

Data-Driven Coopetition and Capability Evolution for Sustainable Performance: Evidence from China's Techno-Sovereignty Context

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Abstract

Amid growing technological sovereignty pressures and the global restructuring of technology supply chains, resource-constrained high-tech SMEs increasingly adopt data-driven coopetition to overcome technological bottlenecks while pursuing sustainable development. Yet existing research provides limited insight into how coopetition strategies are translated into firm-level capabilities that support sustainable performance under conditions of technological constraint. Drawing on Dynamic Capabilities Theory, this study develops a multi-stage capability evolution framework linking coopetition strategy to sustainable performance through big data analytics capability and core competency, while considering technological sovereignty pressure as a contextual moderator. Using survey data from 400 Chinese National High-Tech SMEs, the study applies partial least squares structural equation modeling) and artificial neural networks to examine the proposed relationships and assess predictive robustness. The results indicate that coopetition strategy contributes to sustainable performance through a sequential capability-building process in which big data analytics capability facilitates the development of core competency. Moreover, technological sovereignty pressure strengthens the relationship between coopetition strategy and big data analytics capability but shows no significant influence at the core competency stage, revealing a stage-selective moderating effect in the capability formation process. This research advances Dynamic Capabilities Theory by clarifying the evolutionary pathway through which external coopetition strategies are internalized into firm capabilities. It further conceptualizes big data analytics capability as a meso-level dynamic capability connecting strategic collaboration and competence development, while identifying technological sovereignty pressure as an institutional boundary condition shaping capability upgrading. The findings provide insights for SMEs navigating technological constraints and offer policy implications for balancing technological security and openness in digital innovation ecosystems.

Keywords

Coopetition Strategy, Big Data Analytics Capability, Core Competency, Technological Sovereignty Pressure, Sustainable Performance, National High-Tech SMEs