

# Chapter 13

## Understanding Mediators and AI's Influence on Job Performance

**Farouk Zouari**

 <https://orcid.org/0000-0002-3108-6447>

*University of Tunis El Manar, Tunisia*

**Oumeima Toumia**

 <https://orcid.org/0000-0002-7377-6366>

*University of Sousse, Tunisia*

### ABSTRACT

*Nowadays, firms are keen to combine artificial intelligence with machine learning to improve productivity. More precisely, artificial intelligence and machine learning play a variety of functions in business, from improving communication between staff and customers to automating repetitive tasks. The chapter investigates the impact of artificial intelligence on job performance, using employees' characteristics and types of sectors as mediators' variables. Both explanatory and confirmatory factor analyses, as well as structural equation modeling, are used in the study. The authors found that artificial intelligence has no impact on job performance. Indeed, both employees' characteristics and types of sectors do not mediate the relationship between artificial intelligence and job performance.*

### INTRODUCTION

People are acknowledged to be extremely bad decision makers, and their decisions may be affected by cognitive biases (EL Harbi & Toumia, 2020; Franke et al., 2006; Kahneman, 1979). Therefore, artificial intelligence (AI), which has been integrated into a range of technologies, including robots, automation, machine learning, deep learning, machine vision, natural language processing (NLP), and self-driving automobiles (Burns & Laskowski, 2018), may be used as a tool to enhance decision-making (Duan et al., 2019) and is likely going to surpass human capabilities by 2075 (Müller & Bostrom, 2016). According to Poole and Mackworth (2010), computational agents that act, respond, or behave intelligently are referred to as artificial intelligence agents. Reasoning, elucidation, modeling, prediction, and forecasting

DOI: 10.4018/979-8-3693-3354-9.ch013

## ***Understanding Mediators and AI's Influence on Job Performance***

are all feasible tasks for AI (Prentice et al., 2020). Russell and Norvig (2009) added that AI often refers to computer simulations of human intelligence. In fact, this field of computer science is powered by deep learning or machine learning to perform activities that humans would normally undertake (Russell & Norvig, 2009). For instance, AI has applications in hiring new employees, employee training and development, wage assessment, customer data analysis, and product customization (Jia et al., 2018; Walch, 2019). Artificial intelligence systems have drastically changed companies over the past ten years (Verma & Singh, 2022) by improving employees' ability to perceive, analyze, and react to dynamic environments (Duan et al., 2019; Kaplan & Haenlein, 2019). For instance, artificial intelligence may replace repetitive tasks and cognitive activities (Dwivedi et al., 2021; Kaplan & Haenlein, 2020; Yetgin & Toumia, 2023). Therefore, it may improve production, service delivery, the customer success ecosystem, B2B digital marketing, climate solutions, innovative job behavior, and performance (Atack et al., 2019; Belanche et al., 2020; Cowsli et al., 2023; Huang & Rust, 2018; Li et al., 2021; Prentice et al., 2020, 2023; Saturnino et al., 2024; Saura et al., 2021; Verma & Singh, 2022). However, it is extremely difficult to replicate the complexity of the human brain, which consists of over 200 billion neurons and 10,000 synapses per neuron (Kaplan & Haenlein, 2020). More specifically, Kaplan and Haenlein (2020) affirmed that no one can predict when artificial superintelligence will manifest. It may happen tomorrow, it might happen never, or it might happen around 2050, as predicted by Muller and Bostrom (2014).

Many studies have stated that it is challenging to determine the factors that predict variations in various job designs (Parker et al., 2017). However, there has not been much research on the direct relationship between AI and employee performance (Abusalma, 2021; Prentice et al., 2023). Abusalma (2021) found a noteworthy impact of artificial intelligence on employee performance in Jordan's commercial banks. Indeed, they added that years of experience, gender, and educational background affect work performance. Verma and Singh (2022) extended previous contributions by stating that innovative work behavior is strongly associated with AI-enabled task and knowledge characteristics. They also added that AI-enabled task characteristics, such as job autonomy and skill variety, were transformed more successfully by workers with a high perceived substitution crisis (PSC) than by workers with a low PSC in high-tech companies. In the same vein, Prentice et al. (2023) found notable mediation effects between AI and job performance in terms of job engagement and service performance. Furthermore, they concluded that employee work engagement and service performance were significantly improved by the moderating influence of job security. However, due to other contributions, several hotels have discontinued deploying service robots, even after successfully implementing robotic services (Fu et al., 2022; Ivanov et al., 2019; Lu et al., 2020; Yu, 2020). This may be explained by employee resistance to the ongoing use of service robots (Fu et al., 2022).

Thus, our chapter offers a novel perspective on how AI affects job performance in different work environments. While previous contributions examine this association, they ignore the impact of AI on job performance with employees' characteristics (gender, age, and education) and types of sectors (secondary and tertiary) as mediating variables. These two sectors account for a sizeable share of the labor force and are undergoing unique changes because of AI integration. The secondary sector (e.g., textile production, manufacturing) may see a larger application of AI for repetitive activities, leading to job losses, while the tertiary sector (e.g., education, banking, insurance, transport) may integrate AI in numerous tasks such as administrative process automation and data analysis that complement employees' skills.

To gain deeper insights into these interactions, we collected data using questionnaires. We employed explanatory factor analysis, confirmatory factor analysis, and structural equation modeling.

20 more pages are available in the full version of this document, which may be purchased using the "Add to Cart" button on the publisher's webpage:

[www.igi-global.com/chapter/understanding-mediators-and-ais-influence-on-job-performance/350811](http://www.igi-global.com/chapter/understanding-mediators-and-ais-influence-on-job-performance/350811)

## Related Content

---

### Broad Perspective of Smart Home Technology in 2024

Joseph M. Schulzand Jack S. Scilla (2024). *International Journal of Smart Technologies* (pp. 1-27).

[www.irma-international.org/article/broad-perspective-of-smart-home-technology-in-2024/350186](http://www.irma-international.org/article/broad-perspective-of-smart-home-technology-in-2024/350186)

### A Model of Financial Empowerment for Women Through Cooperatives in Telangana: Stree Nidhi

G. Madhu Sri, Vishnu Vandana Devi, K. Swaroopand P. Bhargavi Suneetha (2025). *Corporate Management in the Digital Age* (pp. 283-312).

[www.irma-international.org/chapter/a-model-of-financial-empowerment-for-women-through-cooperatives-in-telangana/373810](http://www.irma-international.org/chapter/a-model-of-financial-empowerment-for-women-through-cooperatives-in-telangana/373810)

### Broad Perspective of Smart Home Technology in 2024

Joseph M. Schulzand Jack S. Scilla (2024). *International Journal of Smart Technologies* (pp. 1-27).

[www.irma-international.org/article/broad-perspective-of-smart-home-technology-in-2024/350186](http://www.irma-international.org/article/broad-perspective-of-smart-home-technology-in-2024/350186)

### Advancing Agriculture With Industry 5.0-Enabled Crop-Type Prediction

Abhikalp Mishra, Pushkar Praveen, Ananya Subudhi, Somil Majilaand Sachin Negi (2024). *Infrastructure Possibilities and Human-Centered Approaches With Industry 5.0* (pp. 20-35).

[www.irma-international.org/chapter/advancing-agriculture-with-industry-50-enabled-crop-type-prediction/337805](http://www.irma-international.org/chapter/advancing-agriculture-with-industry-50-enabled-crop-type-prediction/337805)

### Broad Perspective of Smart Home Technology in 2024

Joseph M. Schulzand Jack S. Scilla (2024). *International Journal of Smart Technologies* (pp. 1-27).

[www.irma-international.org/article/broad-perspective-of-smart-home-technology-in-2024/350186](http://www.irma-international.org/article/broad-perspective-of-smart-home-technology-in-2024/350186)