

Greening SMEs in a Warming World: Leveraging Innovation and Sustainable Practices for Resilient Business Performance

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Abstract

In the face of intensifying climate challenges, this study investigates how technological innovation, organizational factors, environmental pressures, and green-enabling practices interact to influence sustainable performance among agriculture-based small and medium-sized enterprises (SMEs) in Ghana. Drawing on the Technology-Organization-Environment (TOE) framework, the research employs Partial Least Squares Structural Equation Modelling (PLS-SEM) to analyze survey data from 418 SMEs. Results demonstrate a strong positive relationship between technological innovation and sustainable performance, which is significantly strengthened by the adoption of green innovation practices. The findings further highlight the enabling role of internal organizational supports, such as green training and performance appraisal systems, and external sustainability pressures in shaping firms' green trajectories. The study also examines moderating effects that reveal the dynamic interdependencies between TOE factors and their influence on sustainability outcomes. Top management commitment and responsiveness to environmental expectations emerge as critical enablers of green transformation within SMEs. This research contributes both empirically and practically by offering evidence-based insights into how SMEs can align innovation with sustainability. It advocates for the integration of strategic green practices and emphasizes the value of applying robust analytical models to advance sustainability discourse in emerging economies.

Keywords

Green innovation practices, Green Performance, Climate crisis, corporate environmentalism, TOE, Moderating effect, SMEs.