Chapter 6
Impact Assessment of AI, Automation, and Robotics on Employment: Technological Transformations and Digital Work Environments

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ABSTRACT

The combination of AI, automation, and robotics is radically transforming the employment landscape around the world, fundamentally altering the nature of workplaces, skills, and job opportunities. Although these technologies improve productivity, efficiency, and innovation across industries, they also raise concerns regarding job displacement and workforce disparity. Repetitive tasks in routine sectors like manufacturing, logistics, and customer service have been increasingly automated, reducing the demand for low-skilled labor. This transition to digital workspaces highlights the increasing significance of remote collaboration tools, virtual offices, and flexible employment arrangements, reshaping the conventional office landscape. Ensuring sustainable and fair digital workplaces will involve addressing ethical considerations, like algorithmic bias, job security, and worker privacy.

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INTRODUCTION

With their rapidly evolving capabilities, artificial intelligence (AI), automation, and robotics are already transforming jobs in nearly every sector of the economy, creating new jobs even as they render some obsolete—a trend that has prompted fears of mass unemployment and calls for policies to help workers transition. AI-based automation is significantly boosting productivity, efficiency, and innovation across industries, including manufacturing, healthcare, finance, retail, and logistics. Organizations are leveraging intelligent machines that can perform repetitive tasks without the chance of human error. AI, automation, and robotics do represent a significant threat to traditional employment models, but, at the same time, this is coupled with unprecedented opportunities to create a smarter, more efficient, more equitable, and more inclusive digital workspace.

This impact, in turn, leads to new jobs emerging for individuals willing to bridge the gap between human creativity and computing power in roles such as AI developers, data analysts, cybersecurity experts, and robotics engineers, among others, as they endeavor to implement effective use of technology with the need for a high level of digital competence. AI tools are allowing better decision-making, streamlined workflows, and greatly improved employee productivity. These rapid transformations highlight the need for individuals to continually adapt their skills to evolving roles, and that adaptation is possible through reskilling and upskilling to ensure they have the capacity to absorb these opportunities and rise with these waves of change. There will need to be collaboration to design policies that ensure that training programs are available equitably and that economic growth is inclusive, i.e., workers who lose jobs will find new jobs. Despite this, these technological changes are fundamentally changing traditional job roles, leading employees to upskill, reskill, and learn the digital competencies necessary to remain relevant in the changing job market. The effect of AI, automation, and robotics on jobs is not one-dimensional and affects not only job loss but also job creation, wage structures, workplace policies, and the socio-economic structure of societies (Selesi-Aina et al., 2024).

The economic implications of automation spurred by AI are far-reaching as well. AI and robotics can serve multiple purposes; most businesses adopting AI and robotics benefit from increased productivity, reduced operating costs, and better customer experiences. Automation systems can run 24/7 without getting tired, enhancing their efficiency and accuracy. In older times, organizations relied heavily on data analytics to make decisions, but now with AI-powered predictive analytics, organizations have the power to make data-driven decisions, optimize supply chains, and improve their competitiveness in the market. Still, these benefits have an economic downside, as automation mainly serves corporations and educated workers and places lower-skilled workers in danger of redundancy and stagnant

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