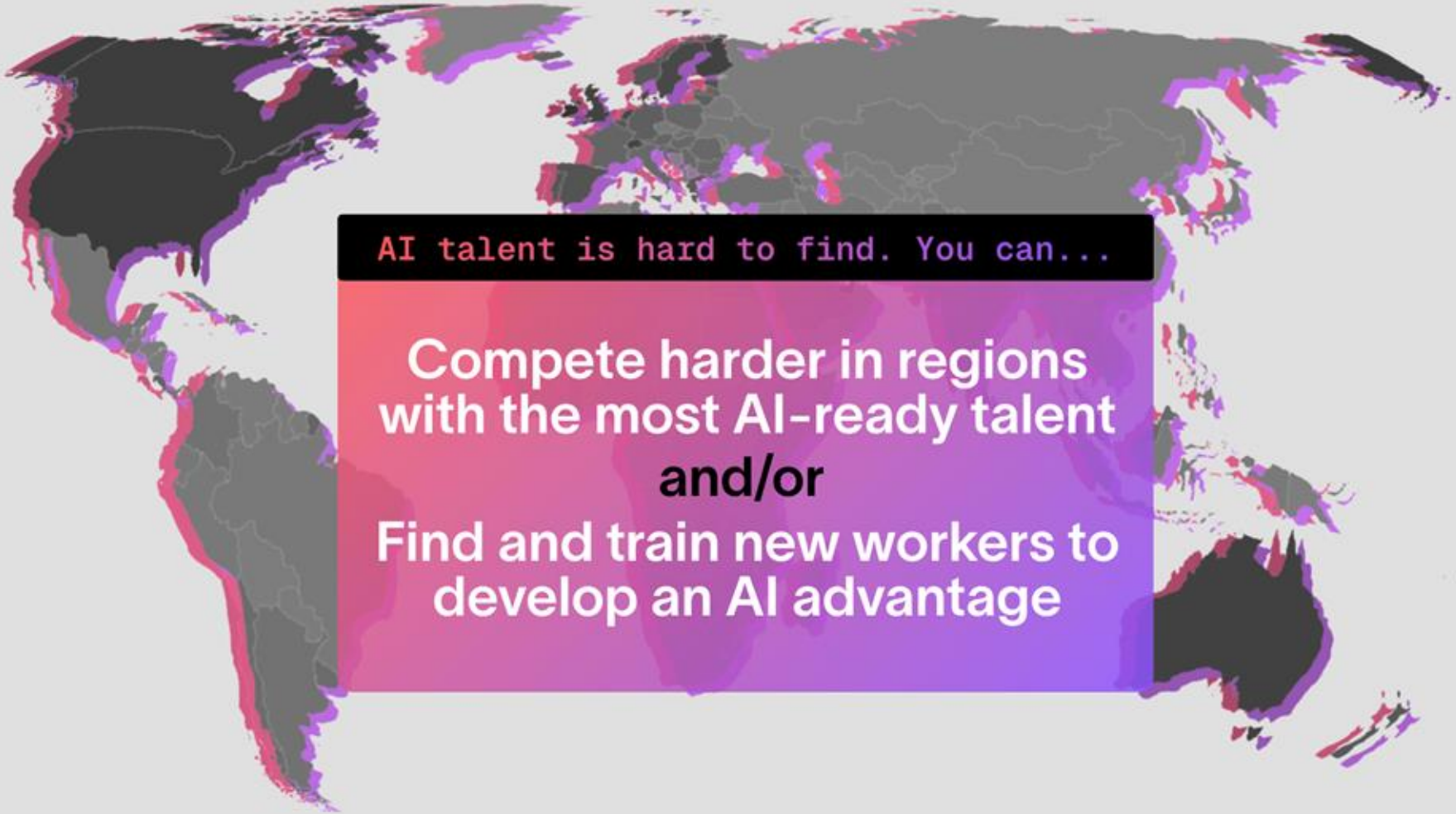
Immediate focus: Prioritize AI training for curriculum developers and instructional designers who can integrate AI into educational delivery systems.

Universal requirement: Build comprehensive generative AI capabilities for content creation, assessment development, and personalized learning materials

Strategic balance: Strengthen pedagogical and mentorship capabilities that maintain high value despite low AI exposure.



Source: Lightcast job postings data


AI talent is hard to find. You can...
Compete harder in regions with the most AI-ready talent
and/or
Find and train new workers to develop an AI advantage

Now what?

Moving from research to impacting outcomes

AI is changing the labor market in unprecedented ways - are you prepared??

AI-ready universities

You don't need a degree in AI - but you need a new way of doing things: for example, embedding AI in all your courses.

AI-ready businesses

Each job function is on a different stage of the AI journey and has different requirements. Prioritise and prepare.

AI-ready policymakers

Collaboration is key to navigate these unprecedented changes. National and local governments play an essential role as conveners.

AI-ready labor markets

Monitoring trends is essential. The labor market is changing too fast and in unprecedented ways - you can't afford to base your decisions on guesswork.

AI disruption accelerates the skills transformation already underway in advanced economies, intensifies competition for talent across geopolitical boundaries, and interacts with demographic trends that determine which nations can sustain AI-driven growth.

We need AI to solve the productivity gaps caused by labor shortages, but implementation is stalled because the greatest investment is far away from the sectors that need it most.

Download the full Fault Lines report:

Dr. Christopher Laney

VP, Public Sector Impact & Labor Economist

Email: chris.laney@lightcast.io

LinkedIn: linkedin.com/in/chrislaney