

Abstract

The rapid evolution of digital technologies has widened the gap between the competencies taught in higher education and the skills demanded in labor markets. This paper presents a data-driven framework that systematically identifies and analyzes in-demand digital skills, thereby reframing the digital skills gap as an opportunity for education and workforce development. Drawing from over 46,000 job postings and leveraging the O*NET occupational classification, the study extracted more than 57,000 unique skills and identified 914 as most in demand. Findings reveal a dual demand: technical proficiencies such as Python, SQL, cloud computing, and artificial intelligence are highly valued, but so are professional competencies including collaboration, management, and communication. This hybrid skills requirement underscores that technical ability alone is insufficient in today's digital economy. For education, the findings highlight the need for curriculum redesign that integrates both technical and transversal skills, fosters interdisciplinary learning, and promotes lifelong learning pathways. For workforce development, the framework provides actionable insights for upskilling, reskilling, and targeted recruitment strategies. Policymakers can also leverage these insights to develop agile national skills strategies informed by real-time labor market intelligence. By condensing technical processes into accessible insights, the paper emphasizes implications for educators, employers, and governments. The study demonstrates how continuous monitoring of digital skill trends can transform the persistent challenge of skills gaps into opportunities for building a resilient, future-ready workforce prepared to navigate the complexities of the 21st-century digital economy.