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Structural Constraints as Moderators in the Ai–performance Relationship: Evidence from Smes in an Emerging Economy

Fatma CHERIF

University of Sfax, Tunisia

Abstract

Artificial intelligence (AI) adoption is increasingly recognized as a source of competitiveness for small and medium-sized enterprises (SMEs). Yet, prior research has primarily treated structural constraints such as financial scarcity, skill shortages, and institutional weaknesses as mere barriers, leaving their impact on post-adoption performance underexplored, particularly in emerging economy contexts. This study empirically examines a relationship that has been theoretically acknowledged but rarely tested in such settings. Drawing on the Resource-Based View, Contingency Theory, and Institutional Theory, we propose a multidimensional framework explaining why AI adoption does not uniformly translate into performance gains but instead depends on firms' financial capacity, technical competencies, and institutional support. We test this framework using survey data from 280 SMEs in Tunisia's main economic regions, analyzed with partial least squares structural equation modeling (PLS-SEM). Results confirm that AI adoption improves performance, but its benefits are contingent on context: strong financial and technical conditions amplify outcomes, while institutional weaknesses erode them. By reconceptualizing structural constraints as moderating mechanisms rather than ex-ante barriers, this study advances theoretical understanding of AI adoption and offers actionable insights for managers and policymakers seeking to foster effective AI integration in resource-constrained environments.

Keywords: Artificial Intelligence (Ai), Small and Mediumsized-Sized Enterprises (Smes), Structural Constraints, Performance, Emerging Economies.