REDESIGNING EARLY-CAREER TECH PATHWAYS IN THE AGE OF AI

A Synthesis of Research, Employer Roundtables, and Registered Apprenticeship Pathways
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America is in the middle of a workforce transformation. AI is not a distant threat — it is actively reshaping who gets hired and what skills matter.

The entry-level roles that have long served as on-ramps into the technology workforce — especially for those without a college degree — are changing faster than training programs can respond. Compounding the challenge, employers are seeking early career talent with 2–3 years of experience and an elevated set of durable skills.

Findings from a research collaboration between the Burning Glass Institute (BGI) and NPower, completed March 2026, translate hard data and employer voices into a clear set of actions that training providers, employers, and funders can take to ensure tech-centric pathways to economic mobility remain accessible.

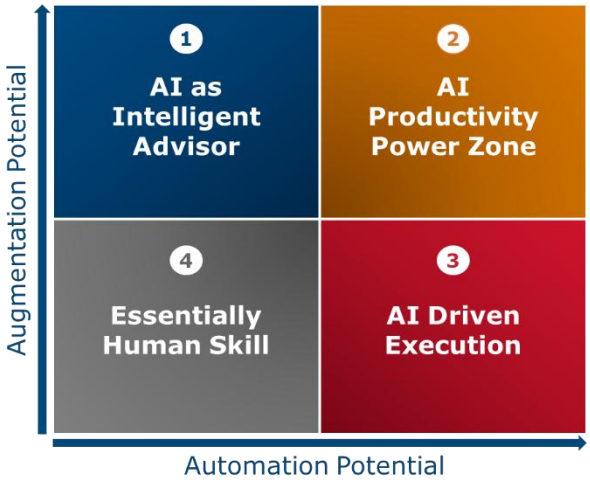
01 | THE PROBLEM: AI IS PULLING UP THE LADDER

For decades, entry-level technology jobs served as the first rung for young adults and military veterans. Helpdesk tickets, data entry, QA testing, basic coding, reconciliation — these tasks built skills, demonstrated reliability, and opened doors. Today, AI is automating exactly those tasks.

> *"The 'handholds' are taken by AI. All the easy things that would have helped entry-level talent are now gone for each step."*
> **— Cybersecurity Executive, NPower/BGI Employer Roundtable**

Most analyses of the impact of AI on the workforce focus on a single question: "Will this job be automated?" BGI's approach is differentiated by evaluating every component skill simultaneously on two dimensions: ***Automation Exposure*** (the degree to which AI can execute the task) and ***Augmentation Potential*** (the degree to which AI enhances human performance when a person remains in the loop). Rather than treating these as opposing forces, BGI maps their direct interplay, producing a more precise and actionable picture of where it creates opportunity, and where human value is most durable and essential.

The result is a four-quadrant framework distinguishing not just whether a skill is AI-exposed, but how training programs should respond:



1 High Augmentation, Low Automation

Highlights skills that are enriched, but lack the efficiency gains of automation. These skills will increasingly differentiate top performers. Prioritize mastery-level instruction: synthesis, critical evaluation, and expert judgement in domain-specific contexts. **Invest Deeply.**

2 High Augmentation, High Automation:

Skills here deliver the greatest productivity gains and competitive advantage. Workers need to integrate AI into their workflow, not just execute tasks manually. Curriculum must evolve to teach prompt engineering, output validation, and human-in-the-loop supervision. **Redesign How You Teach**.

3 Low Augmentation, High Automation:

These skills are increasingly commoditized, expected for all as AI lowers skill barriers and absorbs these tasks. Shift instruction from performing tasks to supervising AI agents that carry them out or redirect those training hours toward higher-value quadrants. **Deprioritize or Reframe.**

4 Low Augmentation, Low Automation:

These skills remain human-centered with limited AI enhancement and automation exposure. Physical execution, foundational knowledge, and credentialed trades remain largely untouched by AI. Keep current approaches but push toward mastery. **Maintain and Deepen**.

NPower and BGI mapped 52 entry-level tech job titles and 500+ skills across financial services, healthcare, advanced manufacturing, IT support, retail, and data centers. Key findings:

- Roles with highest AI exposure: Data Analyst, Business Analyst, Helpdesk Associate, Clinical Data Entry Operator.
- Roles with lowest AI exposure: Field Service Technician, Cybersecurity Analyst, Desktop Engineer, Installer — requiring physical presence, judgment, and dexterity AI cannot replicate.
- The traditional **career ladder** is becoming a **career lattice**: The straight vertical path from helpdesk support to IT manager is giving way to lateral and diagonal moves across compliance, cybersecurity, and AI ethics. But these moves are only available for workers who receive the right career guidance and continued upskilling.

The opportunity for training providers, employers, and the workforce system more generally is to support individuals in transitions from roles vulnerable to automation to growth roles enhanced by augmentation.

02 | WHAT EMPLOYERS ARE SAYING

NPower and BGI convened four employer roundtables in November 2025, bringing together hiring managers, workforce executives, staffing leaders, and funding partners to pressure-test the research and reveal the human cost of a hiring market in flux. Employers are not replacing junior workers with AI yet — but they are hedging. With fewer middle managers to coach new talent, and mounting uncertainty about which roles AI will ultimately reshape, many companies are defaulting to experienced hires and contractors. The junior pipeline is thinning. Meanwhile, expectations for new hires are rising sharply.

> *"AI has not replaced people because companies have not figured out how to do that."*
>
> **— Staffing Firm Executive**

Five Themes from the Roundtables

① Critical Thinking First

Employers increasingly prize problem solving, listening skills, curiosity, and systems thinking over narrow technical expertise. As one managing director put it, "Debate class might be more useful than C++."

② Interpretation Over Generation

The new core skill is not generating AI outputs — it is judging them. Workers must assess correctness, spot errors, identify ethical concerns, and flag risk.

③ Domain Fluency as the New Moat

Without business context, workers cannot frame the right prompts or evaluate AI outputs sensibly. Domain knowledge has become a key differentiator for candidates for entry-level roles.

④ Re-imagining Work Experience

Capstone projects, AI certifications, and portfolio assessments can substitute for years-of-experience requirements. Formal apprenticeships bridge the gap.

⑤ Redefining Work Readiness

AI cannot convey professional norms, organizational goals, or team culture. Human-centered onboarding remains irreplaceable — yet the mid-management layer that once provided it has thinned.

03 | REINVENTING APPRENTICESHIPS FOR THE AI ERA

Registered apprenticeships are uniquely positioned to close the gap between elevated employer requirements and training program capacity — if redesigned to reflect AI-era demands. Apprenticeships have worked historically because they connect learning to real work. In this rapidly changing labor market, that connection is more valuable than ever, and more urgent to get right. The earn-while-you-learn model is especially effective at addressing the barriers facing young adults from low- and moderate-income backgrounds, and military veterans transitioning to civilian careers. It provides structured, employer-validated training without requiring workers to take on debt.

NPower and BGI analyzed **30 registered tech apprenticeships, identifying 700 unique skills** and scored them across the Automation/Augmentation framework. The analysis shows that apprenticeship curricula can — and must — be redesigned to prioritize the skills AI amplifies rather than eliminates: judgment, interpretation, collaboration, and domain expertise. The team took the further step of annotating all 30 apprenticeship standards with how Automation or Augmentation impacts each set of required job competencies.

Apprenticeship Redesign Recommendations Across the Four Quadrants

① AI Productivity Power Zone	② AI as Intelligent Advisor	③ AI-Driven Execution	④ Essentially Human Skills
Apprentices can use AI to dramatically amplify both the quality and quantity of their output. Apprenticeship training here should focus on AI tool integration and workflow redesign.	*AI sharpens thinking but humans remain in the driver's seat. Apprentices who know how to use AI as an advisor are at an advantage as other skills commoditize. Training here creates a competitive edge.*	*Commoditized skills that AI now handles with minimal human involvement. Apprenticeship training programs should pivot away from these — or reframe them as AI supervision tasks.*	*Hands-on, judgment-heavy, relationship-based work AI cannot touch. Field service, physical repair, customer interaction. These Apprenticeship categories remain safe — and undervalued.*

04 | HOW NPOWER IS RESPONDING

NPower has aggressively evolved its model in direct response to this research — restructuring programs around the skills that matter in an AI economy, expanding the populations it serves, and deepening new employer partnerships. All curricula are now anchored in Quadrants 1, 2, and 4 of the Automation-Augmentation Framework. Key shifts include:

FROM		TO
Programs	▶	**Pathways**
Career Ladders	▶	**Career Lattices**
Employer-informed curriculum designed to yield certifications	▶	**Designed for high-augmentation & human skills (Q1, Q2, Q4) plus employer-informed durable skills training**
Young Adults & Military Connected	▶	**Plus incumbent workers in low-income jobs exposed to AI disruption**
Job Placement	▶	**Plus Wage Growth & Career Lattice Navigation**
AI Literacy & Competency	▶	**AI Agency: evaluate, question, and direct AI with domain expertise**
Stackable Certifications	▶	**Stackable Experiences & Certifications**
Internships	▶	**Apprenticeships, Capstones, Work-based Simulations**
Financial Services, Consulting, Managed Service Providers	▶	**Expanded: Healthcare, Data Centers, Small-Medium Sized Businesses**

05 | WHY THIS MATTERS: A CALL TO ACTION

The window to intervene is now. The thinning of entry-level hiring is not a temporary market cycle — it reflects structural change driven by AI adoption. Every year that passes without rebuilding these pathways, the gap between opportunity and access grows wider.

Collective Actions for All Stakeholders

- Support learners for long-term agility and adaptability — not just narrow role-readiness.
- Identify, measure, and validate relevant durable skills across industry sectors.
- Create multiple employer-validated formats to demonstrate work-readiness, including capstone projects, problem-solving portfolios.
- Expand work-based learning pathways, with significant investment in registered apprenticeships.
- Grow capacity for training providers to support onboarding and early-career guidance for recent graduates.
- Build broadly accessible career navigation systems giving workers and learners visibility into AI impact on roles — and agency to build the right Quadrant 1 & 2 skills.
- Invest in systems to measure long-term wage growth and offer meaningful upskilling and supportive interventions during periods of under- or unemployment.

With established industry-recognized certifications, employment in tech infrastructure roles has long been a successful path to economic mobility for those without a college degree. Today that path is at risk. We hope this research serves as a catalyst to strengthen those pathways and support the next generation eager for challenge and opportunity.