TALENT TRANSFORMED

The Impact of AI on the Tech Labor Market in the Greater Washington Region

March 2026

GREATER WASHINGTON PARTNERSHIP

Deloitte.

Executive Summary

The impact of AI on technology has been rapid and significant, but its impact on the labor market is less clear. Mixed signals about job losses versus productivity increases make it difficult for industry leaders and policymakers alike to make informed decisions. To help reduce that uncertainty, the Greater Washington Partnership has collaborated with Deloitte[1] to research AI's impact on the labor market, particularly for entry-level tech jobs in the Greater Washington region.

Through a combination of interviews with leaders in tech and data analysis, we found that:

- **AI is just one factor reshaping the labor force.** AI's impact on the labor market is currently overshadowed by larger economic and industry forces, but AI is poised to have significant impact on some industries and skills in the near future.
- **AI is reshaping the skills needed for work.** Foundational skills such as communication, collaboration, and management remain important, but with AI-fluency now being widely considered a foundational skill. Technical skills also felt the impact of AI, with increased demand for technical skills related to enabling and scaling AI such as cloud, identity management, and more.
- **Today's changes foreshadow big challenges tomorrow.** While AI's impact on the current labor force may be limited, certain highly AI-exposed occupations are poised for a "talent bubble" that requires new skilling pathways to train new hires to high levels of proficiency.

[1] As used in this document, "Deloitte" means Deloitte & Touche LLP, a subsidiary of Deloitte LLP. Please see www.deloitte.com/us/about for a detailed description of our legal structure. Certain services may not be available to attest clients under the rules and regulations of public accounting.

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INTRODUCTION & BACKGROUND

Introduction & Background

AI is emerging as a dominant force in reshaping entry-level technology pathways, and leaders across workforce development are grappling with the implications of this change for learners and jobseekers on opportunities available both today and in the years ahead. At the same time, employers across the Greater Washington region continue to face persistent demand for skilled technology talent. Together, these dynamics are creating growing uncertainty about how—and where—the next generation of talent will enter the workforce.

The Greater Washington Partnership (the Partnership) brings together the region's leading employers across diverse industries in Maryland, Virginia, and Washington, DC to strengthen the region's long-term economic competitiveness. Through its Skills & Talent Initiative, the Partnership works with educators and employers to build the most versatile workforce in the country by strengthening talent pipelines and ensuring learners have access to skills training that leads to economic mobility. It is this cross-sector convening capacity that makes the Partnership uniquely equipped to interpret and translate this moment in the region's labor market.

As part of the Skills & Talent Initiative, the Partnership launched the Employer Signaling System (ESS) in 2018—a first-of-its-kind labor market tool designed to provide transparent, employer-informed insights into the region's entry-level technology workforce. Originally developed in response to anticipated shortages of entry-level technology talent, the ESS now plays an even more critical role: helping employers, educators, and workforce leaders understand how rapid technological change, particularly the adoption of artificial intelligence, is reshaping skill expectations and career pathways into technology roles.

Two main elements comprise the ESS:

- Labor market data for high-growth, well-paying technology roles in the region; and
- Knowledge, Skills, and Abilities (KSAs) that map to the competencies needed to obtain these roles.

The labor market data is updated yearly, while the KSAs are updated every other year to ensure that the ESS is representative of today's tech labor market. Given the pace of technological change, regular updates to the KSA frameworks are critical to maintaining the ESS's relevance.

The most recent updates to the KSAs were made via a series of working groups conducted by the Greater Washington Partnership in November consisting of leaders in tech (industry advisors) from over fifteen large regional employers. The insights provided during these working groups are the foundation of the qualitative analysis in this report.

Employer Input into In-Demand Skills

The 2025 KSA Working Groups consisted of five sessions focused on key technology specializations within the ESS—Cybersecurity, Data Management and Analytics, Machine Learning, Networking, and Software Development—along with a sixth session focused on foundational skills in-demand across technology careers. Each working group was facilitated by a subject matter expert from a regional higher education institution.

Industry advisors reviewed and updated KSA lists to reflect changes to their fields over recent years and were asked to specifically identify how AI is reshaping entry-level roles and skill expectations. For the purposes of this publication, "entry-level" refers to job postings requiring 0–5 years of experience.

From these conversations, four key themes emerged:

AI-Driven Task Shift

While AI has not eliminated the demand for most entry-level technology skillsets, it has automated many rote tasks, increasing expectations for the depth and sophistication with which entry-level talent needs to apply these skills.

Emerging Technology

Findings show an increased demand for skillsets in cloud, identity management, the Internet of Things, and other emerging tech, even in entry-level talent.

Foundational Skills

Foundational skills like communication, collaboration, organization, and management are increasingly important—and fluency in AI is becoming considered a foundational skill.

Ethical Usage of AI

As AI and other technologies rapidly evolve, tech skillsets need to be viewed and trained through a lens of ethics, privacy, and security.

Data-Driven Findings

To accompany the qualitative insights from the working groups, the Partnership worked with Deloitte to pull labor market data and identify whether widespread adoption of AI and other technological advancements are impacting the regional workforce at scale. While the full effects of AI are not yet fully reflected in labor market outcomes, analysis of job posting data reveals early signals of change.

While this report is anchored in roles in computer science, data, cybersecurity, and other technological industries (roles traditionally classified as "tech jobs"), many of the skills surfaced through employer working groups—particularly foundational skills—extend beyond the technology sector itself. To address these blurred lines, this report examines both how entry-level technology roles are changing and how several of the skills underlying those roles are becoming more relevant across the regional economy.

The publication concludes with actionable recommendations, drafted by the Partnership and Deloitte, for stakeholders across the workforce development ecosystem to help anticipate the impacts of AI and other rapid technological advancements and adapt strategies accordingly.

PART 1

WORKING GROUP FINDINGS

SECTION 1: AI-Driven Task Shift

Employers described a clear shift in entry-level tech work as AI takes on routine tasks. While demand for technical talent remains strong, entry-level roles are increasingly focused on interpreting results, validating outputs, and exercising judgment. This change is pushing employees to contribute at a higher level much earlier in their careers.

In technical domains like data management and analytics, activities like data cleaning, querying, and basic analysis are increasingly automated. Entry-level analysts are now expected to assess data quality, identify bias, and explain AI-generated outputs rather than simply produce them. Employers stressed that asking the right questions of the data has become more critical than performing individual technical steps.

In cybersecurity, rote commands are less important than applying core knowledge to real-world scenarios. Entry-level workers need to assess risk, respond to incidents, and understand how individual actions impact broader systems. In software development, AI-assisted coding speeds up production but raises expectations for architectural thinking, debugging, and validation. Entry-level developers are now expected to grasp why solutions work, not just whether they run.

These changes present a challenge for workforce systems. Traditional entry-level roles may no longer provide the hands-on practice needed to build foundational skills, meaning new pathways will be needed to help workers build the experience required to advance into mid- and senior-level positions.

Implications for Workforce Development: As AI automates routine tasks, education programs will likely need to pivot to emphasize higher-order skills earlier in coursework. Students can better prepare for the workforce by practicing evaluating results, exercising judgment, and solving problems in realistic scenarios. Project-based learning, applied labs, and work-based experiences, especially when developed in collaboration with employers, can help learners gain the practical grounding required to succeed in modern entry-level tech roles.

SECTION 2: Emerging Technologies

As employers raised in-demand skillsets through the KSA Refresh, the Partnership heard consistent demand for cloud technologies, identity management, the Internet of Things (IoT), and other emerging technologies.

While employer interest in cloud technologies is not new (in 2024, 75% of employers the Partnership surveyed expected demand for cloud computing skills to continue to grow through the next decade[1]), employers in cybersecurity, software development, and networking are increasingly asking that entry-level talent arrive with stronger foundational knowledge in cloud, and across a broader suite of tools. While some specific cloud vendors were named in working groups, employers shared that the sheer amount of providers has diminished some of the demand for specific platform proficiency in favor of broad understanding of cloud and how it differs from other storage types like on-site.

As systems become more distributed and cloud-based, employers are pointing to identity management's role in enabling secure access, protecting data, and keeping systems functioning as intended. Identity management was raised across multiple KSA working groups, including data management/analytics, suggesting that this skillset is increasingly being seen as another core requirement for current and future entry-level talent across tech specializations, and not just cybersecurity workers.

Internet of Things arose as another example of emerging tech reshaping entry-level expectations. Employers across the KSA Refresh sessions are seeing increased demand for IoT skills in both software development and cybersecurity roles, driven in part by the expansion of connected devices and smart infrastructure. Several employers noted that IoT development is an emerging specialty of its own, with the potential to serve as an entry-level onramp into tech careers like the role other tech specializations like mobile and web app development have played in the past.

Implications for Workforce Development: These perspectives suggest a growing need for clearer signaling around what "entry-level readiness" now entails as it relates to new technologies. Addressing this shift will likely require increased ongoing dialogue between employers and education and training providers to ensure that curricula remain responsive to changing technological landscapes as certain systems become more or less important in a modern tech workplace. Strong employer partnerships, adaptable program design, and regular curriculum review can serve as key mechanisms for helping learners gain exposure to emerging technologies.

[1] Perspectives: Skills Forecasting Summit: Data & Insights for Tomorrow's Workforce, Greater Washington Partnership, 2024.

SECTION 3: Foundational Skills and AI as a Foundational Skill

Across employer working groups, regardless of tech specialization, one message came through clearly: foundational skills are more central than ever to entry-level tech work. Employers emphasized that communication, organization, collaboration, and adaptability are essential for applying technical skills in AI-enabled workplaces. As AI tools take on more routine tasks and accelerate workflows, entry-level employees are expected to exercise judgment, work with greater autonomy, and collaborate across technical and non-technical teams earlier in their careers.

In this environment, adaptability stands out as especially critical. Employers stressed that the ability to learn, pivot, and grow alongside changing technologies matters more than mastery of any single tool or platform.

Employers also noted that foundational skills and effective AI use are increasingly intertwined, with the ability to effectively collaborate with AI now considered a foundational skill for many tech employers. Fluency in generative AI goes beyond basic tool use to include evaluating outputs, identifying errors or bias, and communicating limitations clearly to stakeholders. In data management and analytics roles, this means presenting AI-generated results in ways that showcase both the insights and any uncertainty or trade-offs. In software development, entry-level workers are expected to work alongside AI tools to accelerate work while remainingresponsible for the overall quality of the final product. Across roles, employers emphasized that using AI effectively depends as much on judgment and clear communication as on technical ability.

Implications for Workforce Development: Unlike discrete technical tools, many of these foundational skills have traditionally been developed through on-the-job experience or through structured, practice-based learning environments. The growing emphasis on these skills highlights the importance of learning models co-designed and supported by industry that allow students to apply technical knowledge in realistic contexts, including work-based, project-based, and career-connected experiences, as part of their broader education and training pathways.

SECTION 4: Ethics and Governance around AI

Ethics and responsible AI use are now integral to entry-level tech work, not just an added consideration. Entry-level employees must make decisions in data handling, system design, and AI outputs that align with legal requirements and organizational standards. Responsibility and judgment are expected from day one, as these choices directly affect outcomes and risk management.

In software development, this means taking security and privacy into account from the start, rather than relying on later review. In data and machine learning roles, entry-level workers need to recognize the limitations of AI outputs and understand how the underlying data affects results. In cybersecurity, entry-level staff face frequent real-time decisions about monitoring, access, and incident response.

As expectations around ethical data use, governance, and responsible AI continue to expand, ethical judgment is increasingly emerging as a core component of entry-level technical competence. These expectations, undergirded by familiarity with technical standards and regulations, require workers to navigate trade-offs, assess risk, and understand the broader consequences of technical decisions. Across all roles, AI does not replace human responsibility. Employees remain accountable for the decisions they make.

Implications for Workforce Development: These insights suggest many of the competencies associated with ethical and responsible technology use are most effectively developed through applied, context-rich learning environments. Exposure to realistic scenarios—such as case studies, simulations, and project-based experiences—can surface the types of decision-making and accountability that entry-level roles increasingly demand, particularly as technologies and regulatory frameworks continue to evolve.

PART 2

DATA ANALYSIS: THE STORY TOLD BY THE NUMBERS

INTRODUCTION

The employer perspectives provided above offer firsthand, qualitative insights into the state of a rapidly AI-adopting workforce, but analysis of data helps us test if and how these employer signals are reflected in the broader labor market.

While it is still early to quantify the impact of AI on the entry-level tech labor market, available data already points to meaningful structural change. These indicators suggest not a single disruption, but a convergence of forces reshaping where jobs exist, what skills employers look for, and how workers traditionally enter and advance within technical fields.

SECTION 1: Context-Setting: a Snapshot of the Region's Labor Market

The Baltimore-to-Richmond region's major industries have seen large-scale changes in the last several years. The region has a unique concentration of fields like Professional, Scientific, and Technical Services, Information, and Public Administration, and job postings have been down sharply across all three industries since 2022.

Change in job postings among major industries highly concentrated in metro Washington

Industry	Change in job postings (2022-25)	Location Quotient
Professional, Scientific, and Technical Services	-32%	2.33
Information	-30%	1.39
Management of Companies and Enterprise	30%	1.37
Other Services (except Public Administration)	-30%	1.20
Public Administration	-46%	1.20
Construction		1.18
Arts, Entertainment, and Recreation	-20%	1.11
Educational Services	-19%	1.06
Finance and Insurance	-21%	1.00

Note: a location quotient value above one means that a specific industry is more concentrated in metro Washington relative to the U.S. overall.

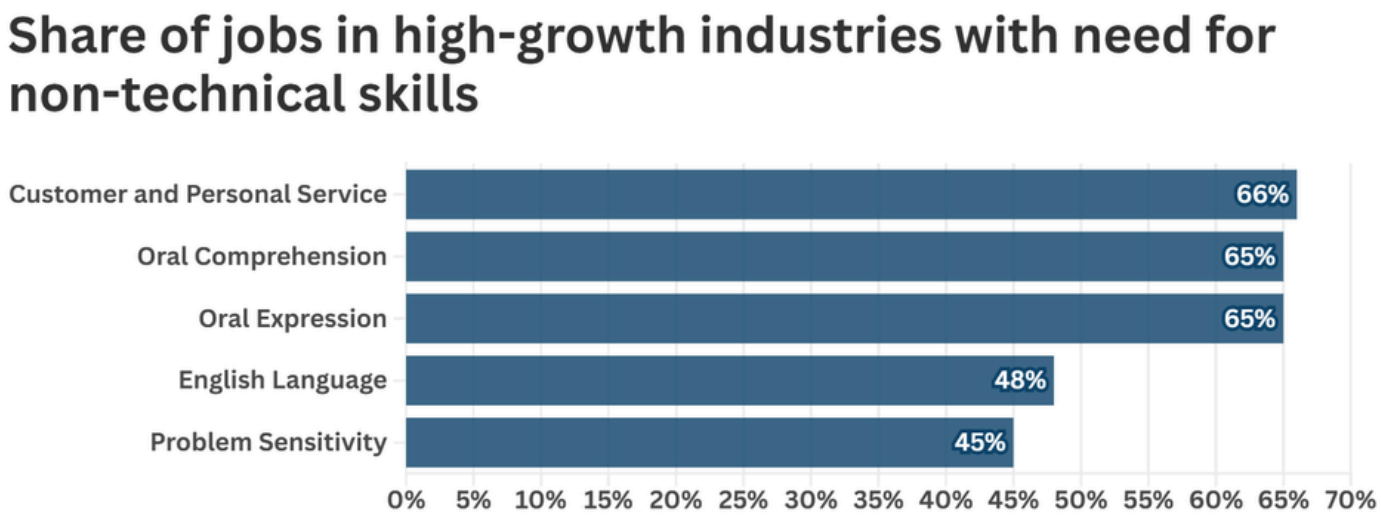
Deloitte analysis of Lightcast job posting data for DC MSA, 2022 vs. 2025

Data indicates that national and regional economic factors appear to be driving these declines. The contraction across these concentrated industries reveals a critical reality: while overall hiring is slowing, demand for the skills that support resilience and growth is intensifying.

This makes it essential to look beyond headline job losses and examine how skill demand is evolving beneath the surface.

SECTION 2: Diving Deep: Demand for Foundational vs. Technical Skills and its Implication

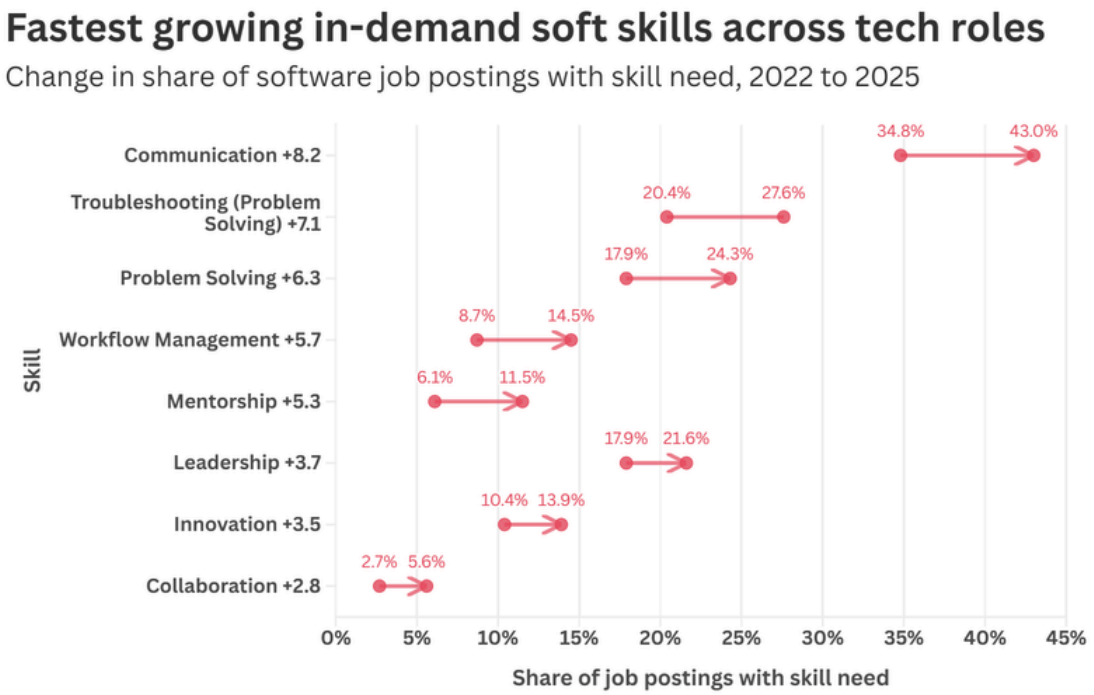
Despite contraction in some core industries, labor market data shows continued growth in others, including Management of Companies and Enterprises, Transportation and Warehousing, Construction, and Healthcare. Across these growing sectors, analysis of in-demand skills reveals a consistent pattern: foundational, non-technical skills appear most frequently in job postings.



*Deloitte analysis of Lightcast job postings to identify high-growth industries (including Sales and Related Occupations, Personal Care and Service Occupations, Healthcare Support Occupations, Legal Occupations, Educational Instruction and Library Occupations, and Community and Social Services Occupations) in DC MSA and the skills listed as important for those occupations in O*NET*

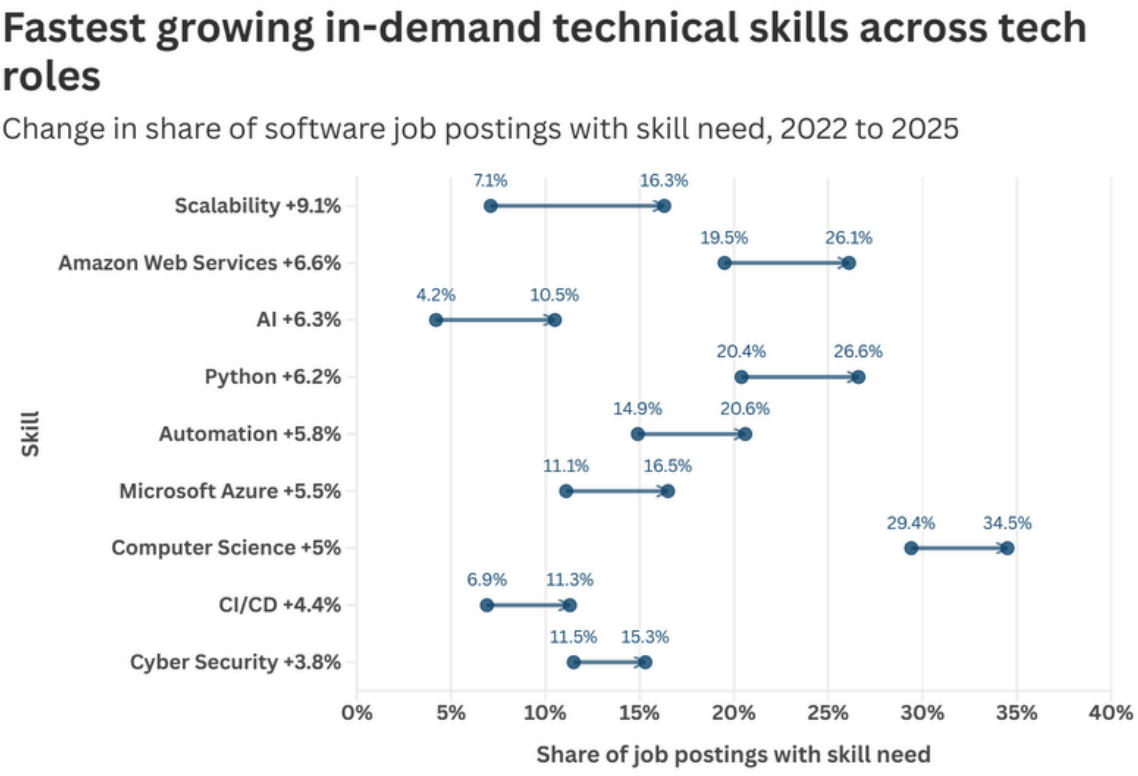
This has key implications for regional workforce development efforts. As the region looks to diversify beyond the industries it has traditionally relied on, investments in foundational skills, such as communication, problem recognition, and customer interaction, are likely to deliver broad and durable returns. These skills are not tied to a single occupation or sector, making them critical as building blocks for talent mobility in a changing economy.

A similar pattern emerges when examining demand within software job postings—roles typically classified as "tech jobs." Across these positions, the most in-demand skills continue to be foundational, non-technical competencies such as communication and problem solving.



Deloitte analysis of Lightcast in-demand skills across software job postings from 2022 to 2025 in DC MSA

This pattern holds even when analyzing changes in skill demand over the past several years. While certain technical skills—including scalability, AWS knowledge, AI, and Python—have seen notable growth, demand for foundational skills has increased at a comparable pace. The data suggests that as technical complexity rises, employers are placing equal emphasis on the human skills required to interpret, apply, and work effectively with these technologies. This also directly supports the key learnings from the working groups that foundational skills are more important than ever in a tech workforce increasingly shaped by AI.

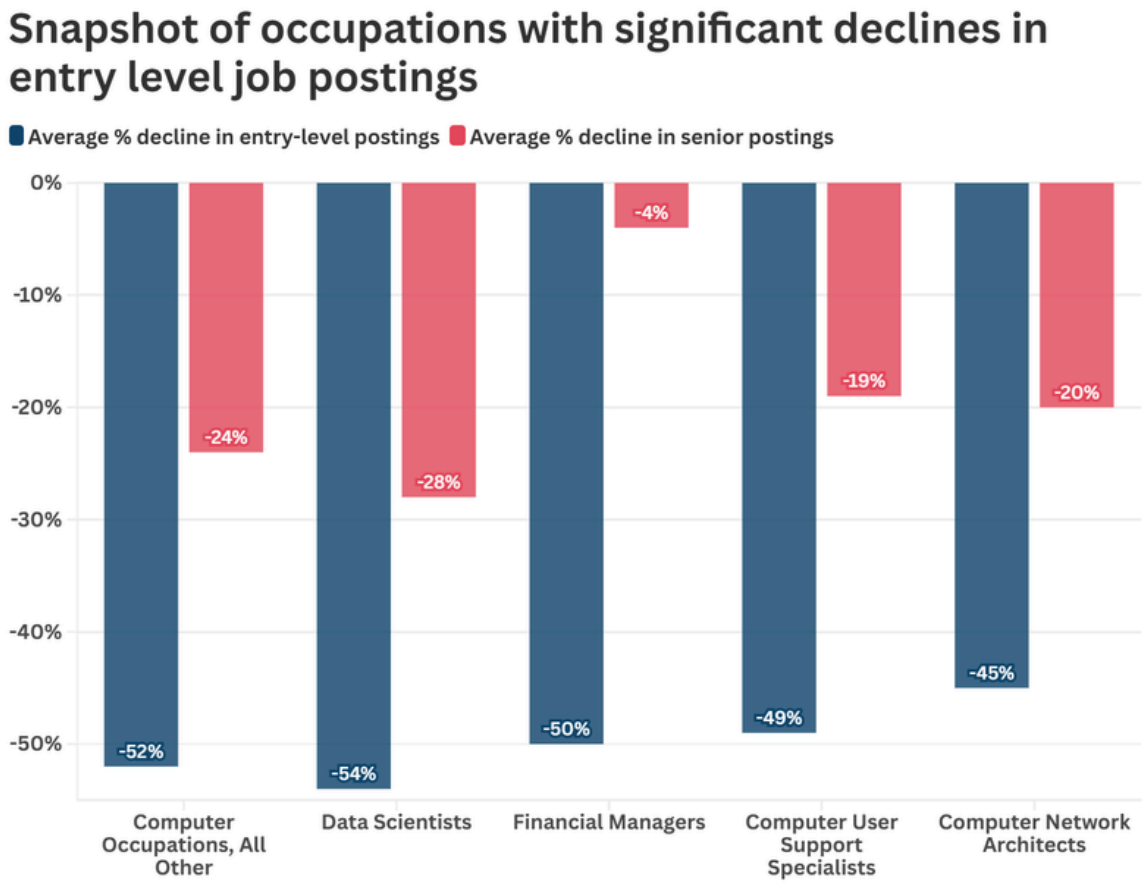


Deloitte analysis of Lightcast in-demand skills across software job postings from 2022 to 2025 in DC MSA

Notably, the foundational skills rising to the top of employer demand are those that entry-level workers often lack, as they are typically built through early-career experience rather than formal training.

SECTION 3: Diving Deeper: Declining Entry-Level Access to Tech Occupations and In-Demand Skills

Alongside shifts in skill demand, labor market data points to a significant decrease in entry-level hiring across a range of tech occupations. Since 2022, entry-level job postings have declined sharply in roles such as data scientists, computer and information research scientists, network and computer systems administrators, and user support specialists.

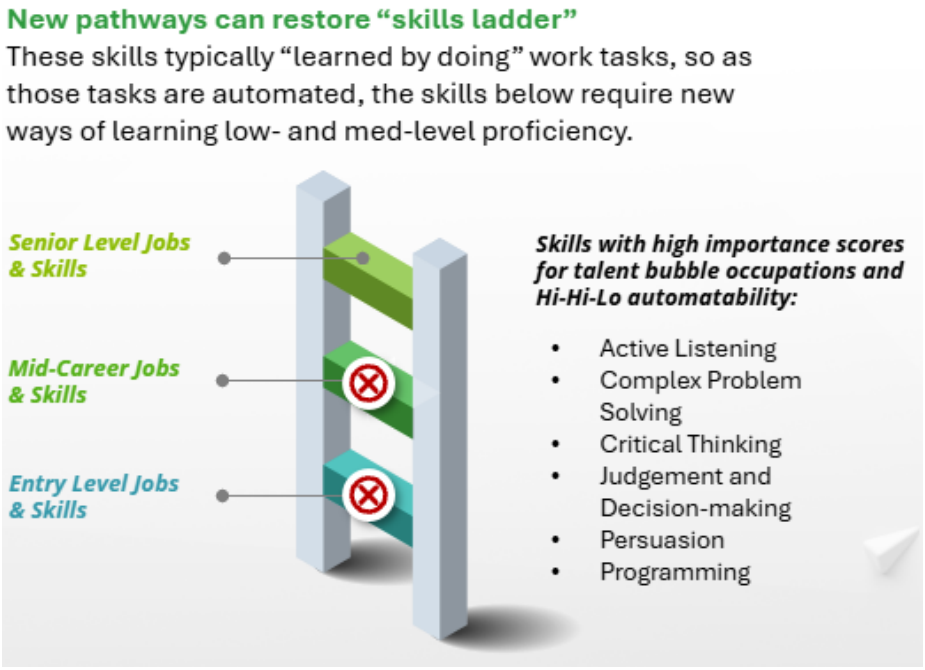


Deloitte analysis of Lightcast job postings from 2022 to 2025 in DC MSA

This decline isn't matched at higher levels of experience, suggesting that the reduction in job postings across tech fields is not evenly distributed across the workforce. This has implications for talent development broadly—the data indicates a disproportionate pullback in the roles that have traditionally served as key onramps into these higher-level technical careers.

This decline isn't attributable to any one factor—AI, economic uncertainty, and shifts in organizational structure across employers are likely playing a joint role in the impacts. The data, however, begins to raise key questions about how workers are expected to acquire the skills that employers increasingly demand if they can't build them in lower-level roles.

This issue is exacerbated when zooming in on in-demand skills for these roles and how they're impacted by AI. Analysis showed that certain sets of skills, both foundational and technical, are subject to "hi-hi-lo automatability" - meaning that at entry- and mid-career levels, they can be performed by AI, but at senior levels, they require human expertise and judgment. As AI increasingly performs those tasks, employers continue to demand the skills at higher levels—while the opportunities to build them early in a career are diminishing.



Source: Deloitte analysis

The result is a growing disconnect between skill expectations and skill acquisition. For workers, this creates a barrier to advancement: progressing to higher-level roles requires experience they no longer have clear pathways to gain. For employers, it poses a longer-term risk to workforce sustainability, as fewer workers are prepared to step into critical mid- and senior-level positions.

From looking at job posting data and the automatability of certain skillsets, it becomes clear that the region is grappling with a "talent bubble"—a career ladder that is beginning to break. Without strong lower rungs, talent can't progress upwards. This dynamic disproportionately affects career starters, career switchers, and workers without informal networks that substitute for on-the-job learning.

PART 3

CONCLUSIONS & RECOMMENDATIONS

These qualitative and quantitative findings suggest that the region's workforce is in a moment of rapid change. Working groups surfaced how AI is showing up in the workplace, including its impacts on the use of new technologies, skill proficiency levels, and new literacy required of talent, and data analysis showed how these shifting employer expectations are showing up in job posting data.

To keep pace with these shifts, workforce systems, employers, and education providers should rethink how skills are defined, taught, and signaled so that talent pipelines remain viable. The time is now for cross-sector, innovative collaboration that can create a talent ecosystem that's adaptable and responsive to these changes rather than lagging them.

The Partnership and Deloitte have compiled the following recommendations for strategies those across the workforce development ecosystem can implement to stay aligned on priorities for talent development.

Finding: AI is reshaping the skills needed for work.

Action: Develop systems to equip learners with in-demand skills that fuel fast growth. As the region looks to industries that are growing and projected to have opportunities for talent in the years ahead, partners should collaborate to train the next generation of talent with skills that are in-demand across these industries.

Scale production of in-demand skills

- **Academia:** Integrate high-demand, low-density skills like customer service into curricula, so that regardless of program of study, students are broadly equipped to move into industries that might experience growth in the years ahead.

- **Employers:** Ensure that in-demand, current skills are accurately reflected in job postings to send the right signal to academia and workers.
  - Through the Greater Washington Partnership's Employer Signaling System, employers can signal to education and training providers the most in-demand skillsets to enter their industries.

Retain already skilled talent

- **Local Governments:** Provide tools and resources for recent graduates to understand the opportunities available in the region and create career navigation tools to help experienced employees find new opportunities within the region.
  - An example of this cross-sector collaboration in action is TalentCapital.AI, a multi-jurisdiction tool used to find careers and resources to support the job search.

Finding: Today's challenges foreshadow big challenges tomorrow.

Action: Develop new skilling pathways for industries experiencing lower entry-level hiring rates. To help defuse the "talent bubble", partners should help create new skilling pathways to help create highly skilled workers in those areas most impacted by Gen AI.

Target skill development

- **Local Governments:** Shift workforce programs from job-specific training to skills-based training, specifically those skills impacted by AI.

- **Employers:** Adapt internal learning and development pathways that support broader skill development vs. job-specific tasks, allowing talent to transition as certain roles and skillsets are less in-demand.

Create new ways of skilling

- **Academia and employers:** Work in partnership to develop internships, apprenticeships, and other work-based learning programs to build the proficiency needed to become highly skilled even as AI automates common work tasks.

The Greater Washington Partnership remains committed to supporting its partners in building innovative talent development programs that adapt to the needs of the shifting labor market, and to elevating shifting employer needs transparently to stakeholders poised to respond.

Leveraging its unique capacity as a connector, the Partnership will continue to bring together disparate stakeholders to tackle the region's toughest talent challenges, uplifting the Baltimore-to-Richmond corridor as the best place in the country to live, work, and build a business.

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