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MAPPING THE AI ECONOMY:

WHICH REGIONS ARE READY FOR THE NEXT TECHNOLOGICAL LEAP?

Mark Muro and Shriya Methkupally

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Executive summary

Artificial intelligence is rapidly transforming the U.S. economy. However, regional capacities for AI talent development, research, and enterprise adoption differ dramatically across the country, and policymakers have little insight on where these gaps are emerging.

The nation's readiness to benefit from AI is critical because the technology is going to play a significant role in economic development given its potential to drive innovation and productivity in every industry, both in general and within regions.

To address these issues, this report maps the unfolding AI revolution across 387 U.S. metropolitan areas and assesses how the nation and local economies are positioned to create, apply, and harness AI. The report first underscores AI's implications for national and regional economic development. Then it turns to a benchmarking exercise that groups 14 indicators into three dimensions of regional AI readiness: talent, innovation, and adoption. The "talent" pillar measures the flow of AI-capable workers; "innovation" captures research and innovation strengths; and "adoption" charts industry uptake.

Employing this framework, the report groups U.S. metro areas into six tiers of AI economic readiness and, in so doing, illustrates the geography of AI progress as it varies across the nation. Continuing a pattern from a 2021 Brookings report,[1] the major AI community types revealed by the new cluster analysis are:

- **Superstars:** The San Francisco and San Jose, Calif., metropolitan areas exhibit unmatched strength across all three AI pillars (talent, innovation, and adoption).
- **Star Hubs:** This group of 28 metro areas forms a second echelon of uniformly strong AI ecosystems, balancing top-tier talent, research, and enterprise uptake.
- **Emerging Centers:** This group of 14 metro areas combines top performance in two pillars with one developing area.
- **Focused Movers:** These 29 metro areas excel in one pillar while maintaining foundations in the other two.
- **Nascent Adopters:** This group of 79 metro areas shows moderate performance across all three pillars.
- **Others:** A group of 43 metro areas that currently lags on multiple pillars.

By tracking the clusters' progress, the report develops several main findings that show:

- **A rapidly growing but nascent AI market.** Between 2010 and 2025, AI-related job postings grew at an annual rate of 28.5%, yet still comprise only about 2.5% of all U.S. job openings.
- **Extreme concentration.** The Bay Area accounts for 13% of national job postings featuring AI skills, and together with the Star Hubs, this group of 30 top-performing metro areas captures 67% of total AI job postings.
- **Signs of geographic diffusion.** Several noncoastal metro areas—including Pittsburgh, Detroit, Madison, Wis., and Huntsville, Ala.—now rank in the top quartile on at least two pillars, indicating emerging hubs beyond the traditional tech coasts.
- **Persistent opportunity gaps.** Over half of U.S. metro areas remain in the bottom two readiness tiers, revealing significant shortfalls in talent pipelines, research infrastructure, and enterprise adoption.

The report concludes with a call for a two-pronged policy agenda. First, this agenda lays out a robust **national AI platform** that boosts nondefense R&D funding; expands shared research and computational resources; accelerates AI cluster scale-up; streamlines innovation infrastructure investments; and funds AI curriculum development and research at higher education institutions. Second, the report articulates a **region-by-region strategy** that begins with regions' individual starting points and uses them to shape local AI research agendas, foster regional cluster development, and build local talent in ways that are oriented to local needs.

Ultimately, the region-tailored priorities vary depending on a region's degree of AI readiness, as follows:

- **Superstars:** Support emerging tech companies, maintain appeal to immigrant talent, invest heavily in local tech education, and consider options for worker-transition support.
- **Star Hubs and Emerging Centers:** Invest in developing regional clusters, increase access to high-speed and affordable computing resources, and intensify efforts in tech education.
- **Focused Movers:** Lean into signature strengths, invest in the computing infrastructure necessary to train and retain top talent, prioritize tech transfer and commercialization, and leverage local business environments to promote adoption.
- **Nascent Adopters and Others:** Promote broad AI literacy, demonstrate practical AI applications in routine tasks, and think about AI career pathways.

In sum, the emergence of AI as a general purpose technology presents an inflection point for regional economic development in the United States. Leaders should move urgently to promote local development that will contribute to more evenly distributed and transformative AI growth from coast to coast.

Introduction

Dramatic advances in generative artificial intelligence have sparked intense discussions about geopolitical competition. Will the United States "win" the global race to develop and deploy AI, or will China? Where will adoption occur first?

Tech visionaries, security experts, and politicians all insist that the U.S. must out-prepare and out-innovate China to ensure that the nation maintains its security, maximizes its productivity, and unleashes the potential of its talent.

Yet there is another question about the AI readiness quest: How is AI creation and adoption unfolding here at home? How is it proceeding *within* the U.S., and namely, *among* and *between* the nation's hundreds of regional economies?

The answers to these questions matter immensely. As with previous waves of technological transformation, how much, how effectively, and in what specific ways regions harness AI—especially in their core industries—will be hugely important in shaping the geography of the U.S. economy and determining which regions prosper and which do not.

In this regard, AI has emerged as a "general purpose technology"—one with far-reaching consequences for industries, places, and people.[2] AI systems promise to drive productivity by automating routine tasks and at other times augmenting work, allowing humans to focus on higher-value activities. AI is accelerating the pace of discovery and innovation by analyzing vast datasets and identifying patterns humans might miss. And for that matter, AI enables more efficient resource allocation through intelligent forecasting and optimization. As such, AI could heavily influence the nation's ability to achieve its larger goals, whether it be through faster drug development, personalized learning, or "virtual employees" optimizing supply chain complexities.

Yet many of these achievements could be jeopardized if too little AI development occurs with too little thought in too few industries.

All of which suggests that it matters a lot whether and which U.S. cities and regions are ready to facilitate AI development in high-quality ways, and are thus demonstrating a readiness to truly benefit from future AI build-out.

Which is where this report comes in. As AI's potential to spur growth and transform economies becomes increasingly clear, local leaders want to understand where their regions stand. Specifically, they want to get a handle on the types of capacities that matter in AI preparedness and their local status on those success factors.

And so, the data and assessments provided here seek to fill a void. Following up on an earlier Brookings report on the geography of AI, the discussion here provides a unique benchmarking of U.S. metropolitan areas on their standing across 14 metrics reflecting three pillars of communities' readiness to integrate AI into economic development.[3]

As such, the following analysis provides leaders basic information on what matters in establishing AI readiness as a local economic development priority, and how individual regions presently fare on those priorities. At the same time, the analysis groups U.S. metro areas into six tiers of AI readiness and, in doing so, provides a new view of the geography of AI progress as it varies across the nation.

What does that new view show? We find both continued narrowness and a degree of recent diffusion. To be sure, the geography of AI adoption progress remains highly concentrated in a short list of "Superstar" metro areas (San Francisco and San Jose, Calif.) and "Star Hubs" (such as Seattle; Boston; Austin, Texas; and Washington, D.C.). The rapid diffusion of chatbots in recent years has not changed that. Yet at the same time, the chatbot boom and now the spread of agentic AI is clearly beginning to widen the geography of AI activity in the U.S. In that vein, the present analysis highlights several additional regions (including Pittsburgh; Rochester, N.Y.; Detroit; Tampa, Fla.; Madison, Wis.; and Huntsville, Ala.) that are now strong on two of the three pillars of adoption readiness.

We not only report on the progress of individual metropolitan areas, but also on the integration of regional economies into the national enterprise. To start, the report reviews broad AI adoption trends across the nation, introduces its benchmarking approach, and outlines a series of findings about the variation and geographical distribution of AI activities in U.S. places. After that, the report reflects on the trends and reviews the types of strategies the nation, states, and regions could pursue to accelerate AI adoption considering their communities' current AI assets and capabilities. Ultimately, the goal is to help leaders promote local development that will contribute to more evenly distributed AI growth from coast to coast.

Background

The nation's readiness to benefit from AI is critical because the technology is going to play a significant role in economic development given its potential to drive efficiency, innovation, and productivity in every industry, both in general and within regions.[4]

Overall, AI readiness—as an emergent, innovation-driven technology—will depend on the nation's ability to deliver on three success factors:

- **The availability of abundant AI talent**, since talent clusters are critical in generating self-reinforcing economic growth for people, firms, and places.[5]
- **The accessibility of AI innovation and innovation infrastructure**, since technical progress plays a disproportionate role in economic growth and builds on itself.[6]
- **Actual adoption of AI by organizations**, because broad technology adoption remains an important driver of growth in productivity and living standards.[7]

This benchmarking takes these key dimensions of techno-industrial competitiveness as core "pillars" of AI readiness, though it should be noted that safety, equity, and accountability are equally important. Making sure that AI is developed and adopted responsibly is critical for long-term success.[8]

At the same time, AI adoption at the regional level matters equally for economic development, prosperity, and the flourishing of communities. As such, individual places must pay attention to the local presence of the three AI readiness pillars to ensure their success.

The nation, states, and "big tech" actors also need to consider the broader geography of AI diffusion across the nation. AI, after all, very much reflects the tendency of emerging digital industries to cluster intensely in a short list of large, tech-oriented hubs, as Brookings has described in earlier reports.[9] In that fashion, strong clustering has long been viewed as a powerful "X-factor" for high-tech growth in the U.S., as scholars such as Michael Porter, Edward Glaeser, and Enrico Moretti have argued.[10]

Recent analysis has increasingly surfaced concerns about the nation's concentrated high-tech geography—concerns that could well pertain to the geography of AI adoption. In this fashion, AI epitomizes the kind of uneven build-out economist Nicholas Bloom has tracked among emerging technologies. In 2021, for example, Bloom examined the geographical spread of 29 disruptive technologies and mapped a gradual diffusion of lower-skill jobs away from their original "frontier" hubs, yet also a persistent centralization of the highest-value jobs in those hubs.[11]

These familiar "winner-take-most" patterns of high-tech industries raise important questions about the nature and distribution of AI activities across the U.S. Tracking both local and broader geographical patterns of AI readiness is necessary to assess the health of the industry.

Approach

To map the strengths and geography of the U.S. AI enterprise, this report undertakes to benchmark the variation and intensity of key signals of AI economic development readiness in regions across the nation's major metropolitan areas. Using cross-sectional data collected on various types of AI assets and capabilities at the metropolitan level, the assessment employs a simple grouping method to identify individual metro areas and groups (also referred to as "clusters" in this report) of metro areas' readiness to engage in the AI enterprise.

In this vein, the benchmarking aims to provide local leaders—including government officials, businesses, nonprofit intermediaries, and civic organizations—with important insights for harnessing AI to drive regional growth. A metro-area-level assessment is particularly valuable as it provides intelligence that can inform targeted strategies and

initiatives that address talent and workforce dynamics, innovation needs, and business development at the local level, where they will likely be most effective.

Data

In order to carry out this analysis, metro area data were collected for all U.S. metro areas across three key pillars of regional AI readiness: 1) local AI talent; 2) local AI knowledge creation and infrastructure; and 3) actual local business adoption of AI applications. Together, these categories of data collection reflect the essential elements of a robust AI ecosystem. They capture the availability of the skilled professionals needed to drive AI tech innovation and deployment; the research efforts and hardware that advance the field; and businesses' current engagement and readiness for adoption. Analysis of these interconnected factors yields valuable insights into each region's AI readiness and is useful for identifying strategic opportunities for investment.

As a group, these metrics represent a reasoned selection from among the limited array of available local statistics useful for approximating places' standing on particular capabilities. In most cases, no single measure—such as the number of residents with computer science degrees—captures the full spectrum of relevant capacity, which in this example might also be represented by less available credentials or skills gained through experience.

Along these lines, the sections that follow ask:

Who has AI talent?

An abundant supply of AI-capable professionals (and other types of skilled workers, not all with professional degrees) is essential for driving local innovation and deployment, as skilled talent affects a region's capacity to develop and support technology development and the adoption of AI technologies. Regions with quality education programs that produce numerous computer science graduates are also more likely to attract investment and support emerging AI startups. Additionally, a well-trained workforce has the potential to foster collaboration between academia and industry.

Selected indicators of AI talent include:

- **Computer science bachelor's degree holders.** Census data on the number of computer science, engineering, and mathematics graduates in each region reflect the supply of professionals who can support AI innovation and adoption.
- **Computer science Ph.D. holders.** Census data on the number of computer science, engineering, and mathematics Ph.D. graduates in each region highlight the availability of advanced AI talent to help develop new technologies.

- **AI job profiles.** Statistics from Lightcast that track the volume of U.S. worker online profiles mentioning AI skills indicate the supply of AI talent across different regions.

Who is innovating?

The creation of AI knowledge through research and development (R&D) activity plays an important role in advancing AI locally and nationally. Such activity not only engages critical AI talent, but also enhances a region's ability to generate knowledge and convert it into practical technology. Innovation capacity may also include innovation infrastructure such as computing hardware and programs.

Selected indicators of local AI knowledge creation include:

- **Federal AI R&D contract spending.** Funding data from USAspending.gov captures federal investment in AI R&D, highlighting financial support for innovation.
- **Academic papers at top AI conferences.** Data from AIRankings on AI research papers published at top AI conferences highlight local contributions to advancing the science of AI.
- **AI patents.** Data from the United States Patent and Trademark Office's (USPTO) AI patent dataset suggest how effectively research is being translated into new technologies.
- **High-performance computing (HPC) usage from academic users.** Metrics on HPC usage in academic and research settings through the National Science Foundation's (NSF) ACCESS program reflect the extent to which local researchers are accessing advanced computing resources to accelerate AI research.

Who is actually adopting AI?

Understanding local firms' current adoption of AI in their operations is essential for assessing a region's overall technology engagement, creativity, competitiveness, and potential for productivity gains and growth.

Selected indicators of AI adoption include:

- **AI startups.** Data from Crunchbase on young entrepreneurial companies specializing in creating AI-driven products and services depict local business dynamism and the conditions for launching AI initiatives in the region.
- **Funding for AI startups.** Data from PitchBook on venture capital (VC) funding raised by AI startups measure the capital available for entrepreneurial adoption efforts.
- **Enterprise tech adoption.** Data from the NSF Annual Business Survey measuring the adoption of AI technologies show how easily companies are integrating AI.

- **Enterprise data readiness.** Data from the NSF Annual Business Survey measure the digitization of core activities necessary for AI integration.
- **Enterprise cloud readiness.** Data from the NSF Annual Business Survey measure the cloud readiness necessary for AI integration.
- **AI job postings.** Data from Lightcast measuring job postings requiring AI skills highlight the demand for talent and indicate a region's readiness to embrace AI technologies.
- **Occupational exposure to AI.** Data from OpenAI on the share of an occupation's tasks that could soon be exposed to ChatGPT-4 speak to the general involvement of a region in AI adoption.

Table 1. Metro-area-level indicators and their sources

Category	Data	Source	Description
Who has AI talent?	Number of computer science bachelor's degrees	U.S. Census Bureau: American Community Survey (ACS), 2023	Bachelor's degree in science and engineering, computers, mathematics and statistics, or related fields
	Number of computer science Ph.D. degrees	NSF: Higher Education Research and Development (HERD) Survey, 2023	Part-time and full-time post-doctorate researchers in computer and information science, mathematics and statistics, and engineering fields
	Job profiles with AI skills	Lightcast, 2024	Online profiles of workers with AI skills that started jobs in 2024
Who is driving AI innovation?	Federal AI R&D contract spending	USAspending.gov, 2024	Federal AI R&D contract spending
	Publications presented at top AI conferences	AIRankings, 2024	AI academic publications
	AI patents	USPTO, 2023	AI patents
	High-performance computing (HPC)	NSF ACCESS, 2024	HPC usage

	usage from academic users		
Who is ready to adopt AI?	AI startups	Crunchbase, 2014 to 2024	AI startups
	VC funding for AI startups	PitchBook, 2023 to 2024	Funding deals done by AI startups
	Enterprise data readiness	U.S. Census Bureau and NSF Annual Business Survey, 2021	Firms with business activity primarily in digital format per 100 firms
	Enterprise cloud readiness	U.S. Census Bureau and NSF Annual Business Survey, 2021	Firms with business activity primarily in cloud format per 100 firms
	Enterprise AI adoption	U.S. Census Bureau and NSF Annual Business Survey, 2022	Firms using AI per 100 firms
	AI job postings	Lightcast, 2024	Online job postings with AI skills
	Local occupational exposure to AI	OpenAI, 2022	Share of jobs exposed to generative AI

Grouping method

To evaluate and group U.S. metropolitan areas based on their relative strength in AI-related capabilities, this report develops a simple classification approach. For 387 metro areas, we measure AI capacity across the three highlighted pillars (local talent, innovation, and business adoption), and scale them from 0 to 1 using max-min normalization. We then rank 195 metro areas with populations greater than 250,000 in each pillar. Those in the top 25% on a pillar earn a "T" (for "top") for that pillar. Those in the middle 50% garner an "M" (for "middle" performance). And those in the lowest 25% earn a "B" (for "bottom"). In this way, we create group profiles (e.g., "TMB") that reflect a place's strengths and weaknesses.

The three-letter combinations are then used to identify six groups of metro areas. This taxonomy allows for the creation of metro area and group profiles that can help

policymakers and investors pinpoint where to direct training, funding, or support to boost AI readiness.

Table 2. 'TMB' taxonomy of metropolitan areas

Group	Definitions
Superstars*	San Francisco and San Jose (all three Ts)
Star Hubs	Strength across all pillars (all three Ts)
Emerging Centers	Strength across at least two pillars (at least two Ts)
Focused Movers	Focused strength in one pillar (at least one T)
Nascent Adopters	Medium strength in at least two pillars (at least two Ms and no T)
Others	Low strength in at least two pillars (at least two Bs and no T)

**San Francisco and San Jose are placed in a separate group to reflect their high performance across all three of our classifying pillars. This decision also ensures comparability with the Brookings Institution's "Geography of AI" report, which also treated the Bay Area as an outlier due to its outsized lead.*

Data and a detailed methodology are available in Appendix A.

Findings

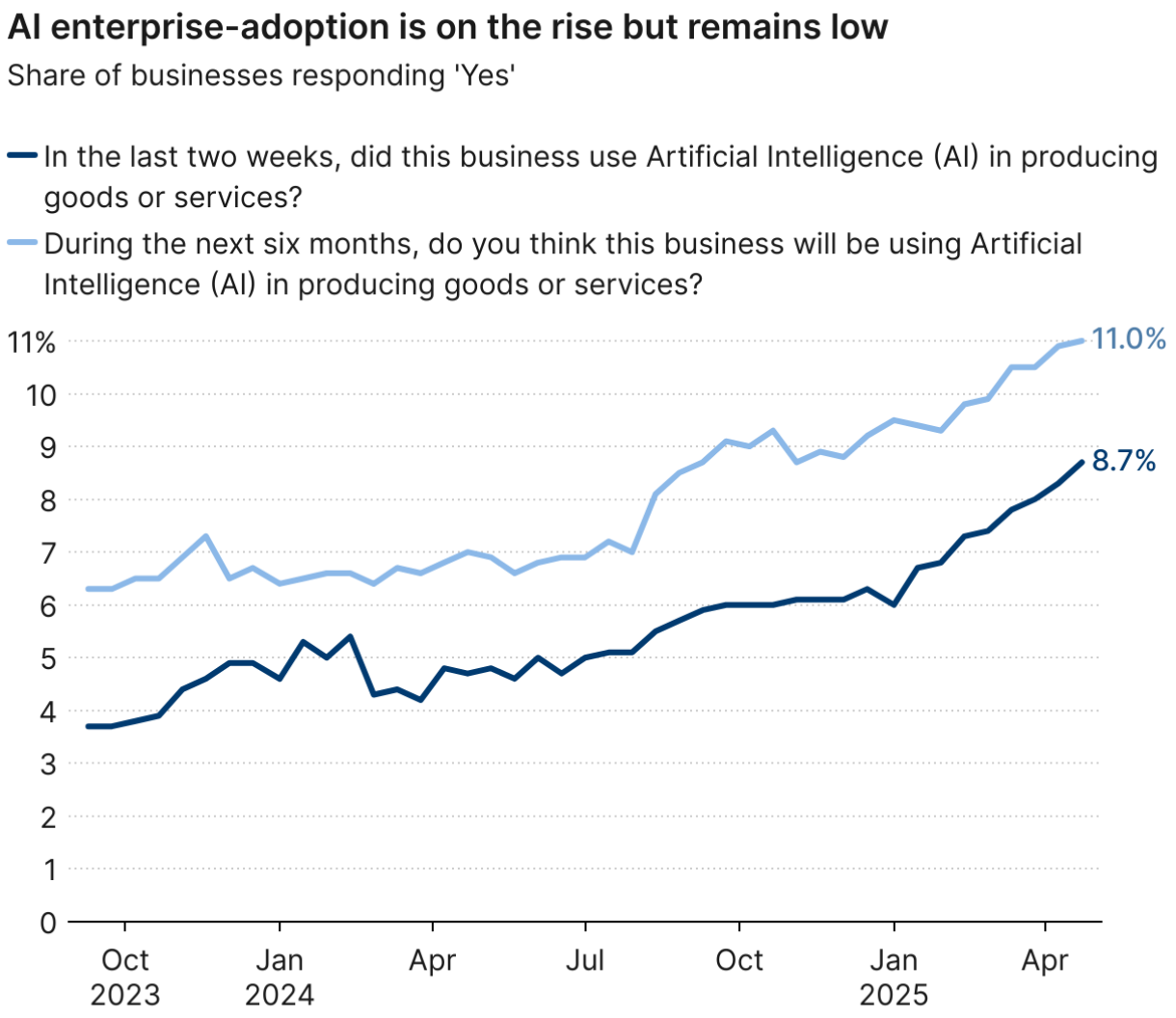
Analysis of the 14 measures of AI economic activity across the U.S. yields several broad findings about the industry, its characteristics, and its geography. The following sections detail three core findings.

Finding #1: In aggregate, the nation's AI enterprise is growing rapidly, though it remains modest in size

Aggregate statistics that broadly examine the nation's AI enterprise provide a gauge of the sector's growth and current size.

One of the clearest indicators of AI's expanding footprint in the U.S. economy is the rising share of businesses reporting current or anticipated use of AI technologies. According to the U.S. Census Bureau's Business Trends and Outlook Survey (BTOS), the share of businesses currently using AI in the production of goods or services rose from around 4% in early 2023 to 8.7% by mid-2025. Expectations for near-term AI use are higher: As of the latest survey, 11% of firms reported that they plan to adopt AI within the next six months (see Figure 1). These trends point to steady growth in enterprise-level AI integration.

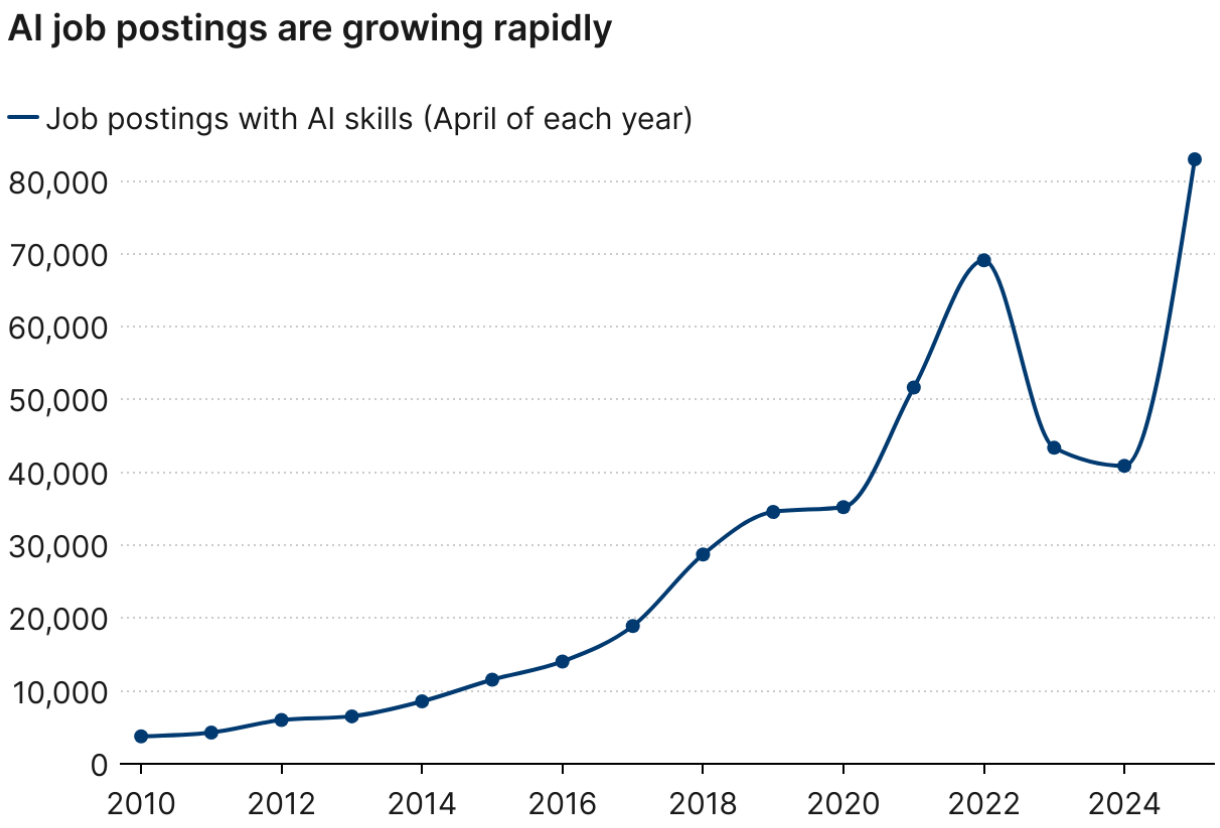
Figure 1.



Source: Brookings' analysis of U.S. Census Bureau Business Trends and Outlook Survey

Job postings that name AI skills serve as another signal of AI adoption, even if they do not directly equate to employment levels. In any event, Lightcast data report that AI-specific job postings have been growing rapidly in absolute numbers and as a share of all postings across the economy. In absolute terms, AI-specific job postings increased from 3,780 unique instances in April 2010 to around 82,980 in 2025, despite declines in 2023 after several rounds of layoffs from tech giants (see Figure 2). That increase amounted to 28.5% average annualized growth for AI job postings over the 2010-to-2025 period, which outstripped the 11.1% average annualized growth of postings in the general economy and the 13.3% annualized growth of those in the IT sector.

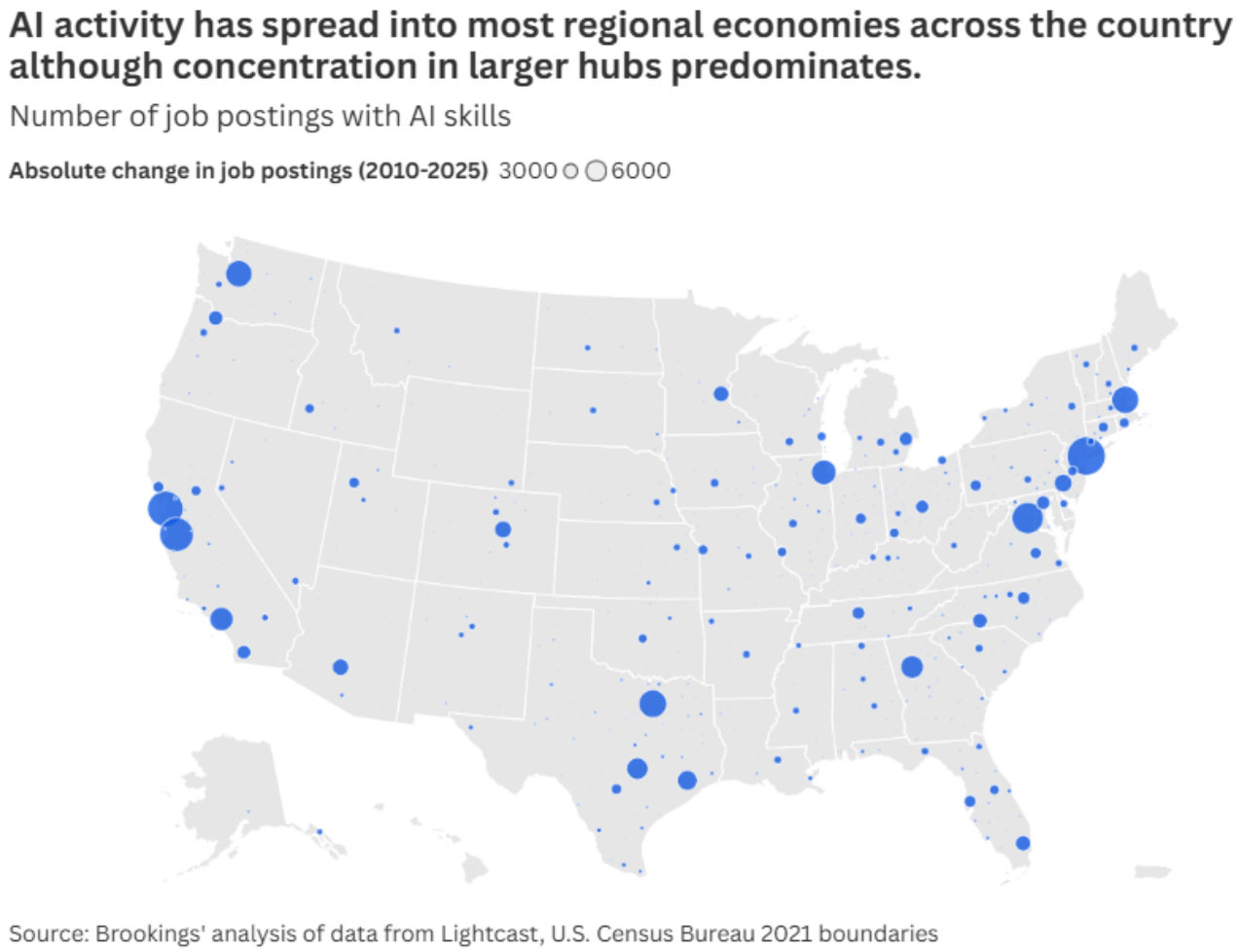
Figure 2.



Source: Brookings' analysis of Lightcast data

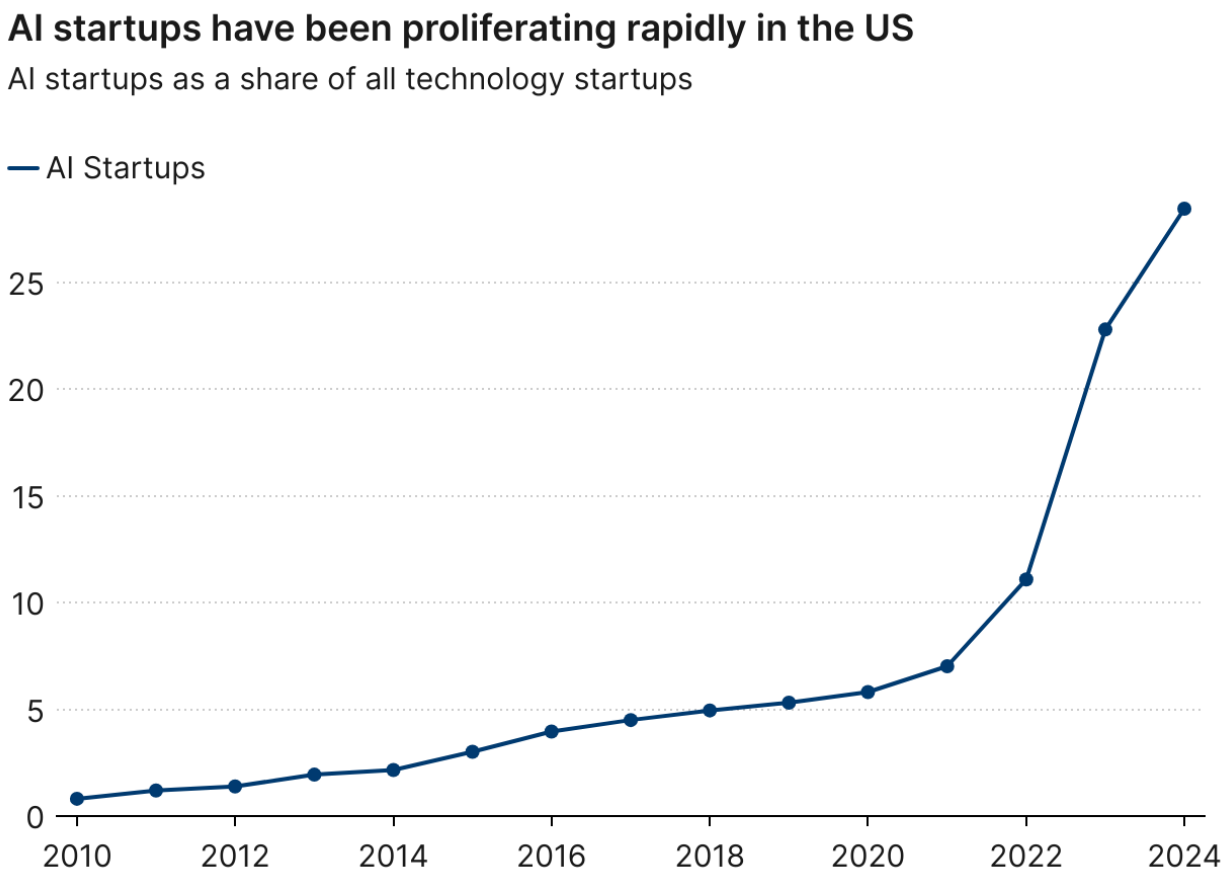
Along with greater AI-specific job activity has come greater diffusion of that activity across the country. As represented by job postings, AI employment activity has diffused quite extensively across most of the nation, albeit often in relatively sparse local numbers. Figure 3 shows that this process has now brought AI activity to most areas of the country in the last decade.

Figure 3.



At the same time, AI startups—another measure of the industry's growth—have also been proliferating. According to data from Crunchbase, a platform that tracks technology-based startups, the annual number of AI startups founded in the U.S. increased from 311 in 2010 to 1,348 in 2024, surging their share of all tech startups from around 1% to 28% (see Figure 4).

Figure 4.



Source: Brookings analysis of data from Crunchbase

In short, AI job postings and startup activity each underscore the strong growth of AI activity in both the last decade and recent years.

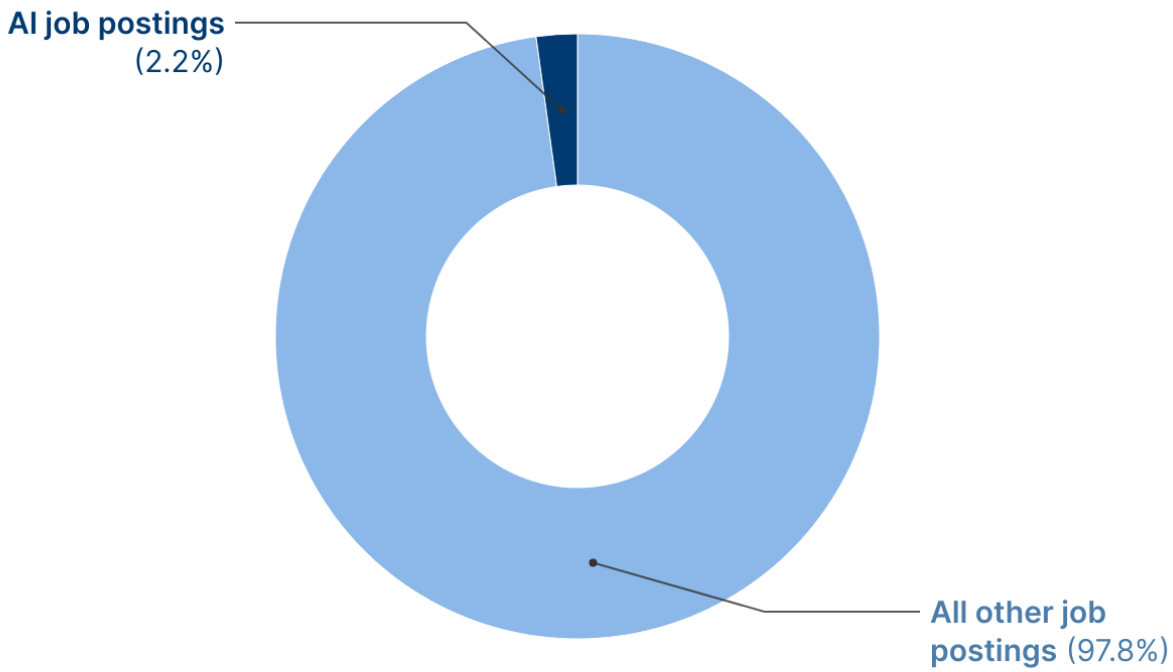
Yet despite the AI industry's growth, its overall size in the U.S. remains hard to quantify and still modest. This is largely due to AI's broad diffusion into various sectors, which makes it challenging to isolate its economic impact. Nevertheless, multiple indicators from our analysis point to a relatively modest size for the nation's AI industry, despite the excitement that enveloped generative AI in late 2022.

In this regard, AI job postings in aggregate—again, an imperfect proxy for employment levels—represent only a tiny fraction of the U.S. labor market. In mid-2025, the 287,000 job postings with AI skills accounted for merely 2.2% of all U.S. job postings (see Figure 5).

Figure 5.

The share of AI job postings still remains small

Share of job postings with AI skills as a percentage of all job postings, 2025



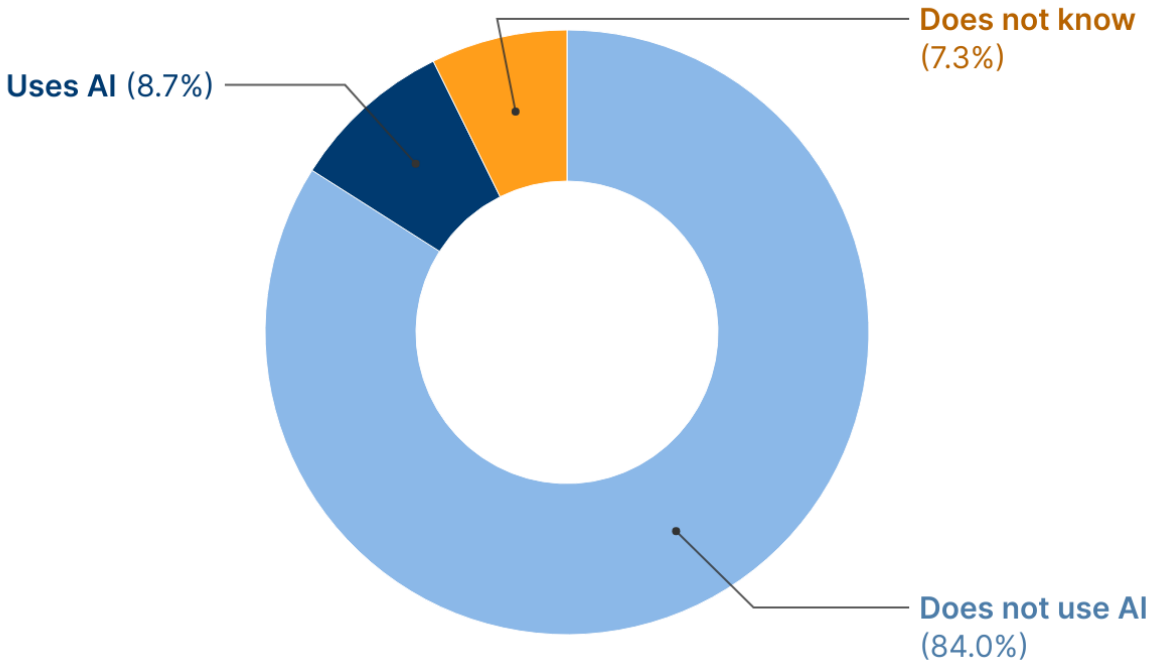
Source: Brookings analysis of data from Lightcast data

Other signals come from the U.S. Census Bureau's business surveys. Data from the Annual Business Survey (ABS), for example, show that only about 5% of U.S. firms were using at least a little AI in their operations in 2021.[12] And only 1% of firms reported investing in AI production through R&D or other spending. Data from the Bureau's 2025 BTOS also show that the overall adoption rate remains relatively modest across the economy, with only 8.7% of businesses using AI for producing goods and services (see Figure 6).

Figure 6.

AI still accounts for a small share of US Industry

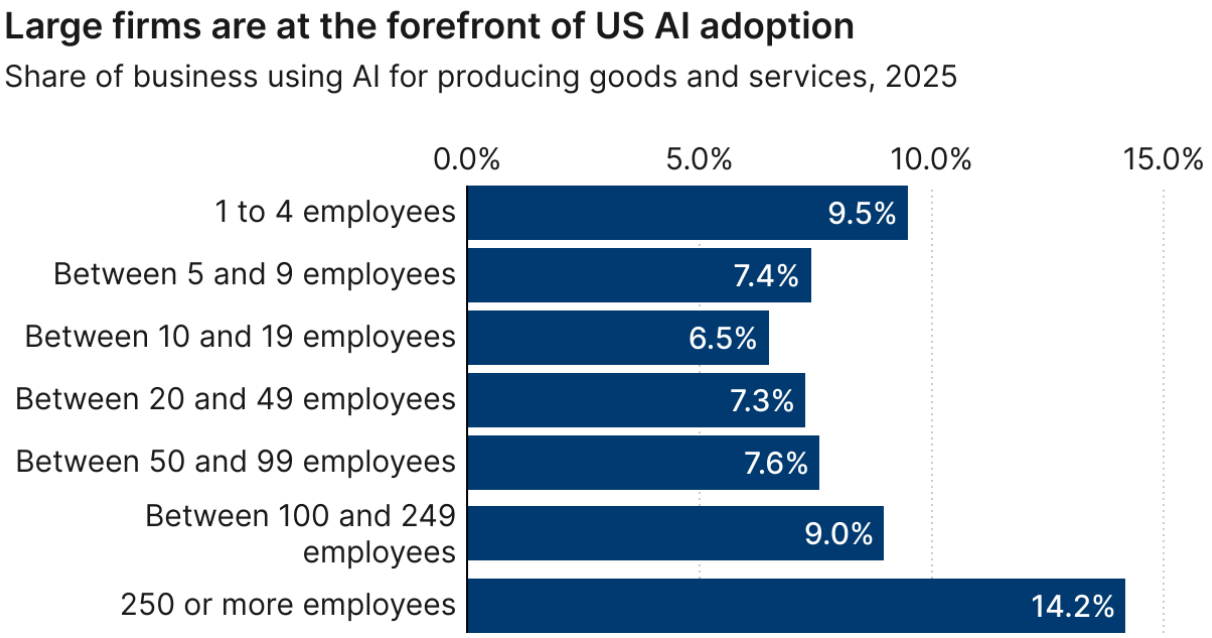
Business reporting use of Artificial Intelligence (AI) in producing goods or services, 2025



Source: Brookings analysis of US Census Bureau Business Trends and Outlook Survey (BTOS)

As to what sorts of firms are using AI, it varies by size and sector. Large firms report the highest rate of AI use in producing goods and services, with a use rate of 14.2% according to 2025 BTOS data. This far outpaces adoption rates among smaller firms, where usage falls to just 6.5% for businesses employing between 10 and 19 workers. Interestingly, the smallest firms (one to four employees) report relatively higher AI use (9.5%) than many midsized businesses, suggesting that niche or highly digital small businesses may also be early adopters (see Figure 7).

Figure 7.



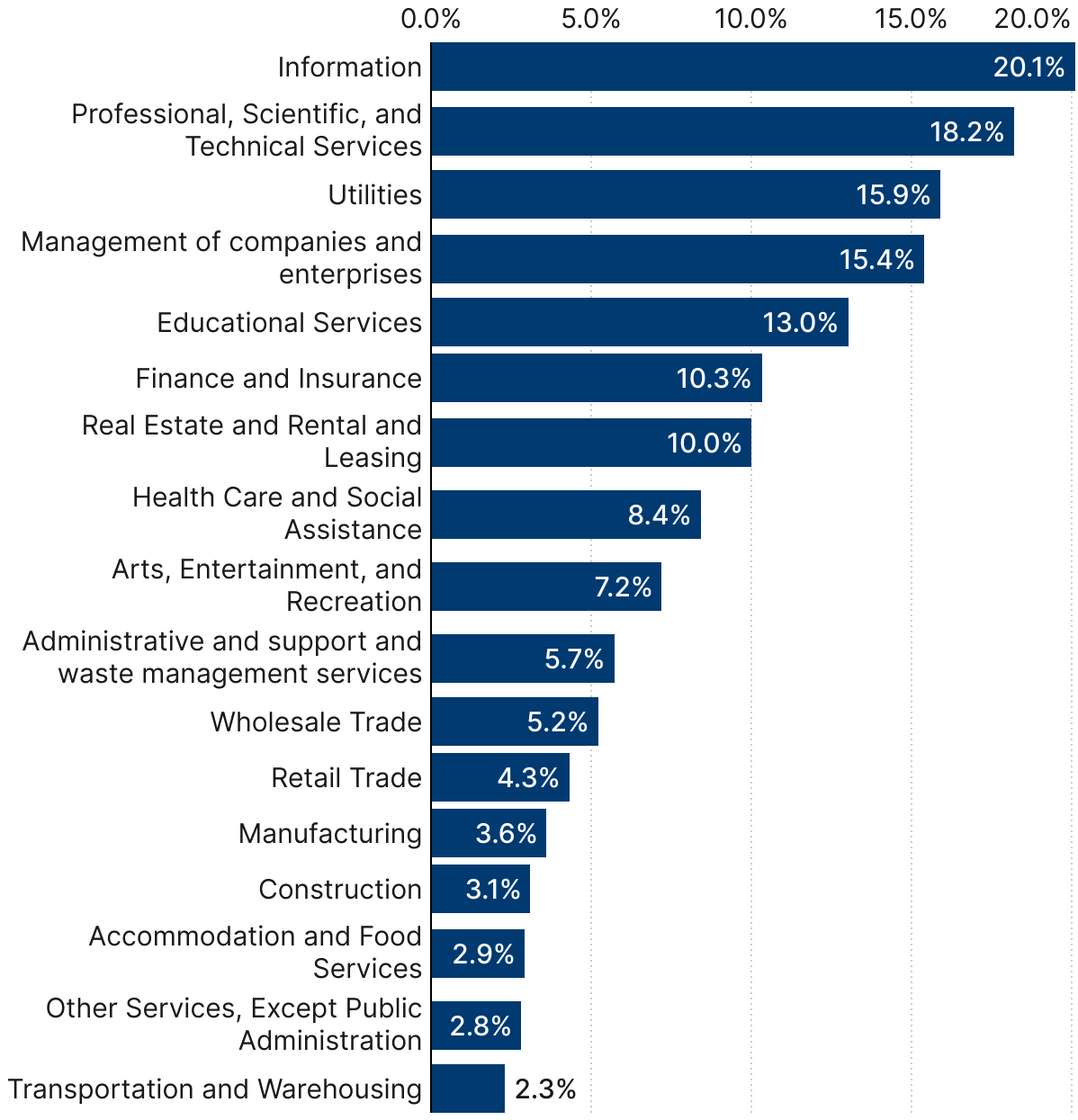
Source: Brookings' analysis of US Census Bureau Business Trends and Outlook Survey (BTOS)

AI adoption also varies by industry. As of 2025, firms in the information sector were the most likely to use AI in the production of goods and services, with 20.1% reporting active use. This is followed closely by the professional, scientific, and technical services sector (18.2%) and utilities (15.9%). In contrast, sectors such as transportation and warehousing (2.3%), accommodation and food services (2.9%), and construction (3.1%) trail well behind, reflecting structural differences across the economy. These disparities highlight how AI is currently concentrated in more data-intensive, digital-forward industries, while other sectors may face steeper barriers to integration (see Figure 8).

Figure 8.

Information industries are leading AI enterprise-use

Share businesses using AI for producing goods or services in the last two weeks, February 2025



Source: Brookings' analysis of US Census Bureau Business Trends and Outlook Survey (BTOS)

Overall, the AI sector's rapid growth justifies excitement in the economic development world, although its adoption is still in its nascent stages.

Finding #2: The nation's main AI enterprise is concentrated in a limited number of metro areas, but numerous other regions are home to meaningful AI activity

AI readiness is highly uneven and variable in its geographic distribution. In this regard, our cluster analysis of local values for 14 measures of AI talent, innovation, and adoption identified six types of AI presence across the nation's metropolitan regions.

Continuing the pattern of the earlier Brookings report,[1] the major AI community types our cluster analysis revealed are:

- **Superstars:** The San Francisco and San Jose, Calif., metropolitan areas exhibit unmatched strength across all three AI pillars (talent, innovation, and adoption).
- **Star Hubs:** This group of 28 metro areas forms a second echelon of uniformly strong AI ecosystems, balancing top-tier talent, research, and enterprise uptake.
- **Emerging Centers:** This group of 14 metro areas combines top performance in two pillars with one developing area.
- **Focused Movers:** This group of 29 metro areas excels in exactly one AI pillar while maintaining foundations in the other two.
- **Nascent Adopters:** This group of 79 metro areas shows moderate performance across all three pillars.
- **Others:** This group of 43 metro areas currently lags on multiple pillars.

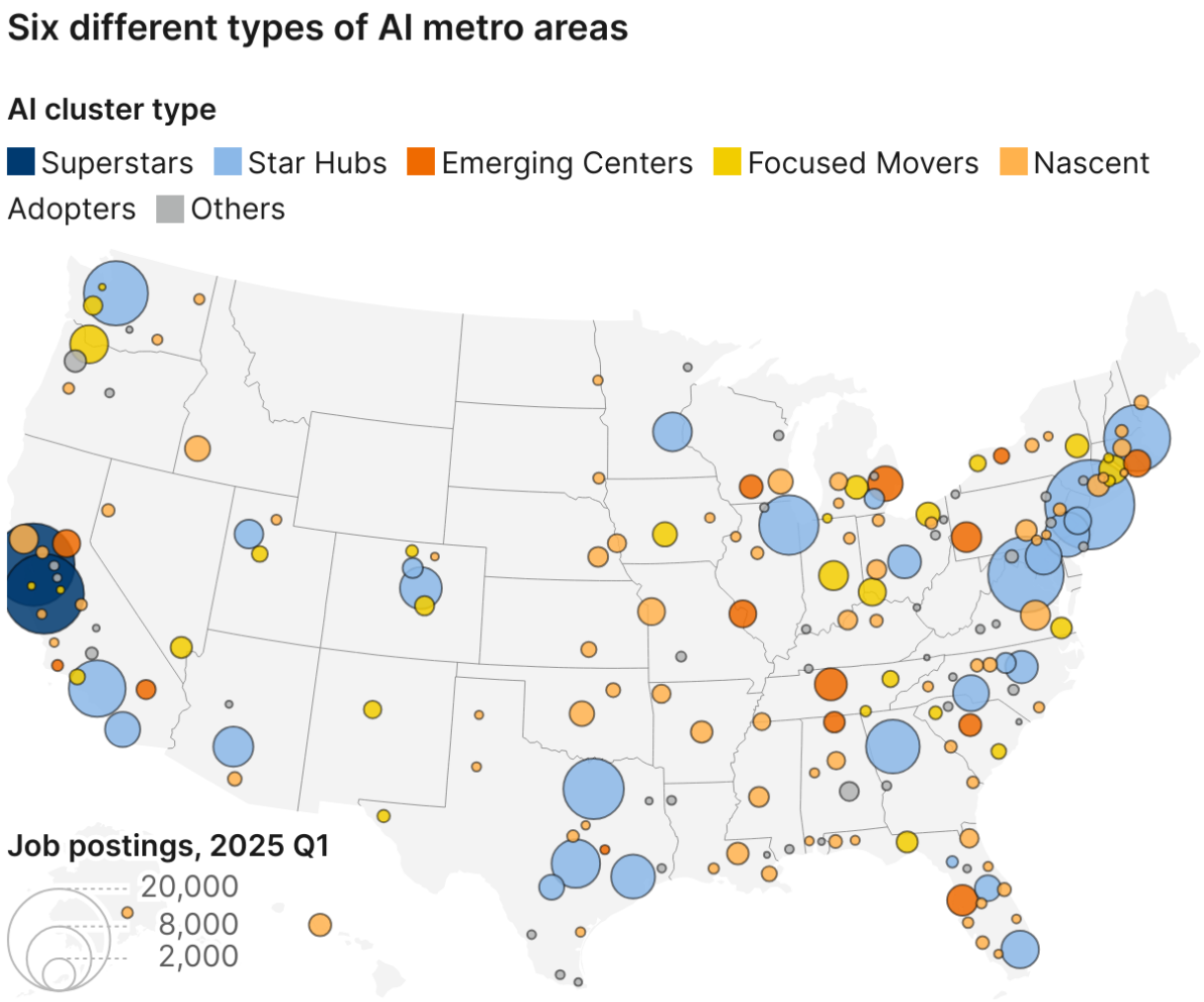
In addition, the analysis also touches on 192 of the nation's smaller metro areas.

Along these lines, the present analysis shows that the nation's AI sector remains concentrated in the nation's familiar coastal tech hubs, but is beginning to spread across the country with varying degrees and types of local clustering.

As Figure 9 shows, the six cluster types delineated here account for disparate chunks of the AI economy, with wide scattering across Eastern, Midwest, and Sun Belt states.

Looking more closely, the Superstars, Star Hubs, and Emerging Centers anchor the U.S. AI economy, with massive concentrations on the West Coast, along the Northeast Corridor, and in the major business hubs of the Sun Belt.

Figure 9.



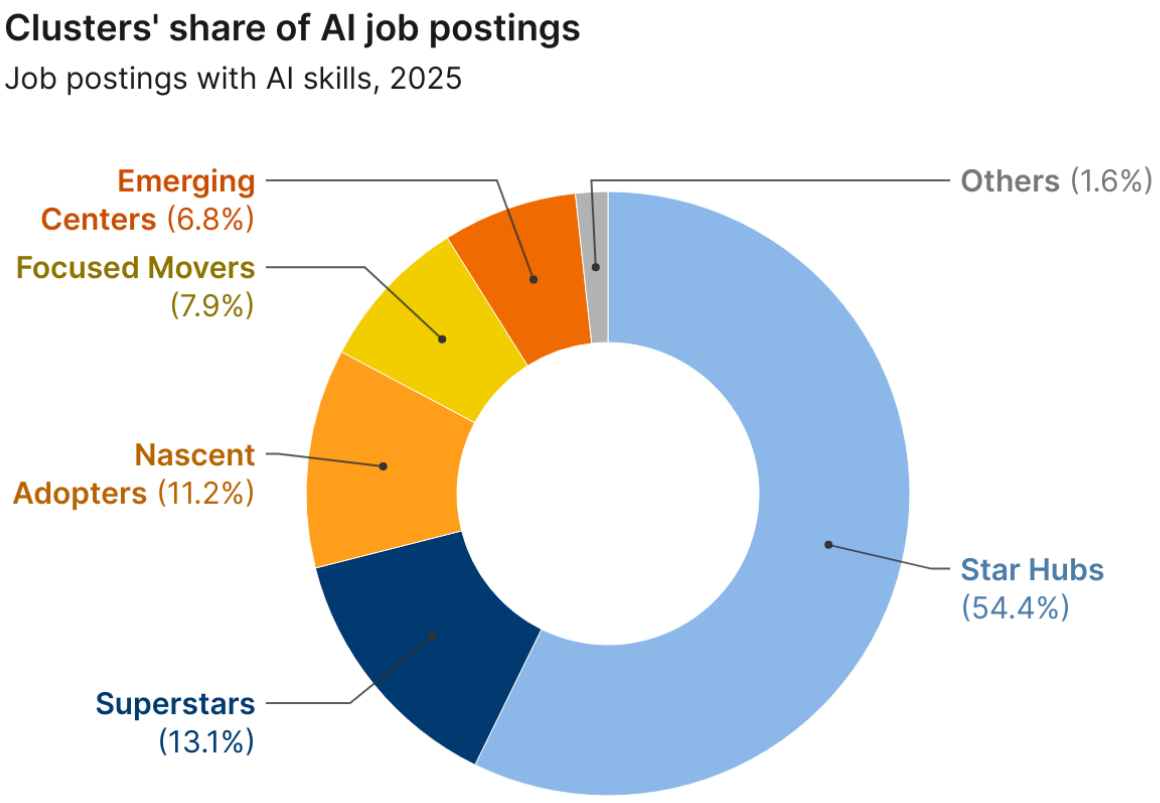
Source: Brookings' analysis of job posting data from Lightcast.

Plotting the variation of AI clusters by their absolute and per capita AI employment shares (as signaled by job postings) shows the extent to which AI remains a "winner-take-most" economy, with AI activity far more concentrated in the two Bay Area Superstars than in other regional economies.

In terms of their absolute AI employment size, the two Superstar locations encompassed 13% of the nation's entire AI activity, as indicated by AI-related job postings in 2025, with another 54% of activity occurring within the 28 Star Hubs.

Beyond that, 7%, 8%, 11%, and 2% of AI job posting activity took place in Emerging Centers, Focused Movers, Nascent Adopters, and Others, respectively.

Figure 10.



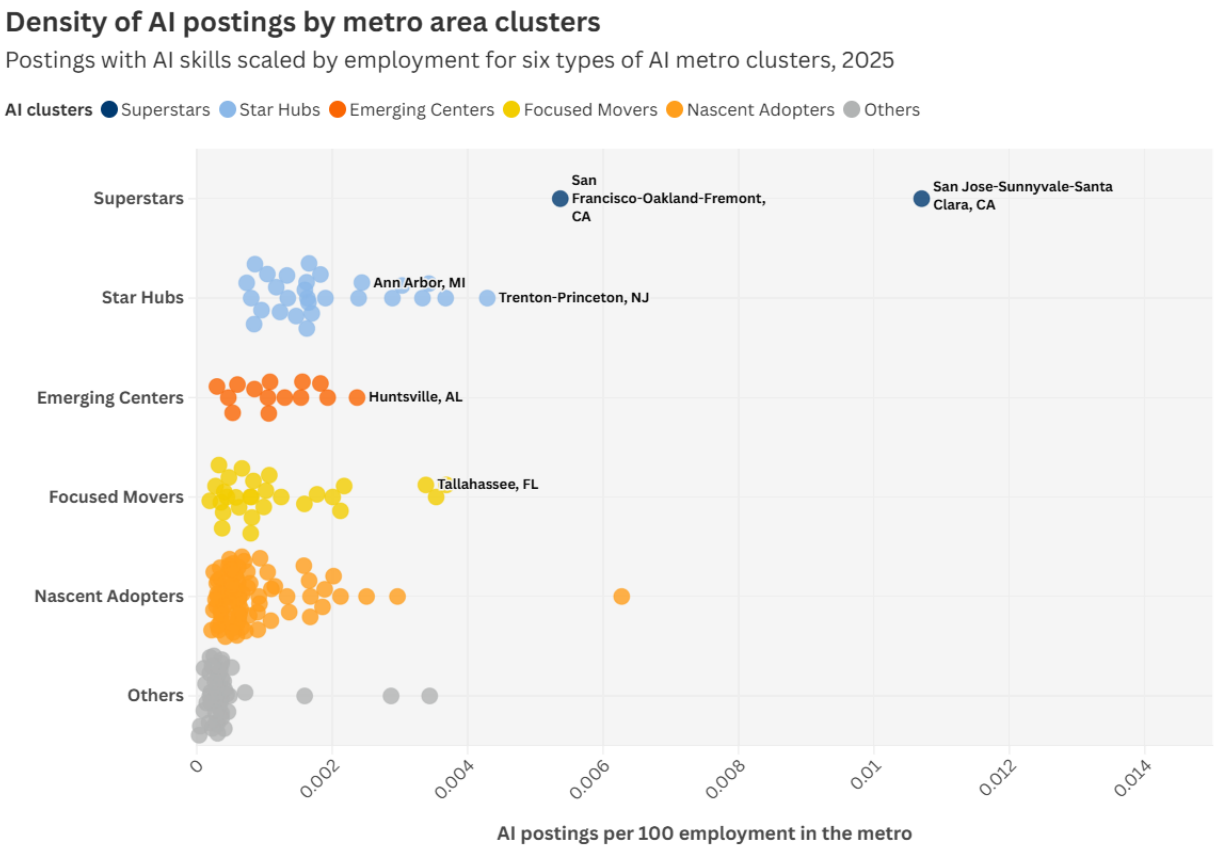
Source: Brookings' analysis of data from Lightcast

Note: Small metros take up 4.9% of the postings and are not displayed here.

Altogether, then, 67% of the nation's total AI employment —about two-thirds of it as indicated by absolute numbers of AI-related job postings in 2025—is taking place in just the two Superstars and 28 Star Hubs. However, this concentration has diminished slightly in the last decade, with the share of job postings in those two clusters falling by 1% and 2%, respectively, since 2018.

Turning to the cluster types' AI employment density, the two Bay Area Superstars remain far ahead of other metro areas, as Figure 11 shows. For their part, the Star Hubs are also setting themselves apart (to a lesser extent) with greater densities of AI employment than the other clusters, which tend to exhibit relatively similar, but lesser, densities of job posting activity.

Figure 11.



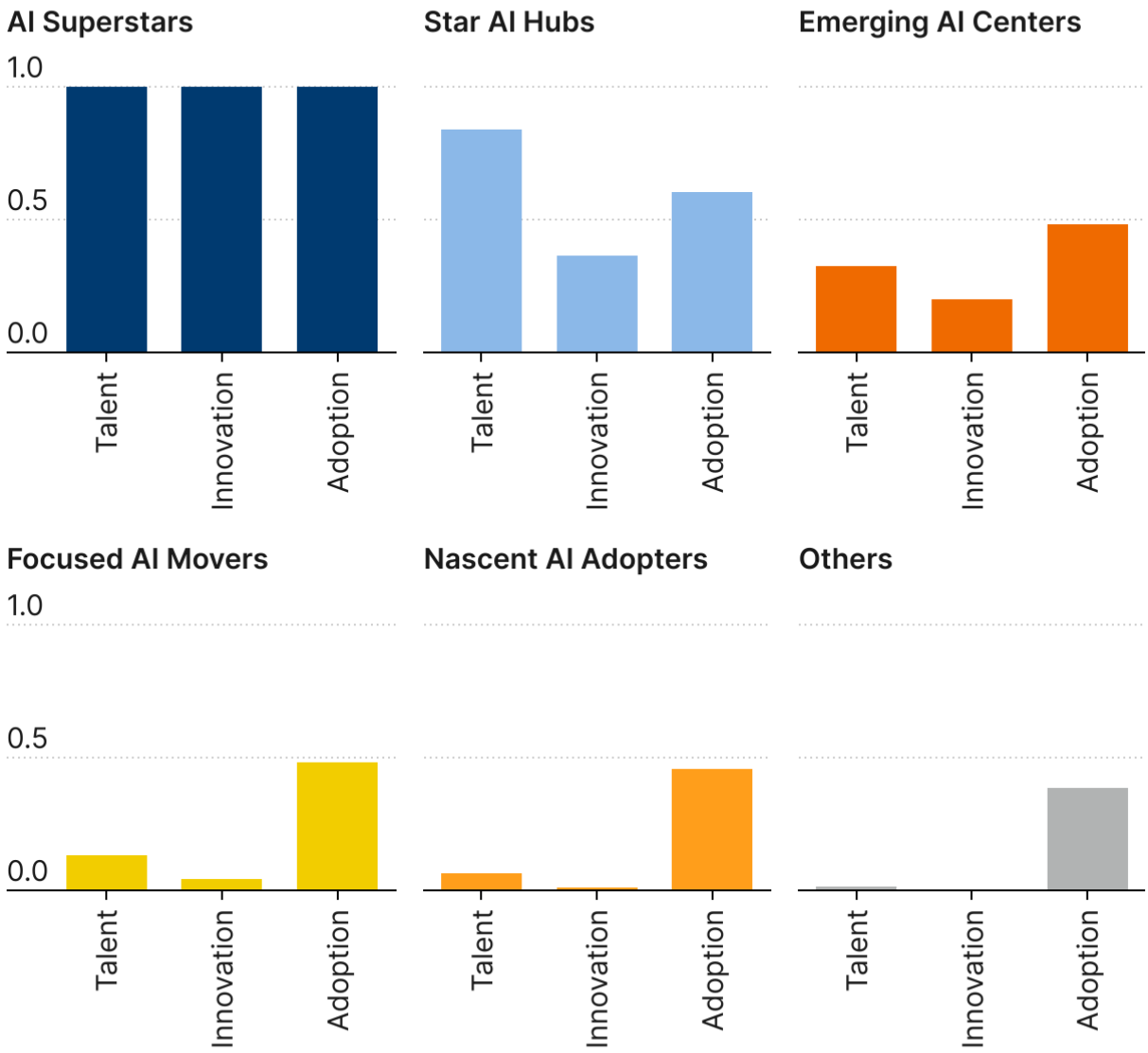
Source: Brookings' analysis of job posting data from Lightcast

A look at the clusters' overall endowments of AI success factors reveals additional variation. The six cluster types are characterized by varied presences of the basic AI factor types. In this regard, the two Superstar metro areas—reflective of their broad and dominant strength across the success pillars—have established a formidable success format with their all-around talent, innovation, and adoption strengths. Likewise, the Star Hubs group displays its own strong, but less dominant, balance across the three main pillars, with slightly reduced innovation resources accompanying strong talent and adoption progress. For their part, the rest of the cluster groups display varying factor configurations that all tend to reflect modest talent availability, thinner innovation resources, and somewhat stronger adoption activity.

Figure 12.

Group strength by the three pillars of AI readiness

Average performance of U.S. metros across Talent, Innovation, and Adoption pillars



Note: Each pillar's value is calculated by scaling individual measures, averaging them, and then normalizing so that the top pillar is set to one.

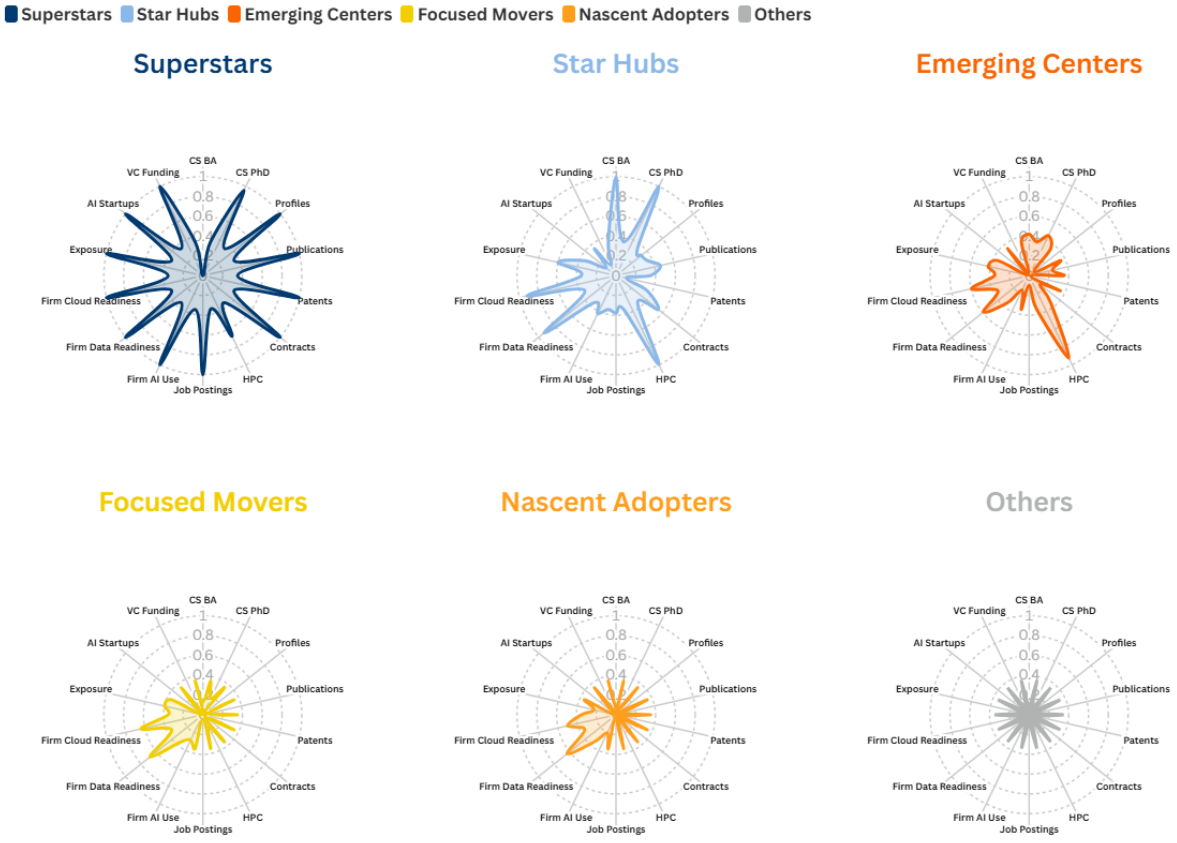
Zooming in on the distribution of individual success factors across the cluster types reveals the varied presence of the 14 metrics across the six community types. Again, the Superstars stand out for their dominant strengths in talent, innovation, and adoption metrics, although in some cases the Star Hubs rival those scores. By contrast, the Nascent Adopters tend to lag on talent and innovation metrics but exhibit notable adoption activity.

Figure 13 diagrams these activity mixes and further underscores the varied structures of the nation's AI clusters, which typify the uneven regional underpinnings of the nation's AI enterprise.

Figure 13.

Cluster configurations for the six groups

Normalized AI capacity levels, benchmarked to the top-performing metro area group; values range from zero (worst) to one (best)



Source: Brookings' analysis of data from US Census Bureau, Pitchbook, Crunchbase, Lightcast, NSF, Open AI, STAR Metrics, USPTO, AI Rankings

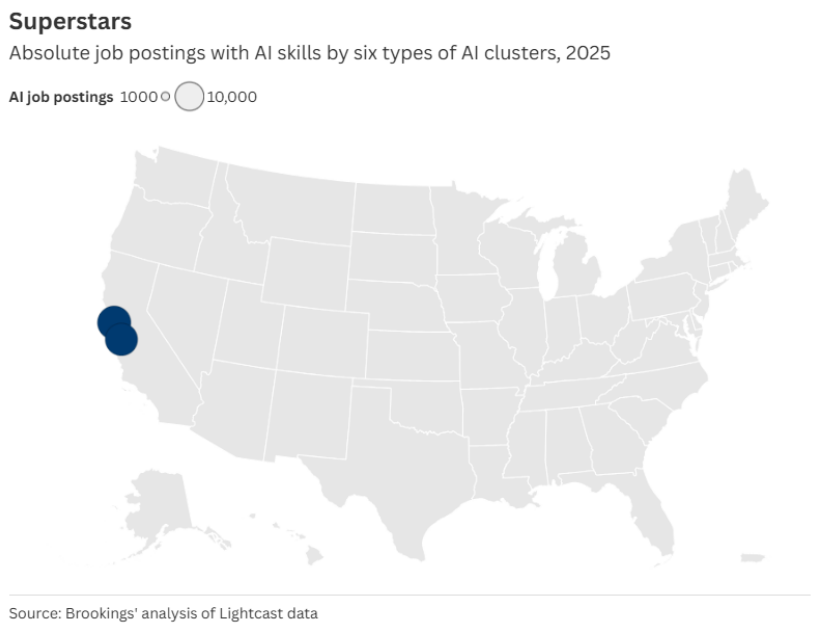
Finding #3: Current and emerging regional AI performance is informed by varied local mixes of success factors

Probing the nature of the six cluster types yields further insights about the shape and nature of the nation's AI sector and its topline performance and readiness for growth.

Superstars

America's two AI Superstar metro areas—**San Francisco** and **San Jose, Calif.**, in the Bay Area—stand out as the dominant hubs of the nation's AI sector. Anchoring the AI map, these two metro areas remain in a class of their own given their growth, size, and depth of talent, knowledge, and adoption activities.

In terms of growth, the two metro areas have seen their combined AI job postings rise since 2018, with San Francisco rising by 145% (from 5,300 postings in April 2018 to 13,000 in April 2025); and San Jose rising by 110% (from 5,800 to 12,200). These metro areas are also preeminent AI hubs in terms of size: Together, the two accounted for about 2.7% of all metro area employment in Q1 2025, but 13% of all job postings with AI skills. Since 2010, their annual share of AI job postings has remained around 11%, entrenching them as America's AI leaders. Top AI-focused private firms such as OpenAI, Anthropic, and Databricks in San Francisco and Google, Nvidia, and Apple in San Jose reinforce the region's dominance.



Underlying the Bay Area cluster's dominant topline outcomes, meanwhile, are the unrivaled depth and breadth of its AI readiness assets: 14% of online profiles with AI skills congregate in the two superstar metro areas.

As to innovation activities, the two metro areas represent a smaller share of the nation's overall work, but still house major expertise. While the cluster collects 8% of federal AI R&D contract spending, it generates 9% of AI publications and 34% of AI patents. AI research is anchored by top universities such as Stanford University and the University of

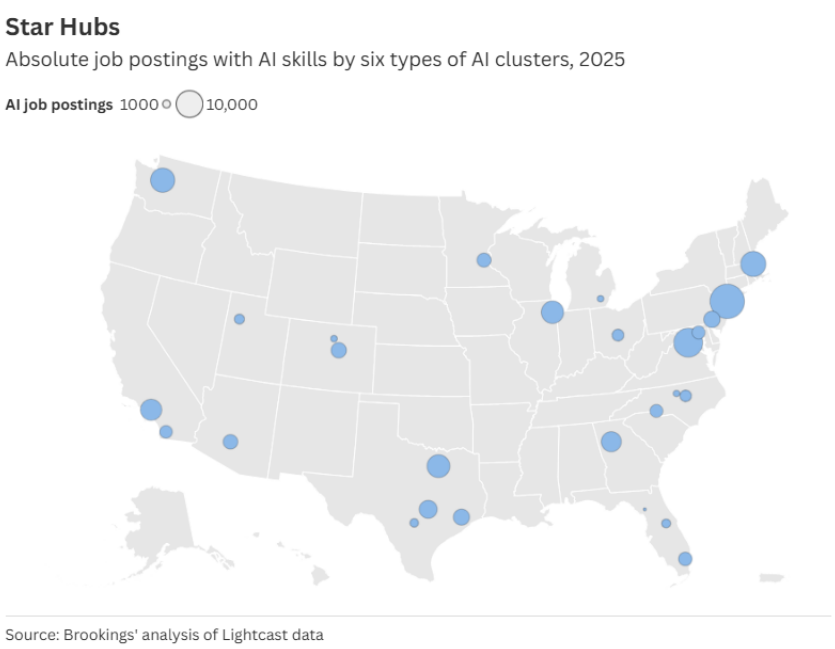
California, Berkeley, as well as major research centers and companies such as Google, Nvidia, and Apple.

Finally, the two metro areas stand as by far the most commanding AI adoption hubs. Fully 31% of private AI startups founded after 2014 operate in these two metro areas. For that matter, nearly one-third (32%) of the total seed and early-stage VC funding for AI startups invested in our 387 metro areas over the past two years flowed to companies in the two metro areas. The largest deal of 2024—worth $10 billion—was raised by the San Francisco-based startup Databricks.

Star Hubs

The Star Hubs group consists of 28 metro areas that balance top-tier talent, research, and enterprise uptake. These metro areas are bridging the gap between the established Superstars and the rest of the country. Together, in 2025, they constituted 46% of the nation's metro area employment but 54% of all AI job postings across the analyzed metro areas, growing by 139% in aggregate between 2018 and 2025. Their presence and potential are significant.

Established tech employment leaders such as **Seattle**, **New York**, and **Boulder, Colo.**, all saw solid AI job posting gains. Meanwhile, metro areas such as **Austin**, **Houston**, and **San Antoinio** in Texas and **Miami** and **Gainesville** in Florida saw even higher gains—over 250%—from 2018 to 2025.



Many metro areas in this cluster are home to leading tech-oriented universities or institutes that act as key drivers of AI research—for example, the University of Michigan in **Ann Arbor**, the University of Florida in **Gainesville**, and Duke University and the University of North Carolina in **Durham-Chapel Hill**. However, AI activity is not limited to these university-driven regions. Places such as **Boston**; **New York**; **Dallas**; **Seattle**; **Washington, D.C.**; **Austin, Texas**; **Boulder, Colo.**; **Trenton, N.J.**; **Raleigh, N.C.**; **Baltimore**; **San Diego**; **Chicago**;

Minneapolis; **Los Angeles**; and **Salt Lake City** combine academic strength with startup cultures and strong innovation and tech-adoption ecosystems.

Driving the Star Hubs' vibrancy are formidable growth factors in all three pillars. About 50% of the nation's AI talent, as measured by bachelor's and Ph.D. degrees, is present in this cluster, underscoring the academic "fuel" driving innovation in these places.

In terms of innovation, these places are responsible for an impressive 64% of all AI-related contracts awarded nationally to businesses (demonstrating leadership in securing funding) and 46% of HPC usage (a testament to their critical expertise in testing and developing AI applications). In addition, this cluster generates 51% of the nation's filed AI patents and 56% of its AI publications, with University of California San Diego, University of Texas at Austin, University of Washington, and University of Michigan contributing significantly to the number of publications at top AI venues in core AI areas.

Finally, AI adoption is high in these places, with firm-level data and cloud readiness metrics surpassing national numbers. The generative AI exposure level for this cluster (36%) is 4% above the national exposure level. Finally, venture capital also recognizes the potential of these metro areas, with 53% of funding deals flowing into this group.

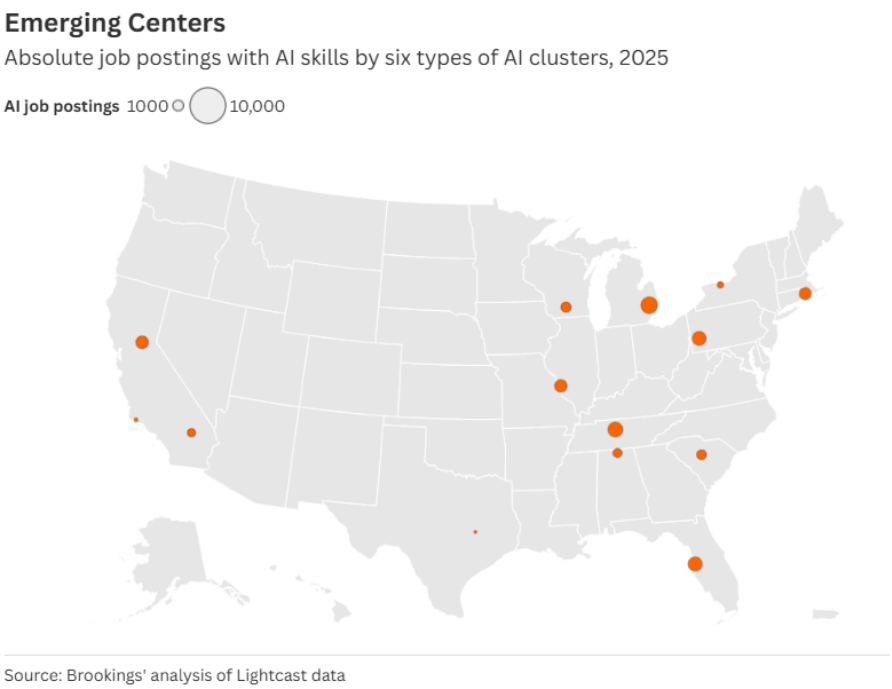
Emerging Centers

The Emerging Centers cluster includes 14 metro areas that are carving out a significant role in the AI landscape. This group combines top performance in two pillars with one still developing. Together, in 2025, these places accounted for 9% of the nation's metro area employment and 8% of all metro area AI job postings across the analyzed metro areas. Overall, they saw 88% growth in their AI job postings between 2018 and 2025.

Leading this group are the four large business centers of **Detroit**; **Nashville, Tenn.**; **Tampa, Fla.**; **and Pittsburgh**, each logging big shares of AI job postings. Together, these four regions account for more than 50% of the group's total postings. Another tier of solidly growing AI cities—**St. Louis, Mo.**; **Providence, R.I.**; **Madison, Wis.**; and **Sacramento, Calif.**—add thousands more AI roles. Some of these places are breakout spots: **Nashville**, **Providence**, and **College Station, Texas** have more than doubled or tripled their AI job postings since 2018.

Within this broader club, at least three patterns of AI readiness drive the group's overall strong positioning.

Ten metro areas form a "talent and innovation cohort": **College Station**; **Madison**; **Pittsburgh**; **Santa Maria, Calif.**; **Rochester, N.Y.**; **Detroit**; **Sacramento**; **St. Louis**; **Riverside, Calif.**; and **Providence**. These places rank in the nation's top echelon for their abundant talent and innovation resources. Another two metro areas—**Tampa** and **Nashville**—fall into a "talent and adoption" cohort. The group's last two metro areas—**Huntsville, Ala.**, and **Columbia, S.C.**—link innovation strengths with varied adoption activities.



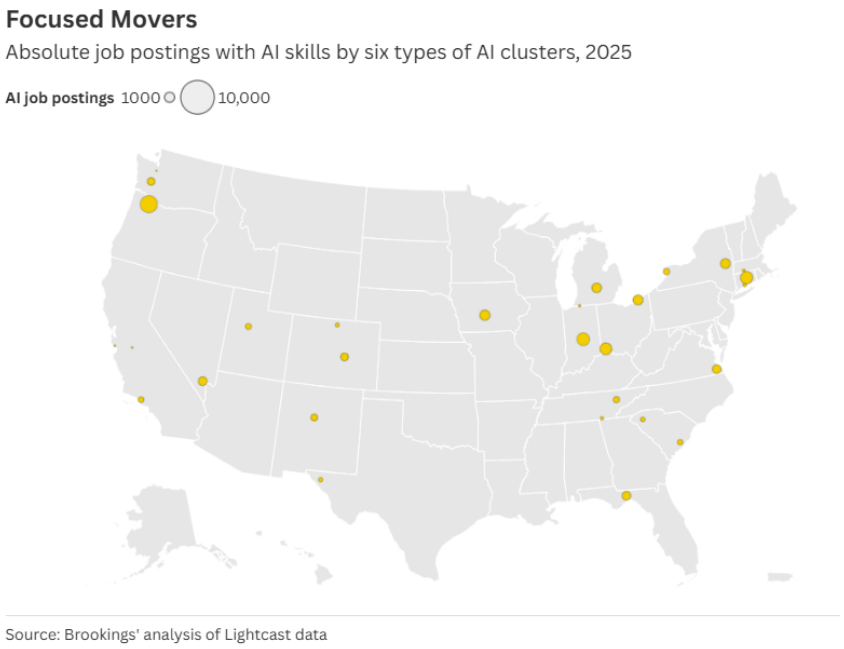
As a group, these are promising metro areas. About 11% of the nation's AI talent as measured by computer science bachelor's degree and Ph.D. graduates resides in these hubs. Their density of computer science graduates exceeds the national density, driven by the presence of top AI programs and major public institutions in many of the metro areas.

On the innovation side, these hubs contain some of the most influential institutions in AI research. In 2024, Carnegie Mellon University in **Pittsburgh** ranked second among universities publishing AI research, with an adjusted AI publication count of 349—far surpassing the national average of 13. Altogether, the Emerging Centers produce 14.6% of the nation's AI publications, 4% of AI patents, and 8.4% of AI contracts, and represent 21.3% of HPC usage. The group outperforms the national average when looking at density of publications and HPC usage, but slightly underperforms the national average density of patents and contracts.

When it comes to adoption, the Emerging Centers mostly outperform national density levels. On average, 28.3% of firms in these hubs have files in digital formats (compared to 27% nationally), and 23% have cloud-ready data (versus 20% nationally). AI use among these metro areas' businesses is on par with the national average, at 4%. These hubs are home to 3.4% of the total startups analyzed. Venture capital is flowing heavily into these areas, with 4% of the total deals happening in these 14 metro areas.

Focused Movers

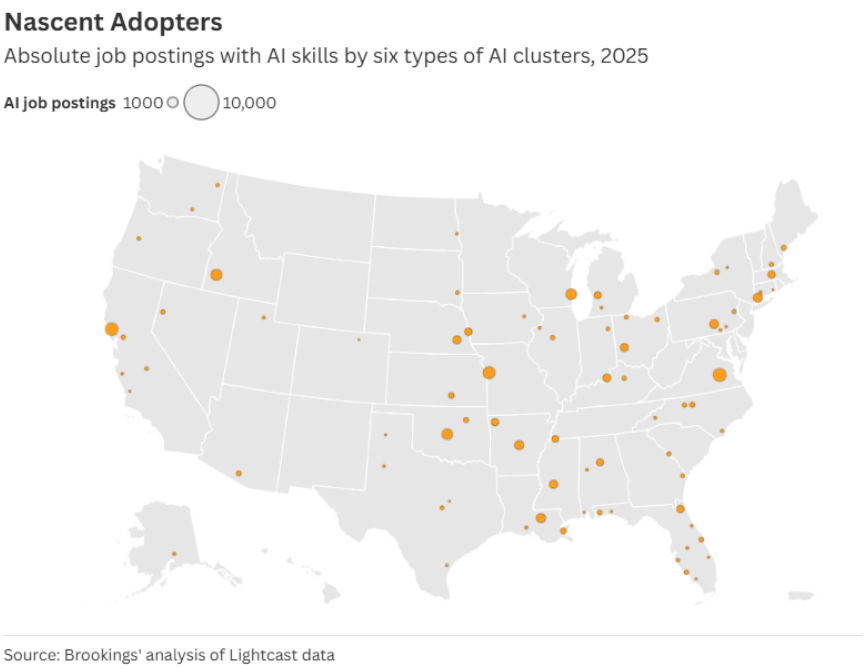
The Focused Movers are a band of 29 metro areas that each display one clear strength—talent, innovation, or adoption—while maintaining a solid footing in the other two. Together, in 2025, they accounted for about 9.9% of the nation's metro area employment, produced roughly 8.3% of all computer science and engineering graduates, and supplied 7.9% of all AI job postings.



Looking at AI job posting growth since 2018, 24 of the 29 metro areas have seen growth greater than 100%. Several of the Focused Movers stand out: **El Paso, Texas**; **Merced, Calif.**; **Bremerton, Wash.**; **New Haven, Conn.**; **Knoxville, Tenn.**; and **Lansing, Mich.**, have all seen AI job posting growth greater than 250%. Even some of the larger markets such as **Cleveland** and **Indianapolis** have recorded solid growth, as legacy industries integrate AI into everything from logistics to energy.

Seven Focused Movers—**Albany, N.Y.**; **Hartford, Conn.**; **Knoxville, Tenn**; **Greenville, S.C.**; **Cleveland**; **Cincinnati**; and **Buffalo, N.Y.**—are talent specialists, where top-tier computer science programs and large employer bases ensure talent density scores exceed the national benchmark. These metro areas graduate sizable technical skill pools, even though their innovation and adoption footprints sit more in the midrange. Places such as **Lansing**, **Merced**, **New Haven**, and **Springfield, Mass.**, meanwhile, outpace most of their peers in areas of innovation. The final third of the Focused Movers group includes **Des Moines**; **Chattanooga, Tenn**; **Oxnard, Calif.**; **Fort Collins, Colo.**; **Tallahassee, Fla.**; and **Colorado Springs, Colo**. In these more adoption-oriented regional economies, local firms seem to be embracing AI quite rapidly**.**

As a group, the Focused Movers have secured 5.5% of national AI contracts and generated nearly 3.5% of AI patent filings, while driving more than 7.5% of HPC usage—a footprint that sits just below the broader Emerging Centers group while underscoring these economies' niche roles. What's more, this group may well be establishing a meaningful foothold in the national adoption journey. As a whole, they host 3.7% of the country's AI startups and pull in 3.6% of AI-focused VC, demonstrating investor interest in these specialized strengths. However, the group's density of startups and VC underperforms the national average.



By excelling in one pillar and standing on firm foundations in the others, the Focused Movers add targeted capacity to America's AI landscape.

Nascent Adopters

The Nascent Adopter cluster consists of 79 metro areas with relatively limited footholds in the AI ecosystem. Together, in 2025, this widely dispersed set of regional economies accounted for 18% of the nation's metro area employment as measured by job postings, but generated just 11.2% of metro area AI job postings—underscoring both their considerable AI capacity and their relative underdevelopment.

At the front of the pack, **Richmond, Va.**, leads with about 1,400 AI job postings, followed by **Santa Rosa, Calif.**; **Kansas City, Mo.**; **Boise, Idaho**; **Oklahoma City**; and **Milwaukee**, with each having more than 800 job postings. A second tier of metro areas in this group—**Baton Rouge**; **Little Rock, Ark.**; **Bridgeport, Conn.**; **and Harrisburg, Penn.**—have more than 600 job postings each. On the opposite end, smaller markets such as **Killeen-Temple, Texas**; **Wichita, Kan.**; **Tuscaloosa, Ala.**; and **Savannah, Ga.**, have seen AI job postings grow more than 800% between April 2018 and 2025, highlighting rapid early-stage momentum.

As a group, the Nascent Adopters possess limited strengths that focus mainly on business adoption. On talent, these metro areas supply 16.7% of the nation's computer

science bachelor's degree graduates, 8.9% of its computer science Ph.D. graduates, and 7.2% of all AI-profiled workers—solid contributions. When looking at the density of these talent measures within the group, all fall below the national average. This reflects middling talent pipelines: The data show steady streams of graduates, but fewer specialists than are accumulating in the other clusters.

Innovation output is even more modest: Nascent Adopters produce 2.5% of AI publications and 5.9% of patents, and claim 10.3% of AI contracts and 4% of HPC usage.

On the adoption front, however, these markets are beginning to move in step with broader trends. Firms here score, on average, 4.1% on AI-use metrics (versus 4.2% nationally), 28.6% on data readiness (versus 27% nationally), 22.2% on cloud readiness (versus 20.4% nationally), and 32.4% in occupational AI exposure (versus 32.1% nationally). They host 3.8% of the nation's AI startups and attract 4.1% of AI-focused VC—small shares given that around 85% of VC concentrates in just 30 metro areas. The national density of AI startups and VC funding deals is about four times that of this group.

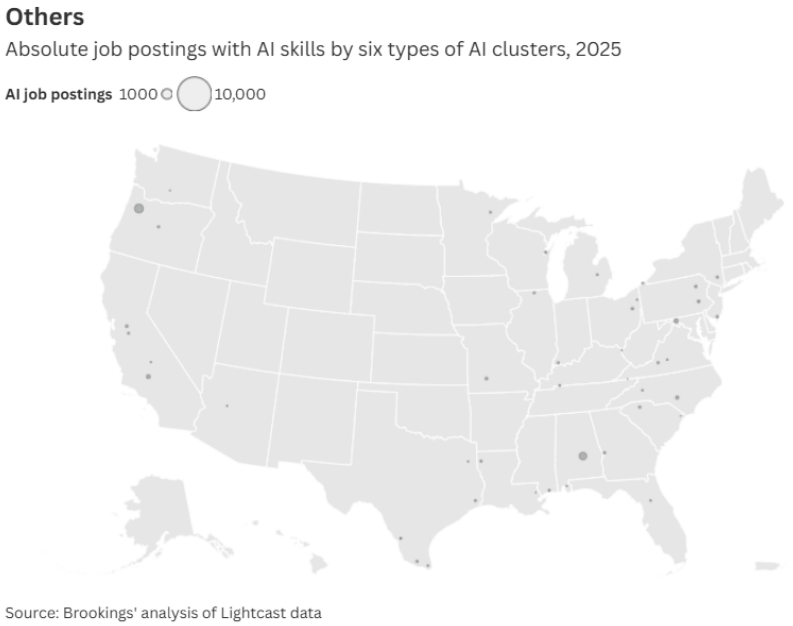
In short, the Nascent Adopters represent a broad swath of a transforming heartland America. As relatively balanced midrange performers, these communities are strengthening their talent pipelines, building innovation capacity, and beginning to adopt AI in their business sectors. Their rapid growth in AI job postings from small bases suggests plenty of runway ahead—if investments continue flowing into their higher education talent hubs, university labs, and digital infrastructure to turn potential into real AI muscle.

Others

The Others cluster is a dispersed collection of 43 mostly smaller metro areas that make up 5.1% of the nation's metro area employment but account for only 1.6% of all metro area AI job postings, underscoring their very limited presence in the AI economy.

Larger metro areas that fit this profile include **Stockton-Lodi, Calif.**; **Kiryas Joel-Poughkeepsie, N.Y.**; **and McAllen, Texas**. None of these metro areas contribute heavily to the nation's AI activity. Limited AI hiring is occurring in midsized metro areas in this group, including **Montgomery, Ala.** (482 postings) and **Salem, Mass.** (657 postings).

Looking at these metro areas' involvement in the three AI pillars surfaces a sparser variant of the adoption-focused factor pattern from the Focused Movers and Nascent Adopters groups. On talent, the Others group contributes a modest 3.4% of the nation's computer science bachelor's degrees and 0.1 % of computer science Ph.D. graduates. AI-profiled workers in these metro areas amount to just 1% of the U.S. total. Absent large universities or major tech employers, their local pipelines of graduates and specialist researchers remain thin.



The innovation activity in these regional economies remains even scanter: Overall, metro areas in the Others group generate 0.16% of patents and claim just 0.3% of competitive AI contracts and 1.1% of HPC usage nationally.

Adoption metrics paint a slightly brighter picture. On average, about 3.4% firms in the Others group use AI (versus 4.2% nationally), with 24.4% reporting data-ready platforms and 17.8% reporting cloud readiness—figures only a few points below U.S. averages.

The limited success factors of the Others group as of now are a sign that this cutting-edge technology is far from universally distributed across the county.

Small metro areas and rural spaces

Looking, finally, at the nation's smallest communities—its 192 least-populated metro areas as well as its expansive rural areas—reveals a set of places that exhibit mostly minimal AI presence, albeit with pockets of genuine activity.

The remaining small metro areas—with populations below 250,000 and average employment of 64,000 workers—supported just about 5% of the nation's AI job postings in 2025. As to the three AI pillars, these communities are mostly thin on absolute measures of talent, innovation, and adoption, with very little AI patenting, research contracts, VC funding, or startups.

With that said, these 192 metro areas—which represent 9.2% of the nation's employment—generate 12% of the nation's AI research publications, owing to the presence of numerous universities. These locations are also responsible for 18% of the nation's HPC usage.

Anchoring such activity are state capitols such as **Dover, Del.**; **Santa Fe, N.M.**; **Topeka, Kan.**; **Jefferson City, Mo.**; and **Springfield, Ill.**, as well as numerous university towns such as **Blacksburg, Va.**; **Lafayette, Ind.**; **Lawrence, Kansas**; and **Burlington, Vt.** Strikingly, several small metropolitan areas—**Champaign-Urbana, Ill.**; **Ithaca, N.Y.**; **Corvallis, Ore.**; **Ames, Iowa**; **Dover, Del.**; **Bloomington, Ind.**; **Las Cruces, N.M.**; **State College, Penn.**; and **Warner Robins, Ga.**—compare with top-ranking large metro areas on the density of their AI measures. As important university towns in most cases, these small metro areas exhibit strong talent pools and often meaningful flows of AI research publications, contracts, and patents. Their prominence underscores the centrality of major research universities as key nodes of AI development.

Rural counties have a smaller footprint in the nation's AI landscape. In Q1 2025, these counties accounted for just 563 AI job postings, or 0.3% of the U.S. total. That compares to these places' 2.1% share of the national employment. This thin AI job count still marks a modest increase from Q1 2018, when rural counties had 294 postings.

Rural counties also lag in talent and innovation. In 2023, they represented just 1.5% of the nation's AI-related bachelor's degrees. Between 2001 and 2020, these counties contributed only 0.3% of the nation's AI patents.

In terms of AI adoption, rural counties average a generative AI exposure score of 0.30, slightly below the national county average of 0.34. However, metrics such as the number of AI startups and VC funding in rural areas remain virtually nonexistent.

The very small presence of AI assets in rural counties raises important questions about their future role in the AI landscape. Will these areas be able to benefit from AI advancements, or will they be bystanders? Alternatively, will they participate in the AI economy mainly through the construction nearby of AI infrastructure, such as data centers? While some rural places may experience positive job growth from such developments, there are also environmental downsides to consider. In any event, small towns and rural communities' place in the bigger story of AI will likely be different from that of urban areas, but still important.

Discussion

The statistics and mapping presented here suggest a mixed reality as U.S. AI development accelerates and the industry's geography begins to take shape.

The great AI Superstars in the Bay Area continue to dominate. Eleven percent of all AI hiring activity remains concentrated in just these two metro areas, as do 14% of AI worker profiles, 34% of AI patents, and about one-third of AI startups. Add in the presence of the headquarters of AI titans such as Google, Meta, OpenAI, Anthropic, and Nvidia, and the staying power of the Superstar cluster remains hard to question.

With that said, the broader map depicts both welcome decentralization as well as too many areas that lack significant AI activity.

For their part, the 28 Star Hubs, 14 Emerging Centers, and 29 Focused Movers each represent notable centers of AI diffusion and adoption. Together, these rising clusters generate 82% of the nation's AI job postings. Likewise, these locations aggregate sizable portions of the AI sector's necessary inputs: 68% of the country's computer science degrees, around 87% of AI R&D contracts, and 93% of AI startups, for example. These emerging places are now critical centers of the American AI enterprise.

Conversely, more than 200 of the nation's other metro areas—the majority of them—lack significant AI presence.

As a whole, this large share of the nation's regional economies—those beyond the sphere of the Bay Area, Star Hubs, Emerging Centers, and Focused Movers—lacks significant AI participation, whether in talent development, innovation, or business adoption. True, the low cost and simple use of generative AI applications in business will eventually enable its wider diffusion. But the fact remains that the trends and data analysis reported here depict only modest diffusion beyond the primary AI centers. This pattern of frontier hubs and broad hinterlands very much reflects the relatively slow dispersion of activity across space that Nicholas Bloom, ourselves, and others say frequently characterizes the market and spatial structure of digital economies.[11]

All of which raises the question of whether anything should be done about these trends. Some will deny the need, insisting on the sovereignty of the private market. For such observers, the unevenness of AI diffusion is a market-ordained inevitability of the vaunted U.S. innovation system, and as such, not likely a problem.

Yet it is possible that deficits of AI regional development in too many regions will foreclose on opportunities for aggregate progress, which suggests the advisability of actions that might help spread AI activity to more places.

Lagging regions, in this vein, entail opportunity gaps that reduce the ability of workers and local economies to reap the rewards of AI. That is because:

- Pools of U.S. talent are lost.
- Promising research and innovation resources go undeveloped.
- Adoption is slowed because too many inventors, startups, and industry use cases remain peripheral.

Given that, it behooves both the nation and its regions (including state and municipal government, philanthropies, and local businesses) to work together to augment and widen the reach of AI development in local areas.

To that end, the nation needs to **build out a strong AI-support platform** at the same time that cities, states, firms, and community actors **engage in strategic cluster development** in regions. Both priorities need to be pursued to ensure U.S. AI development is both dynamic and widespread.

The nation should build a strong AI-support platform

To build out the national platform needed to expand U.S. AI leadership through strong regional adoption, government, industry, academia, and civil society should coalesce around a core set of priorities. Five areas need attention:

Research

Broader AI adoption requires maintaining a dominant AI research base. Abundant research flows are fundamental to regional growth—not least because such activity turns many regional universities into local AI anchors.

To be sure, the United States maintains clear leadership in AI R&D and consistently outperforms other countries on innovation and investment. In 2024, for example, the U.S. developed 40 AI models while the second-best performer, China, produced 15. As to private investment, U.S. companies invested $109.1 billion in AI research in 2024, vastly outpacing China's $9.3 billion.[13]

Yet recent developments suggest these figures won't be enough for the U.S. to maintain dominance. According to the International Data Corporation's (IDC) spending report, China is expected to see an 86% compound annual growth rate in generative AI investments from 2022 to 2027, meaning the country's generative AI spending could grow to represent 33% of the world's AI investment—up from less than 5% in 2022.[14] At the same time, China's growing capabilities—underscored by last year's breakthrough with DeepSeek's cost-efficient frontier "reasoning" model—suggest that the U.S. needs to both increase its overall AI research investment and ensure innovation resources are channeled toward areas of under-leveraged potential.

Against this backdrop, federal AI research funding trends are concerning. U.S. government investment in AI research actually decreased from $3.21 billion in 2023 to

$2.98 billion in 2024.[15] This came at a moment when the authoritative National Security Commission on Artificial Intelligence (NSCAI) had advised doubling non-defense AI R&D investments annually to reach $32 billion by 2026.[16]

The nation's current mix of research activities also falls short on several areas of potential opportunity. First, U.S. private sector investments dwarf government outlays for basic (mostly academic) research. This may limit creative leaps forward and progress on novel use cases in underinvested sectors. Dwindling support for the NSF-led National AI Research Institutes—launched during the first Trump administration—is a case in point. Another missed opportunity is the thinness of AI research and computing flows into high-quality but farther-flung universities. As of now, the nation's Bay Area Superstars and Star Hubs account for about 60% of the nation's R&D flows, leaving institutions in many regions underserved. Likewise, computational support for basic research in academia too often remains spotty, likely limiting the nation's innovation potential.

And so, the nation should build out its platform for broader AI adoption by expanding the scale of AI R&D and improving its character. To address the scale issue, the nation should **prioritize a step change in total AI R&D outlays** in the next decade. Rather than cut research outlays, Congress needs to "run faster" if it wants to outpace China, because R&D is a critical accelerant. At the same time, to improve the composition of overall AI research, the nation should **expand investments in basic R&D research and in mechanisms for fostering access to essential computational and data resources.** On this front, increased basic research expenditure into universities appears critical. But so does rejuvenation of the first Trump administration's National AI Research Institutes program for accelerating research on new topics in new universities and locations.[17] Additionally the build out of something like the National AI Research Resource (NAIRR) pilot program could provide a mechanism for increasing more and different researchers' access to critical high-speed computing resources and datasets, including in more and different locations.[18] Such investments are key elements of a national platform for regional AI adoption.

Regional industrial development

Accelerating AI adoption also requires promoting the growth of emerging AI clusters. Dense, vibrant AI clusters are national assets that contribute to national progress. Neglecting such clusters is a missed opportunity that leaves innovation and adoption potential untapped.

With that in mind, the nation's overall AI platform should promote broad adoption through direct industrial development. As this report shows, the diffusion of AI economic activity into more regions remains halting in the U.S., with more than half of metro areas exhibiting little activity. Accordingly, while around 50 metro areas exhibit the beginnings of legitimate AI clusters, too few appear to be nearing critical mass.

Given that, the federal government should **leverage its recent experience with "place-based" industrial investment to accelerate AI cluster scale-up** in promising regions and sectors across the country.

What might this look like? Some of this region-catalyzing work could leverage the National AI Research Institutes from the previous Trump administration, as well as the NAIRR program, by orienting their research and computational supports toward the needs of promising local clusters. These steps would support early-stage activities in key clusters. More boldly, Congress and the Trump administration could revamp recent challenge grant efforts—such as the Commerce Department's Regional Technology and Innovation Hubs program and the NSF's Regional Innovation Engines—to focus new hubs and engines specifically for AI.[19] Similarly, existing initiatives such as the Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) programs offer complementary tools for helping regional small businesses commercialize AI solutions.

Taken together, tools such as these will help ensure the national AI adoption platform promotes new expansion across the nation's regions.

Talent

AI adoption leadership further hinges on ensuring that adequate pools of high-quality AI talent exist in multiple regions.

The 2020 NSCAI report revealed the thinness of the nation's top AI talent.[20] This thinness exists alongside the challenges documented in NSF's "Missing Millions" program, which showed how systemic barriers block diverse populations from STEM participation, creating not just an equity problem but also a capacity problem.[21] For its part, a 2024 National Academy of Sciences report on AI and the future of work stressed the misalignment between current education and workforce needs.[22] Adding to these concerns, the House Task Force on Artificial Intelligence's final report concluded that the nation and its regions still lack a clear framework defining the specific skills and competencies needed for "new jobs."[23]

To grow the pool of talent for AI adoption in more regions, a supportive federal policy platform needs to cultivate more AI talent development through higher education and unblock the flow of international AI talent into the U.S. Universities are central sources of AI talent, which reinforces the need to **fund AI curriculum development and research at higher education institutions** across the nation, and not just in the usual elite locations. In this regard, the cultivation of talent represents a second rationale for generous and widely distributed research investments in universities, such as those funded by the National AI Research Institutes program. Nurturing the emergence of adjacent AI industry clusters near universities will also help attract and retain technical talent. To make all of

this work better, the federal government can commission a national AI skills framework to align industry requirements with educational curricula.[23]

Additionally, the nation needs to **establish thoughtful visa reforms** that support emerging AI regional development to supplement homegrown talent. Along these lines, a national AI platform could greatly benefit regions by increasing the number of students training at U.S. institutions; increasing the in-flow of post-graduate students training in the U.S.; and providing incentives for students to switch into AI sectors.

Infrastructure

Boosting regional AI adoption will further depend on the delivery of key infrastructure that is not now solidly in place, but on which local and national leadership depend.

On this front, the AI era is elevating the need for large-scale chip production, vast data and computational resources, gargantuan energy and water flows, and the permitting reforms to get facilities built faster.[24] To be sure, work has begun on some of these issues, such as through the CHIPS and Science Act's subsidies for semiconductor plant construction and the launch of the NAIRR pilot for giving scientists, innovators, and educators access to the computing and data resources necessary for game-changing research.

With that said, AI-related infrastructure gaps stand as major impediments to regional and national scale-up. The demand for computing resources and energy is projected to challenge available supplies. Permitting and grid hurdles exacerbate the delivery problem. And to many communities, data center siting decisions seem unsystematic and arbitrary—divorced from regional aspirations of thriving AI ecosystems.

In light of these challenges, the federal government should work to facilitate timely, carefully planned, and environmentally sound data center and power development. A portion of that work must clearly involve policy and regulatory efforts to **bring new clean energy generation sources and grid links online**. Some of this will involve speeding up the complicated federal, state, and local siting and permitting process for conventional or nuclear power plants, including by leveraging suitable public lands or replacing coal plants. But it will also be important to streamline the permitting processes for clean energy generation and related transmission capacity.

Otherwise, the federal government should do what it can to **facilitate strategic data center development**. With data center development at times disruptive and localities increasingly wary of it, federal and other stakeholders should work with industry to optimize the process so that it supports AI build-out that maximizes regional AI gains.

Development could be streamlined and rationalized through the establishment of AI economic zones within states or through the release of suitable public lands. Likewise,

the government could encourage data center developers to negotiate beneficial partnerships with local stakeholders, which would complement construction with community AI development. In this vein, technology development consultant Daniel Goetzel suggests how regions might trade expedited data center regulatory approvals for shared computing resources, research collaborations, and talent initiatives.[25] Such local benefits agreements could be further instigated through the urging of the president.

Worker security

Finally, any national platform for regional AI scale-up needs to include strategies to provide basic worker security. Such provisions are necessary because successful AI adoption will involve both gains for many workers and dislocation for others. Minimizing disruption will speed adoption.

Recent work from Brookings shows that higher-tech, higher-value, information-based industries—especially in cities—are likely to see elevated levels of AI impact.[26] Specifically, the Brookings analysis suggests 30% of all workers could see at least 50% of their occupation's tasks disrupted by generative AI in the coming years, with higher "exposure" levels for higher-skill computer and office activities.[27] While some of those impacts will enhance worker well-being and create new jobs, others could bring about sudden task shifts, depressed work demand, or even chronic under- or unemployment. This matters because such disruption could produce "adjustment" challenges for local labor markets and undermine support for regional AI scale-up.

Given that, the nation's federal platform needs to provide elements of a worker-adjustment strategy that helps regions deliver on Vice President JD Vance's promise that AI adoption will bring workers "higher wages, better benefits, and safer and more prosperous communities."[28] Much remains to be worked out on how to deliver this. But for sure, the nation will want to **invest more in "active labor market policies"** that help people shift into new jobs. These policies may entail flexible benefits, including for wage insurance and health care, that are not tied to one employer. Other supports may include policies that give a measure of economic security to workers who want to be retrained and learn new careers. For example, Brookings has described the idea of a "Universal Adjustment Benefit" that would help displaced workers transition to new work with the help of temporary income support that allows for intensified training access.[29] Such provisions will benefit growth by promoting stability as the nature of work evolves.

Regions should engage in strategic cluster development

The federal government has a role to play in supporting regional AI development, but establishing a national AI support platform is only one part of a larger agenda. Equally important are "bottom-up" initiatives in individual regions working with their states across

their locally relevant success pillars, whether in talent enhancement, innovation, or business development.

In pursuing such work, most communities should pursue several cross-cutting self-assessments—beginning with the kind of data presented here—in order to understand their AI adoption starting points. Ideally, these assessments—while focused on AI attributes—would build on or tie into the foundations provided by earlier economic development appraisals and planning in the region.

In the **talent** realm, the spread of AI argues for regions to conduct an appraisal focused on evaluating the area's technical AI skills, educational infrastructure, and general workforce readiness. Appraisals should detail the distribution of AI expertise, the nature of higher education programs, and the digital literacy of the general workforce—all with inputs from relevant employers.

Regarding their **innovation status**, many regions will also want to conduct an innovation assets inventory to establish their starting point in AI technology development. Such an inventory will need to document factors such as the region's complement of AI-related research labs, universities, and academic outputs. It will also need to consider local infrastructure, including the region's incubators, accelerators, and innovation hubs. And it will need to assess regional access to computing resources and proprietary datasets that are valuable for AI training.

For that matter, regions should also evaluate their core **AI business development and adoption environment**. What are the region's AI specializations and emerging sectors that have growth potential? What are key firms' use cases and adoption strategies? What are the characteristics and who are the key actors in local clusters? These and related factors inform the pace and nature of regional AI adoption.

Regions, in short, need to know where they stand before they work to improve themselves. Pursued systematically, with links to other local planning efforts, such asset mapping will help regions understand their strengths and weaknesses and see where limited resources will generate the best returns.

Assessing and strategizing: Massachusetts' AI Strategic Task Force and AI Hub

With time of the essence, regions must move urgently to enhance their AI readiness. But to do this, they need to assess their starting points and set informed strategy.

Massachusetts has taken these steps. In February 2024, Gov. Maura Healey established an AI Strategic Task Force to study AI, assess its potential economic benefits, and identify how the state can best support business adoption.

Phase I of the inquiry entailed in-depth explorations within individual sectors to uncover AI opportunities, challenges, and priorities among leading Massachusetts industries.

Phase 2 addressed six cross-cutting issues, ranging from talent and computing infrastructure to the Boston entrepreneurial ecosystem. By year's end, the commonwealth was set up to work on fundamental issues of readiness and adoption, and announced the Massachusetts AI Hub to make it a national leader in AI innovation. The AI Hub will be supported by more than $100 million over the next five years as the regional cluster scales.

Driving these actions was the strategic nature of the Task Force inquiry. Informed by representation from the state's already strong academic and business cluster, the Task Force worked fast to map the state's national and global competitive landscape and shape compelling facts and trend information into an incisive AI adoption strategy.

Ultimately, the strategy was organized around three core priorities: equity and values, infrastructure, and talent and innovation. Throughout all of that, a clear strategic vision was propounded for making the Eastern Massachusetts AI cluster the "global leader in applied AI innovation" with a focus on "solving real-world challenges" to fuel sustained economic growth. That clear strategy has led to a clarity of direction, expressed through the bold and well-funded establishment of the AI Hub. Designed as a new coordination center for the regional ecosystem, the Hub will soon champion "equitable" deployment; expand access to data and high-performance computing; and strengthen the innovation and talent ecosystem with targeted research grants, support for startup growth, and support for adoption and workforce development. In short, this member of the Star Hubs cluster is taking aggressive steps to understand its starting point, set a rigorous strategy, and move to implement thoughtfully.

Press release, "Governor Healey announces Massachusetts AI Hub to make state global leader in applied AI innovation." Massachusetts Executive Office of Economic Development. December 19, 2024.

Massachusetts AI Strategic Task Force, "Massachusetts AI Strategic Task Force 2024 report to the governor: Massachusetts AI Hub." Team MA. December 19, 2024.

Press release, "Governor Healey signs executive order establishing artificial intelligence (AI) Strategic Task Force." Massachusetts Executive Office of Economic Development. February 14, 2024.

Flowing from solid strategy work, the bulk of local AI readiness preparation should reflect the specifics of local cluster conditions as revealed by region-oriented data, such as those here. Specifically, virtually every community will want to address various priorities for adoption readiness, reflecting both national platform-building and locally specific needs. Some of these priorities will reflect regional dimensions of the national AI support platform mentioned above.

To start, many regions will want to play at least a secondary role in reinforcing the nation's public **research** campaign, as explained above. Granted, maintaining and expanding a dominant AI research base remains largely a federal agenda given the needed scale. However, states and philanthropy can play a critical role in boosting and

localizing research agendas conducted by local universities. One example comes from the MassTech organization's launch of the Massachusetts AI Models Innovation Challenge, which will provide more than $3 million to support groundbreaking AI model development projects pertinent to the Massachusetts economy.[30] Another comes from New York's Secunda Family Foundation, which recently announced $10.5 million to fund AI-related research at Cornell Tech in New York City and at Cornell's computer science program in Ithaca.[31]

At the same time, regions will likely want to play a lead role in promoting the growth of local AI clusters and other **regional industrial developments**. Proximate and naturally engaged, local leadership consortia are the natural convenors of dynamic AI ecosystem initiatives, which are in turn critical to national AI adoption. Numerous regions—from Princeton, N.J.,[32] to Fargo, N.D.,[33] to Atlanta and environs[34]—are now embarking on ambitious, multidimensional AI ecosystem initiatives.

Equally important for all regions are local efforts to build a deep, well-educated, and well-trained AI **talent** base. Regardless of what education and immigration policies the national government develops, regions and states will be on the front lines of this work. In general, regional leadership will need to ensure that all levels of the local education ecosystem—from secondary schooling to community colleges to higher education and graduate schools—are working in concert to cultivate widespread AI literacy, employment-relevant workforce training, and for more advanced students, deeper technical immersion and graduate study in universities.

Also critical to virtually all elements of the basic AI platform—especially research capacity, regional industrial development, and talent engagement—is the assembly of **AI infrastructure**. In particular, regional economies have roles to play in energy development and securing adequate computational resources. To be sure, the federal government needs to lead on securing new, clean energy resources and accessible computing resources for research and "Little Tech." However, states and regions retain significant roles to play and incentives to engage on power generation and the availability of adequate computing resources. Ambitious computing projects in Atlanta and Austin, Texas as well as in Massachusetts, New York, North Carolina, Ohio, Oregon, and Pennsylvania underscore computing access's importance to research and economic self-help.

Finally, every region should begin now to forestall the coming increase of AI-prompted labor market instability, and foster **worker security** going forward. Large-scale AI-complementary training programs; help with reemployment for the displaced; and temporary cash supports to support transitions will all likely be necessary in the coming years. California is already moving in this direction through partnerships with companies such as Nvidia.[35] The state's community college system plays a central role in this effort, as does the California State University system through a similar partnership with leading

technology firms.[36] These models show how regions and states can play an active role in preparing workers for the next generation of jobs.

Beyond broad development priorities oriented toward strengthening the nation's overall AI capacity, regions also need to attend to the particular strengths and weaknesses of their local readiness pillars. These priorities will vary significantly, shaped by the specific conditions of each cluster type. Accordingly, each type of AI cluster faces a particular mix of priority strategy needs, as the following sections detail.

Superstars

The Bay Area Superstars—standing as a class of their own—lead on all three types of AI success pillars. Given that, the task for these metro areas is to maintain their leadership while embracing their global standing as leading-edge testbeds for AI ecosystem maintenance and enhancement. Above all, this work calls for the Superstars to maintain the availability of their abundant AI talent resources. But these economies also need to show how to democratize their AI innovation infrastructure and attend to the stability of the labor market.

The Superstars' success is rooted not just in code and capital, but also in talent. Yet with only a relatively small local share of the nation's science and engineering graduates, the Bay Area depends heavily on attracting talent from elsewhere—a potential challenge for the sustainability of its talent pools. Given that, it is essential that the Superstar metro areas **maintain their appeal to in-migrants**—both from the rest of America and abroad—by improving the area's livability and maintaining its tolerance. But the region cannot depend solely on migration for talent. In a state with spotty high school computer science instruction, the Superstar regions need to **invest much more intensively in local tech education** in order to meet the talent needs of AI adoption.[37]

At the same time, the startup ecosystem that has powered much of the Bay Area's AI growth needs attention. As it stands, rising computing costs, high capital costs, and the domination of Big Tech firms represent hurdles to new innovation. As a result, the Superstars need to make sure that so-called "Little Tech" startups and small firms can break through and compete with larger AI platforms with deeper pockets. Given that, efforts to **support "Little Tech"** now stand as a Bay Area as well as a national competitiveness imperative.[38] Therefore, the provision of public AI infrastructure—such as computing access, data pooling, and model availability—should be explored in the Bay Area and other regions where early-stage firms must compete with entrenched giants. In this vein, the CalCompute proposal provides a model for how public computing infrastructure could re-democratize the Bay Area AI ecosystem and spur local startup activity in other regions.[39]

Finally, the Bay Area should lead the nation in working out ways to **mitigate labor market disruption and provide worker stability**. With high AI exposure projected already and aggressive adoption experiments ahead, the Superstars face a paradox: The region that has been designing the AI economy may soon be the one that sees the most worker disruption, given leading-edge adoption of AI tools and agents. For that reason, the San Francisco and San Jose metro areas need to model prudent, well-designed reskilling and adjustment programs to mitigate likely worker dislocation.

Star Hubs

The 28 Star Hubs—the nation's "second engine" of AI development—consist of major technology metro areas such as Seattle; New York; Washington, D.C.; Boston; and San Diego, as well as university and state capital communities such as Austin, Texas; Raleigh, N.C.; Durham, N.C.; Ann Arbor, Mich.; Princeton, N.J.; and Boulder, Colo. Overall, what binds these hubs together is their balanced stack of top-flight talent, innovation, and adoption resources. Yet while some of these cities rival—and on selected metrics even outperform—the Bay Area on per-capita asset measures, all have work to do to approach the strength of the Superstars.

A core set of Star Hub build-out strategies parallels the likely priorities of the Superstars. With migration less a talent mainstay than for the Superstars, many Star Hubs will need to **double-down on tech education**. Baltimore, with its strong talent and technology supplies, is working to upskill its homegrown talent and boost commercial adoption in several such ways. The STEM City program in Baltimore, which was awarded a $100,000 grant from the state of Maryland, is focusing on equipping students with digital literacy skills.[40] The state's AI Enablement Strategy will further help Baltimore advance adoption.

Given the presence of Big Tech labs, Star Hubs will also need to **foster research access for "Little Tech."** These regions should also be working out ways to **foster labor market stability, skilling, and reskilling**, and worker adjustment. Big Tech and Big AI actors have recently offered philanthropic awards and grants on several of these fronts.[41, 42, 43]

Building on these priorities, Star Hub leaders will want to further enhance their promising AI business ecosystems. State, local, industrial, and philanthropic actors can all play roles. States and regional business networks may especially want to **invest in cluster development efforts** where local AI capacities dovetail with opportunities in key industry verticals. The new Massachusetts AI Hub, for example, will serve as a central coordinating entity for convening Greater Boston's world-class talent pool, research institutions, and AI firms to accelerate AI adoption.[44] For their part, the state of New Jersey, Princeton, Microsoft, and CoreWeave are engaging directly in cluster-building.

Building a regional AI ecosystem and leveraging partnerships: The New Jersey AI Hub

Regional AI ecosystem development can benefit from orchestrating talent, innovation, and adoption simultaneously. New Jersey is attempting to assemble a partnership that could deliver on every front.

The NJ AI Hub, announced by Gov. Phil Murphy and Princeton University President Christopher Eisgruber in January 2025, represents a compelling model for state AI leadership through strategic corporate partnerships. By uniting Princeton, the New Jersey Economic Development Authority (NJEDA), Microsoft, and CoreWeave as founding partners, the initiative was launched to drive innovation in AI and regional economic development.

The Hub's three-pillar programming focuses on research and development, commercialization and accelerating innovation, and strengthening AI education and workforce development. What makes the NJ AI Hub interesting is its systematic approach, including talent development through TechSpark- and CoreWeave-led skill trainings, capital support for early-stage AI startups through the NJ AI Venture Fund, and applied research excellence through Princeton for commercializing research and supporting key industry applications.

The partnership's financial commitment reflects this well-rounded ambition. Together, the founding partners have pledged to invest more than $40 million to support the Hub's success: NJEDA's $25 million commitment anchors state support, while Microsoft's $7.5 million investment leverages its TechSpark program to provide resources for AI skilling and workforce development. CoreWeave is contributing $7.5 million in cash plus industry-leading expertise in apprenticeships, fellowships, and internships for early-career professionals, while Princeton is providing $7.5 million in-kind through space and world-class research capabilities.

Murphy, P. (2023, December 18). Governor Murphy and Princeton University announce plans to establish artificial intelligence hub in New Jersey [Press release]. Office of the Governor of New Jersey.

New Jersey Economic Development Authority. (2025, March 27). Governor Murphy, Princeton University, Microsoft & CoreWeave cut ribbon on major artificial intelligence hub. NJEDA.

Princeton University. (2025, January 31). Governor Murphy and President Eisgruber announce Microsoft and CoreWeave as founding partners in the NJ AI Hub. Princeton.

Otherwise, Star Hubs will want to explore mechanisms for convincing existing or inbound data center operators to **democratize innovation by making high-speed computing access more affordable**. In Seattle, Microsoft's AI for Good Open Call has set aside $5 million in Azure credits, paired with technical coaching, for Washington-based nonprofits, universities, and startups tackling health, sustainability, and education issues.

For its part, the Massachusetts AI Hub recently obtained a $31 million state grant to establish the Artificial Intelligence Compute Resources (AICR) environment at the Massachusetts Green High Performance Computing Center (MGHPCC). The initiative represents a down-payment on the commonwealth's $100 million proposed set of investments aimed at providing public and private institutions and businesses with critical HPC capacity.

Emerging Centers

The 14 Emerging Centers exhibit strong rankings on two of the three AI pillars while performing moderately on the third. Several patterns surface among them, with most places showing talent and innovation strengths. In each case, these regions should seek to build on their strengths while addressing weaker areas, ideally working with their states.

Investing to **improve the local talent pool** will almost always make sense, though most Emerging Centers already retain upper-echelon talent ratings. Meanwhile, while the growing Sun Belt metro areas in this cluster maintain significant talent pools and innovation activity (as they often are home to large universities), they can better leverage their talent and applied research to drive adoption. One logical AI adoption strategy will be to support their talent bases with the infrastructure and computing support needed to **accelerate new commercial research.** Efforts could involve better connecting talent to companies and leaning into commercializing AI research ideas coming out of local universities. In New York, the Empire AI program—a joint effort supporting emerging metro areas across the state, such as Rochester—is working to **make computing credits available** to the state's higher education institutions.[45]

Harnessing cutting-edge computing for research and innovation: New York's Empire AI

More often than not, states and regions will need to build robust computing capacity to support pertinent strands of research. But such capacity requires more than individual investments—it demands shared infrastructure models that can democratize access and amplify impact. New York has pioneered this approach.

In April 2024, Gov. Kathy Hochul launched Empire AI as part of a historic 10-year, $275 million commitment (combined with an additional $125 million in private investment) to establish New York as a formidable force in AI research and development. The initiative was implemented with urgency, bringing its "Alpha" supercomputer online at the University at Buffalo's Center for Computational Research and providing HPC access across the state's academic institutions by 2025.

Rather than fragmenting resources across individual institutions, Empire AI created a unified framework to serve the state's academic landscape while building critical computing for breakthrough research. The consortium worked collaboratively to create programs that both retain top faculty and train over 200 researchers on the Alpha system.

The initiative has generated sustained momentum: The new FY 2026 budget proposal announced an additional $90 million investment. Empire AI has already begun to demonstrate measurable impact advancing applied research in climate resilience, health disparities, and drug discovery to ensure projects prioritize societal benefits. Sustainably powered by clean hydropower, the initiative represents both technological advancement and environmental responsibility.

In short, as an Emerging Center, New York is demonstrating how shared infrastructure models can marshal resources, align stakeholders, and create replicable blueprints for regional AI innovation.

Empire AI. (2025, February). Empire AI one-pager [Fact sheet]. https://www.empireai.edu/wp-content/uploads/2025/02/EmpireAI-One-Pager_Feb-w-Board.pdf empireai.edu

Empire AI. (n.d.). AI research for the public good. Retrieved June 25, 2025, from https://www.empireai.edu/

I on politics. (2024, January 24). Queens Gazette. https://www.qgazette.com/articles/i-on-politics-372/ qgazette.com

Office of Governor Kathy Hochul. (2025, February 21). Governor Hochul announces $90 million plan to expand historic Empire AI Consortium and enhance computing power for public good on behalf of New Yorkers [Press release]. https://www.governor.ny.gov/news/governor-hochul-announces-90-million-plan-expand-historic-empire-ai-consortium-and-enhance

University at Buffalo. (2025, March 21). With Empire AI, UB is helping people with ALS, improving medical imaging, boosting mental-health resources and more [Press release]. University at Buffalo News Center. https://www.buffalo.edu/news/releases/2025/03/empire-ai-projects-at-ub.html buffalo.edu

Focused Movers

The way forward is relatively clear for the 29 Focused Movers, which excel in one of the three readiness pillars while maintaining mid-level ratings on at least one other. For these communities, the challenge is to build on their core advantage while developing a more balanced set of complementary capacities.

To do that, these places can **lean into their signature strengths** while moving to **ameliorate weaknesses**. By directing resources and partnerships to where they'll move the needle the fastest—whether that means upskilling talent, channeling university

research into startups, or driving innovation—these metro areas can scale their participation in the AI economy without spreading themselves too thinly.

In places such as Cleveland; Cincinnati; Hartford, Conn.; and Albany, N.Y., strong AI talent supplies are supported by large, well-ranked public universities that produce a steady stream of computer science graduates. These talent-rich regions should invest in the computing and other infrastructure needed to **train and retain critical students**. Local education and business networks would be wise to explore new ways of linking their flagship universities with regional employers on AI-focused courses, internships, and residencies tied to real business challenges.

Innovation-focused places such as Lansing, Mich.; Merced, Calif.; Santa Cruz, Calif.; South Bend, Ind.; and New Haven, Conn., should **bear down on tech transfer and commercialization** efforts to drive adoption. For these communities, linking ongoing innovation activities to talent and adoption initiatives would be a sound bet.

Adoption-ready business metro areas such as Indianapolis; Charleston, S.C.; Colorado Springs, Colo.; Provo, Utah; and Fort Collins, Colo., meanwhile, may want to **leverage their vibrant business environments** to attract talent while also building complementary AI program offerings and research support. In this way, they can pair their reputations for vibrancy with signals that they are welcoming places for AI talent and innovation.

More broadly, Focused Movers can **set a handful of clear development targets** (whether for AI talent placements in local firms, new research programs and outcomes, or new AI business launches) that both reinforce their core strength and complement it.

Accelerating AI application in agriculture: Grand Farm in Fargo, North Dakota

Setting an example as a localized effort to translate AI adoption into practical application, Grand Farm in North Dakota provides open-access field trials, supports startups, and fosters partnerships that lower barriers to technology uptake in the agricultural sector.

Grand Farm operates as a 140-acre agriculture technology innovation campus west of Fargo, where growers, startups, researchers, and investors collaborate to pilot and scale AI-driven farming solutions. Powered by Emerging Prairie in partnership with North Dakota State University, it was established with a $1.5 million grant from Microsoft's TechSpark Fargo program and is further supported by an NSF Regional Innovation Engines award that could provide up to $160 million over 10 years to accelerate agricultural technology deployment.

On the AI front, Grand Farm has piloted projects such as Microsoft's FarmBeats, which uses AI in data-driven farming to augment human knowledge, increase farm productivity, and decrease costs. Grand Farm is also set to host Elevate: An AI in Agriculture Summit in July, bringing together growers, technologists, policymakers, and researchers to explore AI-driven solutions.

This initiative has attracted several startups to relocate to the region and provided students from North Dakota's land-grant universities with hands-on opportunities to work on AI's practical applications.

Grand Farm. (n.d.). Home. Retrieved June 2025, from https://grandfarm.com/

Microsoft. (2019, October 17). TechSpark Fargo: Grand Farm project will create the farm of the future. Microsoft On the Issues. Retrieved May 2025, from https://blogs.microsoft.com/on-the-issues/2019/10/17/techspark-fargo-grand-farm-project-will-create-the-farm-of-the-future/

Springer, P. (2024, January 29). Grand Farm automated agriculture partners get major boost from up to $160M federal grant. InForum. Retrieved May 2025, from https://www.inforum.com/news/north-dakota/grand-farm-automated-agriculture-initiative-gets-major-boost-from-up-to-160-million-federal-grant

Nascent Adopters

The 79 Nascent Adopters haven't broken into the top tiers of AI readiness, but show promise to chart an upward path. Ranging from Tulsa, Okla.; Jacksonville, Fla.; and Syracuse, N.Y.; to Milwaukee and Boise, Idaho, these places mostly maintain mid-level standing on each of the three adoption pillars. With focused effort, many of them can likely move up by implementing basic AI initiatives.

To begin enhancing their talent, Nascent Adopters should **build broad AI literacy** by introducing practical courses in high schools and colleges, or through regional bootcamps. Such broad exposure is an essential starting point. Over time, regions can **think about AI career pathways** that develop deeper expertise for workers.

On the innovation front, these regional economies should **promote research at higher education institutions**, with a focus on smaller projects over grander pursuits. Modest seed grants and infrastructure support can spur collaborations between businesses and researchers for developing proofs of concept.

Otherwise, for broader business adoption, these places should **align their AI development efforts around the demand "pull" of the region's larger employers**, while supporting quicker deployments that tackle clear, recurring challenges in government, manufacturing, and health care. By forging public-private partnerships, these mid-level metro areas can drive enterprise adoption across small and large businesses. Complementing deployments with hands-on workshops on AI tool use can get the ball rolling and build confidence.

Championing AI education and workforce training: The Mississippi Artificial Intelligence Network

Talent development is an important driver of regional AI competition, with states discovering that cultivating homegrown expertise and training or retraining existing talent are essential. Mississippi recognized this opportunity and is working to seize it. The Mississippi Artificial Intelligence Network (MAIN) represents a fundamental shift in how states approach AI talent cultivation. As the nation's first statewide AI initiative, MAIN is systematically developing AI expertise from within Mississippi's existing education and professional ecosystems.

MAIN's talent development strategy centers on creating sustained learning pathways. The initiative has cultivated over 2,800 K-12 educators as AI ambassadors, each completing comprehensive coursework representing over 10,000 hours of specialized AI knowledge development. These educators can become force multipliers, embedding AI literacy into the next generation's educational foundation.

The architecture of talent development extends beyond basic AI awareness. Through partnerships with Intel, Dell, and Nvidia, MAIN delivers sophisticated curricula spanning Introduction to AI, Generative AI, AI for Manufacturing, and Applied AI applications. The courses are targeted to create genuine expertise, not just familiarity, while certificates provide credible validation of emerging AI competencies. This talent-first strategy provides other states with an actionable blueprint for skilling talent and training the workforce.

Mississippi Gulf Coast Community College. (n.d.). Mississippi artificial intelligence network. April 20, 2025, from https://mgccc.edu/programs/mississippi-artificial-intelligence-network/ mgccc.edu

Mississippi Artificial Intelligence Network. (n.d.). Home – Mississippi AI Network. Retrieved April 20, 2025, from https://mainms.org/ mainms.org

Mississippi AI Collaborative. (2025). The AI-thon | 2025. Retrieved April 20, 2025, from https://www.mississippiai.org/skillaithon mississippiai.org

Press release. Gillette, B. (2025, April 2). MS Artificial Intelligence Network emerging as leader. Mississippi Business Journal. https://msbusinessjournal.com/ms-artificial-intelligence-network-emerging-as-leader/ msbusinessjournal.com

Others

The rest of the 43 larger metro areas—the "Others" group—consists of communities that currently lack a clear area of AI strength. These metro areas contend with low ranks on all three pillars of AI success and tend to lack a major talent pool or university.

Rather than aiming for flagship programs they can't yet support, these regions should **experiment with manageable initiatives** aimed at exposing local leaders and businesses to AI as a tool, showing a region what's possible.

A starting point is to **build broad AI literacy** through "AI 101" workshops in schools, community colleges, and business associations. At the same time, without overcommitting resources, local governments can experiment with basic chatbot applications or automation scripts to **demonstrate routine tasks**. If one or two experiments catch on and show reasonable impact, local champions can build momentum and expand these pilots. Over time, by testing and learning, even these less prominent metro areas will find a way to participate in the benefits AI systems generate.

Conclusion

The emergence of AI as a general purpose technology presents an inflection point for regional economic development in the United States. Based on a benchmarking of hundreds of U.S. metropolitan areas, this report shows that while AI adoption and readiness activity is expanding rapidly, it remains highly concentrated in a narrow band of tech-oriented hubs along the coasts. Just two metro areas—San Francisco and San Jose, Calif.—account for a disproportionate share of the nation's AI resources, patents, startups, and venture capital. Yet beyond these elite enclaves, a broader geography of rising metro areas—ranging from Star Hubs such as Seattle and Austin, Texas to Emerging Centers such as Pittsburgh; Madison, Wis.; and Tampa, Fla.—is now staking a real claim in the AI economy. These places are the "rising stars" of a widening AI economy in the U.S.

Still, more than half of the nation's metro areas remain on the periphery of this transformation. These lagging regions, if left unsupported, risk falling further behind economically as high-value innovation activity clusters elsewhere. This divergence underscores a key finding of the report: AI's benefits will not distribute without intentional action, meaning that public and private leadership must act deliberately to build a national AI platform and catalyze faster adoption in regions.

Going forward, this report calls for a two-pronged strategy. First, the federal government must broaden its investment in AI research, infrastructure, talent, and inclusive innovation. Second, states and regions themselves must assess their unique strengths and gaps, and engage in intentional cluster-building around AI talent development, innovation capacity, and business adoption.

Ultimately, bottom-up initiatives will be critical. Local governments, research institutions, businesses, and civic organizations must take ownership of their regional trajectories by aligning strategies with their distinct assets and ambitions. Smart, locally tailored planning—not just top-down support—will determine whether AI becomes a catalyst for broad-based prosperity or another engine of economic divergence.

If such a national-local compact can be forged, AI adoption and productivity gains can extend far beyond a handful of hubs, helping more regional economies participate in—and benefit from—the AI era. Done right, regional AI development won't just follow national progress—it will help drive it.

Appendix A: Technical background

Data sources

We rely on private and publicly available datasets that can be aggregated to either the county or MSA level, ensuring consistent geographic coverage for benchmarking and cross-area comparisons.

Talent

Computer science bachelor's degree graduates

Population 25 years and over with a bachelor's degree or higher from U.S. Census Bureau ACS 5-year estimates for 2023. Table: B15012.

Science and Engineering: Computers, Mathematics, and Statistics

Science and Engineering: Engineering

Science and Engineering Related Fields

Computer science Ph.D. graduates

Part-time and full-time post-doctorate researchers in Computer and Information Science Fields (GSS codes 410 to 416), Mathematics and Statistics Fields (GSS codes 403 to 405), and Engineering Fields (Select GSS codes between 101 and 116) enrolled at an institution from the Survey of Graduate Students and Postdoctorates in Science and Engineering, 2023.

GSS codes:

GSS Code List - Complete List of GSS Eligible Fiels and Codes - OMB 3145-0062

AI profiles

Data on online profiles of workers with AI skills that started jobs in 2024 by county from Lightcast. The overall sample of workers in the U.S. comprises close to 4.5 million entries, and workers with AI skills (as defined in Stanford HAI 2024) form 311,717 entries.

Profiles Methodology | Lightcast Knowledge Base

Innovation

Federal AI R&D contracts

Data on federal spending on "artificial intelligence" contracts from usaspending.gov, mapped to metro areas.

AI publications

Adjusted publications by universities from AIRankings. Adjusted publications is based on the number of publications at top AI venues in core AI areas. We have data for 160 universities across 108 metro areas.

AIRankings includes the following six core areas of AI: Computer Vision, Natural Language, Machine Learning, Cognitive Reasoning, Robotics, and Multi-Agent Systems.

HPC credits usage

High-performance computing (HPC) uses data from XDMoD—a comprehensive HPC system management tool funded by the NSF and managed by the University at Buffalo Center for Computational Research (CCR). It includes data on resources allocated via the NSF-funded ACCESS project.

The ACCESS Credit Equivalent is a measure of how much compute time was used on each resource by PI Institutions. One ACCESS Credit Equivalent is defined as one CPU Hour on SDSC Expanse (an AMD EPYC 7742 based compute resource). We map these PI Institutions to metro areas.

ACCESS Credit Equivalents Charged: Total (SU): The total amount of ACCESS Credit Equivalents charged.

AI patents

Data on AI-related patents from United States Patent and Trademark Office's (USPTO) The Artificial Intelligence Patent Dataset (AIPD) 2023 update, mapped to metro areas.

Adoption

AI startups

Data on AI startups from Crunchbase.

Category groups included: artificial-intelligence|machine-learning|deep-learning|neural-networks|robotics|face-recognition|image-processing|computer-vision|speech-recognition|natural-language-processing|autonomous-driving|autonomous-vehicle|semantic-web|image-recognition

Funding for AI startups

Data on all stages of venture capital funding for "Artificial Intelligence and Machine Learning" startups from PitchBook.

The sample includes completed and announced/in progress deals by companies. Company headquarters locations are mapped to metro areas.

AI use by firms

Data on AI use by firms from Annual Business Survey (ABS) 2022. ABS is conducted jointly by the U.S. Census Bureau and the National Center for Science and Engineering Statistics within the NSF.

ABS Tables

Enterprise cloud readiness and data readiness

Data on cloud adoption by firms from Annual Business Survey (ABS), 2021.

Table B1: Cloud Service in use (primarily cloud-based): Adoption Rates of Business Technologies Among Employer Firms, by metro area

Table B5. Digital Share of Business Activity collected primarily in digital format: Adoption Rates of Business Technologies Among Employer Firms, by metro area

ABS - Module Business Characteristics: 2021 Tables (Employer Businesses)

AI job postings

Data on online job postings with AI skills from Lightcast. To identify jobs with AI skills, we use Lightcast's "Artificial Intelligence" sector.

Local occupational exposure to AI

Using task exposure data from OpenAI, we calculate the share of exposed jobs in each geographic region.

Data coverage

Measure	Data availability (No. of metro areas)
Science and engineering bachelor's degrees	387
Ph.D.s	147
Profiles	387
Publications	108
Patents	175
Contracts	100
HPC	158
Job postings	387
Firm AI use	387
Firm data readiness	359
Firm cloud readiness	359
Local occupational exposure	381
Startups	245
VC funding	197

Detailed methodology

Step 1: Metric selection and scoring

We evaluate each metro area across three pillars:

Talent: Measures related to AI-relevant educational attainment and workforce presence.

Innovation: Measures related to AI research, expertise, and development.

Adoption: Measures related to business presence and use of AI.

We normalize the metrics in each pillar, re-scaling them from 0 to 1 using max-min normalization, enabling more accurate comparisons across indicators. We then calculate a composite score for each pillar based on the average of underlying metrics.

Step 2: Tier assignment

For each metro area and for each of the three pillars (talent, innovation, and adoption), we assign a percentile-based letter:

T (Top): Metro area is in the top 25%.

M (Middle): Metro area is in the middle 50%.

B (Bottom): Metro area is in the bottom 25%.

This results in a three-letter code for every metro area (e.g., TTM, MMB), representing its profile.

Step 3: TMB combination assignment

Each metro area receives a TMB combination based on its position across the three pillars.

Step 4: Group assignment

To simplify the 27 combinations into a more policy-usable format, we map each combination into one of six broader groups:

Definition	**Group**
Bay Area (unique cluster with highest capacity: TTT)	Superstars
Strength across all pillars (TTT)	Star Hubs
Strength across at least two pillars (at least two Ts)	Emerging Centers
Focused strength along one pillar (only one T)	Focused Movers
Medium strength along at least two pillars (at least two Ms, no Ts)	Nascent Adopters
Low strength across at least two pillars (at least two Bs, no Ts)	Others

The 19 (of 27 total possible) combinations that appear in our dataset are mapped to these groups as follows:

Combination	Group	No. of metro areas
TTT	Superstars/Star Hubs	30
TTM	Emerging Centers	9
TMT	Emerging Centers	2
TTB	Emerging Centers	1
MTT	Emerging Centers	2
TMM	Focused Movers	7
MTM	Focused Movers	5
MMT	Focused Movers	14
MTB	Focused Movers	1
BBT	Focused Movers	1
BTB	Focused Movers	1
MMM	Nascent Adopters	47
MBM	Nascent Adopters	11
MMB	Nascent Adopters	11
BMM	Nascent Adopters	10
MBB	Others	6
BBB	Others	23
BMB	Others	6
BBM	Others	8

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