FUTURE TALENT COUNCIL

Future Talent Insight Brief

Before and After: AI, Occupational Change, and the Future of Early Careers

Focus Question

As AI reshapes the skills and structures of work across industries, what has changed between the pre- and post-implementation eras, and what do those changes demand of the organisations and workers navigating them?

1. Introduction

Ours is the first generation to enter the workforce after LLM's became an operational reality rather than a research prospect. Previous technological disruptions, including mechanisation, computerisation, and offshoring, unfolded across decades, giving labour markets and education systems room to adapt. AI has compressed a comparable structural shift into roughly three years, and the effects are no longer speculative: they appear in occupational data, in hiring patterns, and in a widening mismatch between what universities certify and what employers now need. This brief maps that shift through O*NET skill data and Bureau of Labor Statistics (BLS) occupational projections, asking what the US labour market looked like for early-career workers before AI became operationally widespread, roughly pre-2022, and what it looks like now. The comparison separates AI-specific signals from longer-running structural pressures, and points toward the interventions that actually address the right problem.

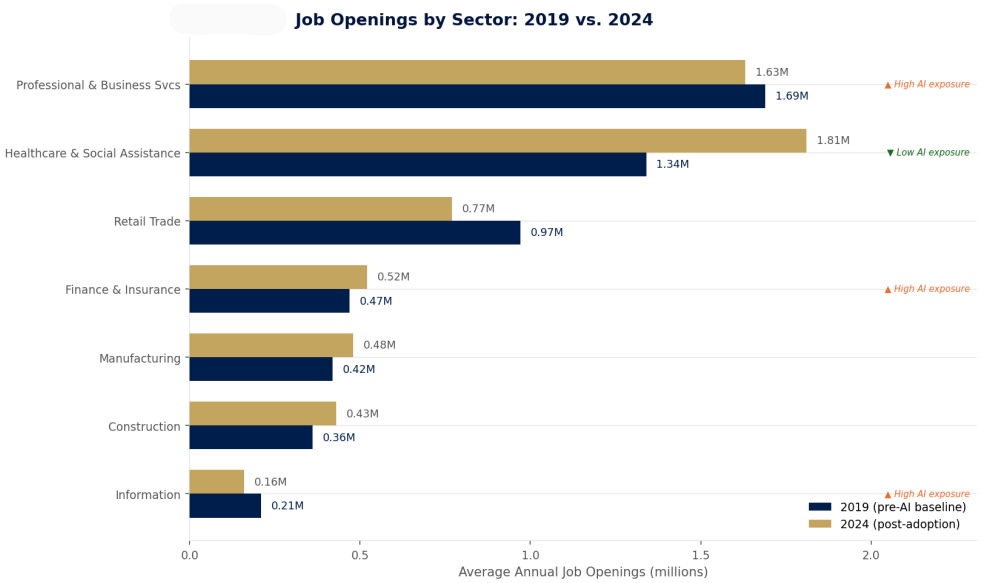
2. Background & Context

The United States is the primary focus of this analysis because it leads all major economies in the pace and volume of AI deployment, producing a richer and more longitudinally consistent evidence base than comparable markets: BLS occupational projections, O*NET task-level skill ratings, and Lightcast job-posting analytics are all substantially more developed here. The underlying dynamics, however, are global. The UK Institute of Student Employers recorded a 46% fall in technology graduate roles in 2024, and Stepstone's analysis of four million European job advertisements found entry-level postings at their lowest recorded share of total listings. The US is an accelerated version of a pattern playing out across advanced economies.

According to NCES IPEDS data, the number of bachelor's degrees conferred in the United States grew from approximately 1.4 million in 2003-04 to around 1.9 million in 2021-22, a rise of roughly 37% while BLS employment projections show that occupations typically requiring a bachelor's degree for entry account for only 25% of total US employment: the pipeline of credentialled graduates has long been expanding faster than the share of jobs designed to receive them. AI did not create that gap, but it is widening it. By December 2025, 43% of US graduates aged 22 to 27 were underemployed, the highest rate since the pandemic (Federal Reserve Bank of New York), despite overall college-educated unemployment remaining

near historic lows of 2-3%. This divergence between aggregate labour market health and the specific difficulties of career entrants is precisely what the data need to explain.

AI adoption has also been deeply uneven across industries, and BLS JOLTS data on job openings by NAICS supersector — covering all experience levels rather than entry-level positions specifically — illustrates the direction of that divergence clearly. Healthcare and Social Assistance recorded the largest absolute gain in average annual openings between 2019 and 2024 (+0.47 million), a sector that Accenture's occupational framework places firmly in the AI-augmentation category, where automation extends human capability rather than substituting for it. The contrast with high-AI-exposure sectors is evident in the Information sector which encompasses software, media, and telecommunications, and saw openings fall over the same period, as did Finance and Insurance, where AI has most aggressively displaced structured analytical and administrative tasks. Retail Trade recorded the largest proportional decline (-200,000 job openings), consistent with the longer-running pressure of digital commerce compounded by AI-driven process automation. Professional and Business Services, another high-exposure supersector, showed broadly flat aggregate openings, masking a compositional shift within that category away from routine support roles and toward oversight and judgement-intensive ones. These are whole-of-sector signals, not entry-level measures, and aggregate openings reflect both new hires and replacement demand; they should be read as directional context rather than precise evidence of what has happened to graduate hiring. What they confirm, in combination with the labour market data above, is that the industries most exposed to AI automation are the same ones contracting their hiring most visibly, and that the sectors expanding are precisely those where human judgement remains structurally difficult to automate.



3. Automation Risk: The Before-and-After

The before-and-after contrast in entry-level hiring demonstrates a significant change following AI implementation. SignalFire's analysis of 650 million LinkedIn profiles found that new graduates accounted for roughly 14% of new hires at large technology firms in 2019 and 30% at startups; by 2024, those figures had fallen to 7% and under 6% respectively, declines of more than 50%t from pre-pandemic levels that were consistent across sales, marketing, engineering, and finance (SignalFire, 2025). Revelio Labs tracked US job postings and found entry-level listings had declined approximately 35% from January 2023, coinciding closely with the mass adoption of generative AI tools. The most rigorous causal evidence comes from Brynjolfsson, Chandar and Chen at the Stanford Digital Economy Lab (August 2025), who used actual AI query patterns to isolate the automation effect. Employment for workers aged 22 to 25 in software engineering and customer service fell approximately 20% from late 2022 to mid-2025, while employment for workers aged 35 and over in the same roles rose by 6-9%.

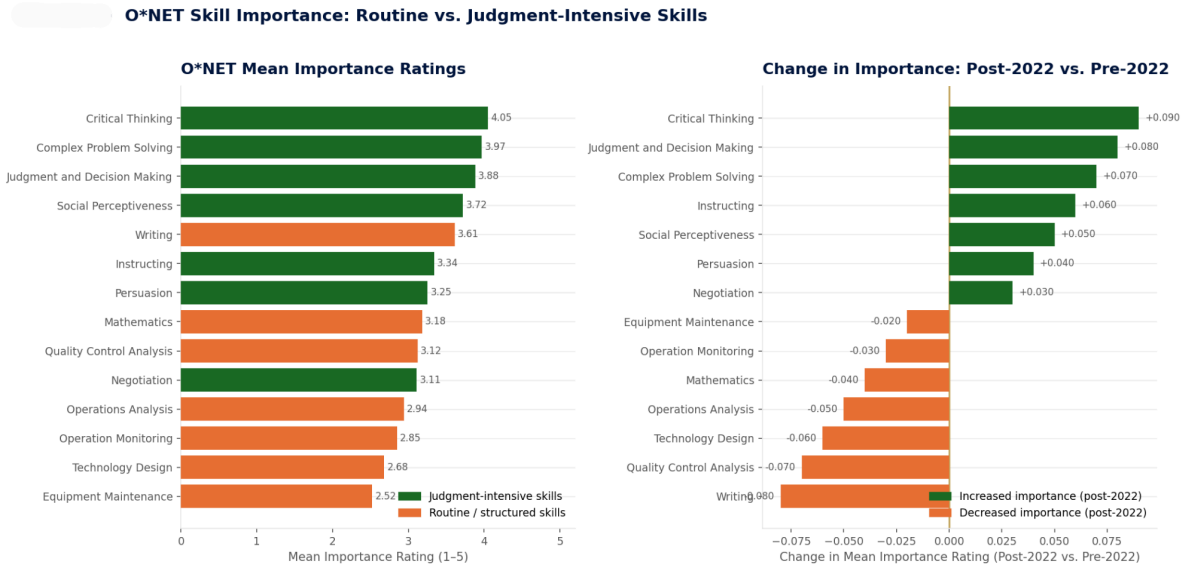
Entry-level roles are defined by task legibility, meaning documented processes, measurable outputs, and repeatable procedures, and these are precisely the characteristics that make work tractable for large language models. Senior workers derive value from judgment, institutional knowledge, and the capacity to direct and evaluate AI outputs: capabilities that current models do not credibly replicate. The result is a bifurcation in which AI functions as a productivity multiplier for experienced workers while compressing demand for the roles through which that experience has historically been built. The implicit bargain of entry-level employment, accepting routine work in exchange for mentorship and gradual advancement, is eroding as AI absorbs the routine work.

4. The Shifting Skills Landscape

4.1 Skills declining in demand

The skills losing labour market value are those associated with structured information processing and repeatable task execution. O*NET Database v30.1 provides a cross-sectional view of this shift: comparing occupational skill importance ratings drawn from occupation sets updated before and after 2022 reveals a consistent directional pattern, though the comparison reflects different occupation sets updated at different points in O*NET's rolling review cycle rather than a longitudinal panel of the same roles over time. Within the routine and structured-skills cluster, Quality Control Analysis carries a mean importance rating of just 2.52 out of 5 — the lowest in the dataset — followed by Operations Monitoring (2.85), Operations Analysis (2.94), and Technology Design (2.68). Mathematics, while rated at 3.18, has shifted downward in the post-2022 occupation set, consistent with the displacement of quantitative processing tasks by AI tools. Writing, rated 3.61 and historically one of the more

transferable graduate competencies, has also declined in employer weighting in the post-2022 cross-section (−0.08), a finding that reflects the growing prevalence of generative AI in drafting and editing workflows. The BLS projects reduced employment growth for administrative support workers, paralegals, translators, and graphic designers through 2034, each of which draws heavily on the processing and structuring tasks these skills describe, with AI contributing to the digital takeover of their core task profiles.



4.1 Skills rising in demand

The counterpart is rising demand for skills that AI cannot yet replicate credibly: judgement, critical reasoning, contextual communication, and the capacity to direct and evaluate AI-generated outputs. O*NET's cross-sectional comparison again, reflecting different occupation sets at different points in the rolling update cycle rather than a true longitudinal panel, shows that every skill in the judgement-intensive cluster increased in mean employer importance rating in the post-2022 occupation set. Critical Thinking leads both in absolute rating (4.05 out of 5, the highest in the full dataset) and in the magnitude of directional change (+0.09), followed by Judgement and Decision Making (3.88; +0.08) and Complex Problem Solving (3.97; +0.07). Social Perceptiveness, which captures the ability to read interpersonal and organisational dynamics, carries a mean rating of 3.72 and increased by +0.05 in the post-2022 cross-section, a signal that contextually embedded human skills are being revalued as AI takes over the more codifiable parts of professional tasks. Instructing (+0.06), Persuasion (+0.04), and Negotiation (+0.03) all moved in the same direction, pointing toward a premium on communication that requires adaptive judgement rather than template-following. That the entire judgement-intensive cluster shifted upward while the entire routine cluster shifted downward is consistent with a structural recharacterisation of the skills employers consider core to professional roles — not merely a stable preference that has always existed, but an active repricing in response to what AI has demonstrably made redundant.

Lightcast's Beyond the Buzz report, drawn from analysis of over 1.3 billion job postings, found that roles explicitly requiring AI skills carry a 28% salary premium over otherwise comparable positions, and that 51% of those roles sit outside IT and computer science, reflecting an 800% growth in generative AI skill requirements across non-technical industries since 2022. The World Economic Forum's Future of Jobs Report 2025 identifies analytical thinking, creative reasoning, and resilience as the fastest-rising competencies. The Federal Reserve Bank of New York reported in early 2025 that unemployment rates for liberal arts graduates now approximately match those of computer science graduates, a rebalancing that reflects the rising premium on judgement-intensive, contextually flexible skills relative to technically specific but routine-adjacent ones.

5. Where This Leaves Us

The pre- and post-AI comparison assembled here supports one central claim: the entry conditions of the professional labour market have changed structurally, and the change has landed first and hardest at career entry. Entry-level hiring in high-exposure sectors contracted by between 20 and 50% between 2022 and 2025. The skills that opened graduate career doors a decade ago are being automated. Those now attracting salary premiums, including judgment, communication, contextual reasoning, and domain expertise paired with the capacity to direct AI tools purposefully, are precisely those that most educational systems are not yet systematically cultivating. The Kenan Institute for Private Enterprise has identified this as an AI skills gap that extends beyond technical training into the core competencies of professional practice.

For industry leaders, the near-term efficiency case for automating junior tasks is real, but the longer-run risk is less visible and equally well-evidenced. Organisations that eliminate entry-level positions eliminate the pipeline through which institutional knowledge compounds. For universities, curriculum cycles running on five-year timelines are structurally mismatched with a skills landscape turning over in one or two, and embedding AI literacy, critical reasoning, and data communication across programmes as core competencies rather than electives is the minimum adjustment the data justify. For this generation, the workers thriving in AI-exposed fields are not those who avoided the technology but those who developed the judgment to adapt to it.

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