Chapter 15
Revolutionizing Workforce Education:
A Conceptual Framework for AI-Driven Skilling, Upskilling, and Reskilling

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ABSTRACT

This study presents a conceptual analysis of the role of artificial intelligence (AI) in skilling, upskilling, and reskilling the workforce. The chapter argues that artificial intelligence (AI) is fundamentally reshaping the workforce landscape and necessitating new strategies for employee skill development. This paper examines the impact of artificial intelligence (AI) on workforce development by synthesizing insights from the existing literature. The authors identified the trends, challenges, and opportunities of using artificial intelligence in workforce development. Informed decision-making and policy formulation in the realms of labour and employment contribute to this chapter. In conclusion, AI has the potential to transform the future of work and redefine the skill sets required for success in an increasingly digitized and automated world.

INTRODUCTION

Rapid advances in artificial intelligence (AI) technology are fundamentally reshaping the landscape of the modern workforce. Artificial intelligence (AI) revolutionizes industries across the globe from auto-

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mating routine tasks to increasing human decision-making processes. As organisations adopt AI-driven solutions to enhance productivity and efficiency, the skill sets needed to thrive in the workplace are undergoing a profound transformation. This paradigm shift underlines the need for skilling, upskilling and retraining initiatives aimed at equipping the workforce with the skills necessary to effectively exploit the potential of AI-based technologies.

THE EVOLUTION OF WORKFORCE DYNAMICS

The advent of artificial intelligence (AI) technologies has led to a paradigm shift in the nature of work, characterized by automation, digitalization, and the emergence of new job roles. Brynjolfsson and McAfee (2014) and Autor (2015) highlighted that AI-enabled automation has led to the displacement of routine tasks while creating the demand for skills that complement AI systems. This transformation process requires a strategic approach to workforce development in which skills, upskilling and retraining initiatives are essential to meet the evolving demands of the labour market.

ROLE OF PEOPLE CAPABILITY MATURITY MODEL (PCMM) IN AI-DRIVEN WORKFORCE DEVELOPMENT

The People Capability Maturity Model (PCMM), developed by the Software Engineering Institute (SEI) at Carnegie Mellon University, serves as a robust framework designed specifically to enhance an organization's workforce capability. It provides structured guidelines for improving human resource practices, enabling organisations to effectively attract, develop, motivate and retain talented employees. In the context of the study focusing on the integration of artificial intelligence (AI) in skilling, upskilling, and reskilling initiatives within the workforce, PCMM holds profound significance for several compelling reasons.

First of all, the PCMM stresses the critical importance of the definition of competency requirements and the establishment of systematic procedures for evaluating and promoting employee skills. This aspect is closely aligned with the objectives of AI-based training efforts, which aim to identify the necessary skills necessary to navigate the ever-evolving digital landscape. By leveraging AI-driven analytics and assessment tools, organizations can effectively pinpoint skill gaps and tailor training programmes to address specific needs, as highlighted by Curtis et al. (2002).

Second, the PCMM emphasizes the imperative of continuous learning and development to support both individual career growth and organizational effectiveness. AI technologies offer a plethora of opportunities to facilitate lifelong learning through personalized experiences, adaptive feedback mechanisms, and vast repositories of educational resources. Through the integration of AI-powered learning platforms and tools, organizations can foster a culture of continuous learning that resonates with the principles advocated by PCMM (McShane et al. 2017).

In addition, the PCMM stresses the importance of nurturing a supportive organisational culture that prioritizes employee development and fosters collaboration and knowledge sharing. In the context of AI-driven workforce development, it is necessary to promote a culture of innovation and experiments. As highlighted by Paulk et al. (1995), encouraging employees to embrace emerging technologies and adapt to evolving skill requirements is crucial. The integration of artificial intelligence (AI) into talent