Environmental Engineering and Management Journal

xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
http://www.eemj.icpm.tuiasi.ro/; http://www.eemj.eu

"Gheorghe Asachi" Technical University of Iasi, Romania

THE IMPACT OF DIGITAL TRANSFORMATION ON THE GREEN COMPETITIVENESS OF MANUFACTURING ENTERPRISES: EMPIRICAL EVIDENCE FROM CHINA

Rui Chen, Jianhong Fan, Wenjie Cao, Huaichao Chen*

College of Economics and Management, Taiyuan University of Technology, 209 University Street, Yuci District, Jinzhong, Shanxi 030600, China

Abstract

The rapid development of information technology has created favourable development conditions for the digital transformation of Chinese manufacturing enterprises, and digital transformation has brought new vitality to the improvement of the green competitiveness of manufacturing enterprises. However, existing studies lack the exploration of the relationship between digital transformation and the green competitiveness of manufacturing enterprises. Based on this, this study collects the data of Chinese Shanghai and Shenzhen A-share listed enterprises of manufacturing industry from 2012 to 2020, adopts multiple regression analysis method and constructs fixed effects model to clarify the relationship between digital transformation and the green competitiveness of manufacturing enterprises, as well as the roles of green technological innovation, environmental regulation and top management team heterogeneity. The study finds that, digital transformation significantly and positively affects the green competitiveness of manufacturing enterprises; green technology innovation plays a partial mediating role in the impact of digital transformation on the green competitiveness of manufacturing enterprises; environmental regulation enhances the positive impact of digital transformation on the green technology innovation of manufacturing enterprises; top management team heterogeneity enhances the positive impact of digital transformation on the green competitiveness of manufacturing enterprises. These results still remain after several robustness tests. This study is important to clarify the mechanism of digital transformation affecting the green competitiveness of manufacturing enterprises, and to enlighten manufacturing enterprises to enhance green competitiveness through digital transformation.

Key words: digital transformation, environmental regulation, green competitiveness, green technology innovation, top management team heterogeneity

Received: February, 2025; Revised final: July, 2025; Accepted: October, 2025

* Author to whom all correspondence should be addressed: e-mail: chenhch04@126.com; Phone: +86 18636195639