Executive Summary From "AI and the Future of Workforce Training"

The emergence of artificial intelligence (AI) as a general-purpose technology is poised to transform work across a variety of industries and job roles. Previous waves of technological change mainly led to job displacement and wage pressures for blue-collar workers while enhancing productivity and wages for white-collar workers. In contrast, AI's impact could be more pervasive across all occupational categories, including knowledge workers and those with advanced education. Recent studies indicate that up to 80 percent of U.S. workers might have at least 10 percent of their work activities affected by large language models, with approximately 19 percent of workers potentially seeing half or more of their work activities impacted.

The nature of this transformation depends largely on two factors: the degree to which AI can perform or enhance an occupation's core tasks, and whether AI serves as a substitute for or complement to human workers. Occupations with high AI exposure but low complementarity face the greatest risk of disruption, highlighting the need for comprehensive retraining and upskilling initiatives. This situation is particularly critical given that technical skills now become outdated in less than five years, on average.

Analysis of future workforce demands reveals the following trend: while technical skills remain important, accounting for about 27 percent of in-demand skills, the majority of crucial skills are nontechnical. Foundational skills (such as mathematics and active learning), social skills (including social perceptiveness and negotiation), and thinking skills (such as complex problem-solving and critical thinking) together make up nearly 58 percent of skills needed in growing occupations. This underscores the importance of developing a well-rounded workforce capable of adapting to technological change while maintaining strong interpersonal and analytical capabilities.

The potentially far-reaching impact of AI across occupations, coupled with the likely accelerating pace of skill obsolescence, points to an increasing need for continuous retraining and upskilling opportunities throughout workers' careers. This shifting landscape demands a critical examination of current workforce development infrastructure and its capacity to meet these emerging challenges at scale. Understanding which elements of the existing system can be effectively expanded and which barriers need to be addressed becomes crucial for developing responsive and resilient workforce training solutions.

Community colleges emerge as pivotal institutions in addressing these challenges, particularly when integrated into robust regional ecosystems that include employers and intermediaries. Recent federal initiatives, including $265 million in Strengthening Community Colleges Training Grants

since 2021, demonstrate recognition of community colleges' crucial role. Successful workforce development

programs often combine traditional education with work-based learning opportunities, such as registered apprenticeships and career technical education (CTE). Several states have already begun implementing AI-specific CTE programs to prepare students for the evolving technical workforce.

However, significant challenges persist in the current workforce development landscape. These include fragmented training systems, insufficient public funding, regulatory disincentives favoring capital investment over labor, and difficulties in scaling successful programs.

While AI may be a source of workplace disruption requiring enhanced workforce training efforts, it also presents opportunities to address some of these systemic challenges in workforce development. The technology's capabilities could help scale effective training solutions and make them more accessible and affordable, potentially bridging gaps in the current system.

Specifically, these capabilities enable personalized learning experiences, rapid content delivery, and increased accessibility. AI tools can provide customized learning paths, instant feedback, and career guidance. However, implementation must be approached cautiously. Concerns include the potential erosion of interpersonal skills, trust and privacy issues, and the risk of exacerbating existing inequalities through algorithmic bias and unequal access. Research indicates that while AI tools can enhance productivity, overreliance on these tools may hinder genuine skill development and learning.

Moving forward, successful workforce development will require a multifaceted approach: strengthening community college programs, expanding alternative career pathways, incorporating AI literacy into training initiatives, and ensuring equitable access to technology-enabled learning opportunities. This should be accompanied by careful consideration of how AI tools are integrated into training programs to maximize benefits while mitigating risks to skill development and learning outcomes. Further research is needed to understand how successful training solutions can be scaled across diverse regions and how AI training tools can be effectively deployed to serve diverse populations while supporting genuine skill development and learning.

For more information:
- Download the report: https://cset.georgetown.edu/publication/ai-and-the-future-of-workforce-training/
- Contact us: cset@georgetown.edu