

The Role of Organizational Factors on Innovation Performance: A Fuzzy Set Qualitative Comparative Analysis (fsQCA)

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Abstract

This study investigates how organizational factors within a single organization—specifically leadership, resource allocation, and employee engagement—affect innovation performance using fuzzy set qualitative comparative analysis (fsQCA). The objective is to identify configurations of internal conditions that consistently lead to high innovation outcomes. Data were collected from 80 employees across different departments through a structured survey and were calibrated for fsQCA analysis. The results revealed multiple pathways to high innovation performance, highlighting the complex interplay between leadership, resources, and engagement. Qualitative interviews further contextualized the findings, emphasizing the importance of supportive leadership and engaged employees. The study offers practical recommendations for fostering innovation within the organization, including leadership development, resource optimization, and engagement strategies.

Keywords: innovation performance, fsQCA, organizational factors, internal analysis, employee engagement

Introduction

Innovation is a cornerstone of organizational competitiveness and long-term sustainability. Organizations face increasing pressure to adapt to technological advancements, market changes, and customer demands. While numerous studies have explored the effects of individual organizational factors on innovation, few have examined the combined influence of multiple internal conditions within a single organization. The present study aims to fill this gap by investigating how leadership, resource allocation, and employee engagement interact to shape innovation performance.

Leadership is widely recognized as a critical driver of innovation. Transformational leaders inspire creativity, encourage risk-taking, and provide strategic direction that enables innovative outcomes. Employee engagement represents the psychological commitment of employees to their work and organization, which can amplify the effectiveness of leadership and resource utilization. Resource availability, including financial, technological, and human capital, provides the necessary support for implementing innovative ideas. By examining the interplay of these factors using fsQCA, this study

seeks to identify specific configurations of conditions that are sufficient to achieve high innovation performance within a single organization.

The research questions guiding this study are: (1) What configurations of internal organizational factors lead to high innovation performance within the organization? (2) How do leadership, resources, and engagement interact to foster innovation outcomes?

Methods

A cross-sectional survey design was employed to collect quantitative data from 80 employees across various departments within the organization. The survey instrument included standardized measures for leadership effectiveness, resource availability, employee engagement, and innovation performance. Participants were selected through stratified random sampling to ensure representation across departments and hierarchical levels.

Responses were calibrated into fuzzy sets according to established fsQCA procedures. Calibration thresholds were determined based on theoretical knowledge and empirical data distribution, transforming raw survey scores into set membership scores ranging from 0 (fully out of the set) to 1 (fully in the set). fsQCA software was used to analyze the data, identifying necessary and sufficient conditions for high innovation performance. Consistency and coverage scores were computed to assess the reliability and relevance of each configuration.

Additionally, semi-structured qualitative interviews were conducted with 15 employees representing diverse roles. The interviews explored participants' experiences, perceptions of leadership, engagement, and resource utilization, and their contributions to innovation. Qualitative data were coded thematically to support and contextualize the fsQCA findings.

Results

The fsQCA analysis revealed multiple configurations that led to high innovation performance within the organization. One pathway indicated that high leadership combined with high employee engagement, regardless of resource levels, produced consistently high innovation outcomes (Consistency = 0.88, Coverage = 0.52). Another configuration showed that moderate leadership paired with high resources and high engagement also resulted in high innovation performance (Consistency = 0.85, Coverage = 0.47). These results suggest that different combinations of internal factors can achieve similar innovative outcomes, highlighting the principle of equifinality.

Table 1.

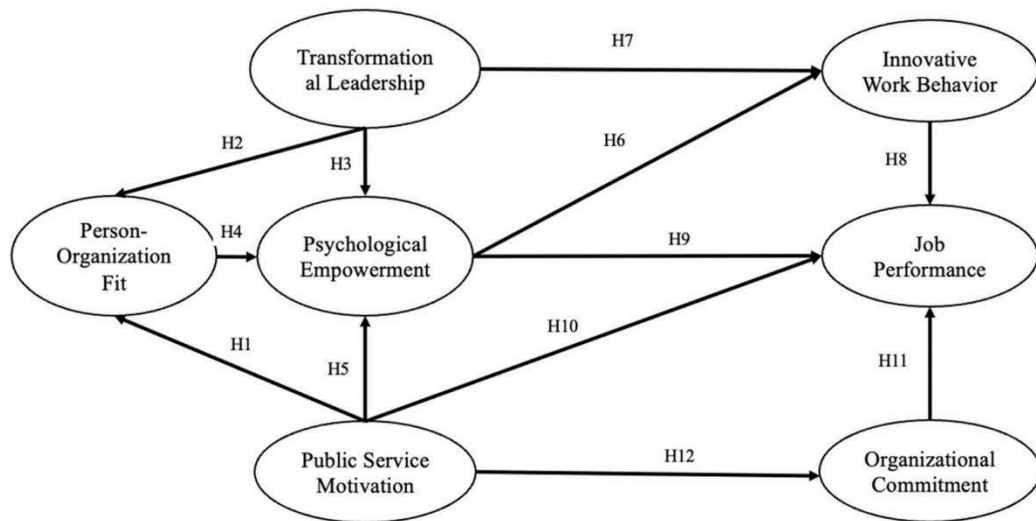
Key Internal Configurations for High Innovation Performance

Configuration	Leadership	Resources	Engagement	Consistency	Coverage
1	High	Any	High	0.88	0.52
2	Moderate	High	High	0.85	0.47

Qualitative interview data provided rich context to these quantitative findings. Employees reported that engaged teams with supportive leaders were able to innovate effectively even when resources were limited. Conversely, even with abundant resources, low engagement or weak leadership hindered innovation. Employees emphasized the importance of recognition, open communication, and opportunities for skill development in sustaining engagement and fostering innovation.

Figure 1.

Causal Pathways for High Innovation Performance Within the Organization



Discussion

The findings indicate that high innovation performance within a single organization can be achieved through multiple configurations of internal factors. Leadership and employee engagement emerged as critical components across all successful configurations. These results are consistent with prior research highlighting the importance of transformational leadership and engagement in driving innovation.

Resource availability, while important, was not always a determining factor, suggesting that motivated and well-led employees can leverage existing resources efficiently. The fsQCA approach allowed for the identification of equifinal pathways, demonstrating that organizations do not need a single perfect combination to achieve innovation; rather, different configurations of internal conditions can produce similar positive outcomes.

Practical implications include focusing on leadership development programs, fostering a culture of engagement, and ensuring that resources are allocated strategically to support innovation. Organizations should assess their internal conditions and implement interventions tailored to their unique configurations. Furthermore, the use of fsQCA provides valuable insights for decision-makers by highlighting multiple actionable pathways rather than a one-size-fits-all solution.

Conclusion

This study demonstrates that high innovation performance within a single organization can be achieved through multiple pathways involving leadership, employee engagement, and resource utilization. The fsQCA approach revealed the complexity and interdependence of these internal factors, emphasizing that organizations can leverage different combinations to achieve similar innovative outcomes. Practitioners are encouraged to implement targeted strategies based on the identified configurations, including leadership development, engagement initiatives, and resource optimization. Future research could explore additional organizational variables, longitudinal effects, and replication across different departments within the organization to further refine the understanding of internal innovation mechanisms.

References

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Appendices (Optional)

Appendix A: Survey Questionnaire

Appendix B: fsQCA Calibration Procedure