

The Transformative Role of Agentic GenAI in Shaping Workforce Development and Education in the US

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Abstract- This literature review explores the role of Generative AI in workforce development, education, and business management, with a focus on AI-driven reskilling, higher education transformations, labor market shifts, and business intelligence advancements. By analyzing 25 recent studies, this paper categorizes key themes and presents a structured evaluation of AI's current impact and future potential. The review aims to identify measurable findings, research gaps, and areas for further investigation, offering a foundation for understanding how AI is reshaping economic and professional landscapes. The study is structured around four core themes: (1) AI in Workforce and Labor Market, (2) AI in Education and Skill Development, (3) AI in Business and Industry, and (4) Ethical and Societal Implications. Each section synthesizes quantitative findings and projections, assessing AI's role in automation, job displacement, skill augmentation, and emerging employment opportunities. The review highlights how AI is redefining traditional labor structures, increasing efficiency while also raising concerns about workforce displacement. The review identifies gaps in existing research, particularly in quantifying AI's long-term impact on learning outcomes and institutional adoption. From a business perspective, AI is enhancing decision-making, operational efficiency, and risk management. This paper also outlines research gaps and areas requiring further study, particularly in long-term AI workforce integration, ethical AI governance, and the economic implications of AI-driven productivity shifts. By providing a structured overview of existing literature and quantitative trends, this review contributes to ongoing discussions about AI's role in shaping future economic and professional landscapes.

Indexed Terms- Agentic GenAI, US Workforce Development, US National Interest, Gen AI Training

I. INTRODUCTION

The rapid integration of Artificial Intelligence (AI) into workforce development, education, and industry has profound implications for economic growth and societal advancement. This literature review examines the transformative role of AI in these domains, focusing on its potential to enhance productivity, improve educational outcomes, and drive industrial innovation. By analyzing recent studies, this review demonstrates the national importance of advancing AI research and applications to address critical challenges and opportunities in the United States.

Generative Artificial Intelligence (GenAI) is transforming multiple domains, including workforce development, higher education, and business management. This review categorizes recent literature into three key areas:

- 1) AI-driven reskilling and workforce impacts
- 2) Generative AI in education,
- 3) Business intelligence and AI applications.

The integration of AI into various domains has led to significant advancements, often supported by measurable outcomes. This section organizes papers that discuss future work and quantitative findings. The rapid development of AI tools, packages, and models has significantly impacted various domains. This section organizes these elements and links them to the relevant papers for a clearer understanding of their applications. The rapid advancement of generative AI has significant implications for workforce development, education, and the global economy. This paper synthesizes findings from recent studies to provide a comprehensive overview of projected outcomes, focusing on specific future years mentioned in the literature. In figure 1, a cloud diagram depicts the topics discussed in this work. Critical years of adoption or disruptions are shown in table 1.