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# **Artificial Intelligence Adoption in Manufacturing: A Mapping Review across Industry 4.0 and Industry 5.0**

**Benedicte Milenge Mbiyi , Asst. Prof. Dr. Mohammad Karami**

*Department of International Business, Near East University, Cyprus*

## **Abstract**

The manufacturing industry has been one of the most technologically evolving industries, particularly during the globalization era. It has transformed through successful industrial revolutions, from Industry 1.0 to Industry 4.0, and is recently shifting towards Industry 5.0. As the sector has evolved from traditional production processes to an integrated operational system, an increase in production environment complexity has created a growing demand for advanced technologies such as artificial intelligence (AI) to enhance the optimization of production processes efficiently and effectively. For this purpose, a mapping review was employed to analyze the articles extracted from Web of Science (WoS) and Scopus published between 2020 and 2026, focusing on 14 manufacturing sub-industries. Using PRISMA, 20 studies were identified, and the results reveal a variation in the application of AI technologies within the manufacturing subsectors. Industries like machinery and food combine technology acceptance frameworks with technical studies, while wood and paper focus mainly on technical AI integration. Additionally, studies using technology acceptance models examine general AI systems rather than AI techniques, like machine learning which is commonly used in technical research. This review identifies a literature gap where technological acceptance theories are inconsistently used across all manufacturing sectors. Furthermore, the limited integration of AI techniques within studies that focus on technology acceptance models shows the necessity to connect behavioral intention with a technical integration perspective. Future research must apply these theories in manufacturing subsectors that remain mainly technical, to better understand manufacturers' perspectives as the manufacturing industry continues to evolve more through AI implementation and integration.

**Keywords:** Artificial Intelligence; Manufacturing; Technology Adoption; Mapping Review; Industry 4.0 And 5.0.