

# Research on the Impact Mechanism of Digital Leadership on the Frugal Innovation

**Long Yu\***

School of Economics and Management, China University of Petroleum (Huadong), Qingdao, China

## **Email address:**

S23080012@s.upc.edu.cn (Long Yu)

\*Corresponding author

## **Abstract**

In the era of the digital economy, increasing resource constraints and intensified market competition are driving enterprises to seek cost-effective and high-efficiency innovation strategies for sustainable development. As a novel innovation paradigm under resource constraints, frugal innovation emphasizes delivering affordable products and services to a broader consumer base with minimal resource input. It has become a practical approach for Chinese enterprises to navigate resource shortages and intense competition. However, despite growing awareness of the importance of digital leadership in digital transformation, many enterprises struggle with insufficient digital leadership capabilities, leading to resource inefficiencies, market misjudgments, and ultimately, the failure of frugal innovation initiatives. Therefore, understanding the impact mechanism of digital leadership on frugal innovation under resource constraints is of critical importance. Grounded in Upper Echelons Theory and Knowledge Management Theory, this study develops a theoretical model where digital leadership influences frugal innovation through knowledge sharing, with organizational structural flexibility introduced as a moderating variable. A survey was conducted among middle and senior managers engaged in frugal innovation practices, yielding 323 valid responses. Empirical analysis reveals the following findings: (1) Digital leadership significantly and positively impacts frugal innovation; (2) Knowledge sharing plays a partial mediating role in this relationship, elucidating the internal mechanism through which digital leadership fosters innovation by enhancing organizational knowledge exchange; (3) Organizational structural flexibility positively moderates the relationship between digital leadership and knowledge sharing, suggesting that in enterprises with greater structural flexibility, digital leadership is more effective in facilitating knowledge-sharing behaviors. These findings not only clarify the role of digital leadership in driving frugal innovation, but also extend theoretical insights into both frugal innovation and digital leadership research. Moreover, they offer practical implications for enterprises seeking to enhance leadership digital capabilities and optimize organizational structures to maximize resource efficiency and innovation outcomes.

## **Keywords**

Digital Leadership, Frugal Innovation, Knowledge Sharing, Organizational Learning, Organizational Structural Flexibility, Resource-Constrained Innovation