



Advance Journal of Econometrics and Finance

Vol-4, Issue-1, 2026

Advance Journal of Econometrics and Finance

Online ISSN

2959-8990

Print ISSN

2959-8982

https://ajeaf.com/index.php/Journal/About

Name of Publisher: SCHOLAR CRAFT EDUCATION & RESEARCH HUB

Review Type: Double Blind Peer Review

Journal Frequency: Quarterly Research Journal



Employee Innovative Capability and Organizational Performance: The Moderating Role of Organizational Culture

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	Abstract
Ahsan Owais PhD Management Sciences Scholar Qurtuba University DIKhan KP ahsanowais329@gmail.com Dr. Muhammad Imran Associate Professor, Business Studies Department, Bahria Business School Bahria University Karachi	Employee innovative capability has emerged as a critical determinant of organizational success in today's dynamic and competitive business environment. This study investigates the influence of employee innovative capability on organizational performance and examines the moderating role of organizational culture in the sugar manufacturing industry of Khyber Pakhtunkhwa (KP), Pakistan. Guided by the Resource-Based View (RBV) theory, the study adopts a quantitative, cross-sectional research design under the positivist research philosophy. Primary data were collected from 330 middle- and lower-level managers using a structured questionnaire and analyzed through SPSS and AMOS-SEM. Reliability, confirmatory factor analysis (CFA), and structural equation modeling (SEM) were employed to assess the measurement and structural models. The findings reveal that employee innovative capability significantly enhances organizational performance. Among its dimensions, product innovation, market innovation, and organizational innovation positively influence organizational performance, whereas process innovation does not demonstrate a significant effect. Furthermore, organizational culture has a significant positive effect on organizational performance and moderates the relationship between employee innovative capability and organizational performance by strengthening the effects of product and organizational innovation while weakening the effects of process and market innovation. The structural model explains 74.9% of the variance in organizational performance ($R^2 = 0.749$), indicating strong explanatory power. This study contributes to the innovation and organizational behavior literature by extending the Resource-Based View and providing empirical evidence from Pakistan's manufacturing sector. The findings offer practical implications for managers and policymakers seeking to improve organizational performance by fostering employee innovation within a supportive organizational culture.
Keywords:	Employee innovative capability, organizational performance, organizational culture, product innovation, process innovation, market innovation, organizational innovation, Resource-Based View, SEM, Pakistan.



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Introduction

The manufacturing sector is one of the key drivers of Pakistan's economic growth, playing a vital role in industrial development, employment generation, and export earnings. It transforms raw materials into finished or semi-finished products through mechanical, chemical, or manual processes to meet the diverse needs of customers and industries. As a significant contributor to the national economy, the manufacturing sector supports value addition, technological advancement, and sustainable economic development (Pakistan Economic Survey, 2024).

In today's highly competitive and rapidly evolving business environment, manufacturing firms are under increasing pressure to improve operational efficiency, enhance productivity, reduce production costs, and maintain high-quality standards. The emergence of advanced technologies, globalization, digital transformation, and continuously changing customer expectations has intensified market competition. Consequently, organizations can no longer rely solely on traditional production methods or cost advantages to achieve sustainable success. Instead, innovation has become a strategic imperative that enables manufacturing firms to develop new products, improve production processes, respond effectively to market changes, and achieve long-term competitive advantage (Porter, 1985; OECD, 2018).

The increasing intensity of international competition has compelled organizations to recognize innovation as a key driver of organizational success. Technological developments and globalization have accelerated the obsolescence of existing products and services, requiring firms to continuously innovate to maintain their market position. Consequently, innovation has become central to corporate strategies aimed at improving productivity, market performance, organizational reputation, and sustainable competitive advantage (Buccieri et al., 2023; Zhang et al., 2024).

Employee innovative capability has emerged as an important organizational resource over the past two decades because of its significant contribution to organizational performance. It reflects employees' ability to generate, promote, and implement new ideas that improve products, services, processes, or managerial practices. Innovation enables organizations to respond effectively to emerging challenges, exploit new opportunities, and strengthen their competitive position (SARIO, 2024b).

Innovation can take several forms, including product, process, marketing, and organizational innovation. According to Elhelaly and Ray (2024), innovation involves introducing new products, manufacturing processes, sources of supply, market exploration strategies, and organizational structures. These innovation types contribute differently to organizational performance. Product innovation is often associated with higher revenues and employment growth, whereas process innovation primarily improves operational efficiency and productivity (D'Attoma & Ieva, 2022; Palsson & Hellstrom, 2023). Similarly, marketing innovation, through changes in product design, pricing, promotion, and distribution strategies, enables firms to satisfy customer needs more effectively, enter new markets, and reposition existing products (Abu Rumman et al., 2019; Kitsios & Grigoroudis, 2020).

Organizational innovation focuses on improving managerial practices and external collaboration mechanisms to enhance organizational effectiveness. It reduces administrative and transaction costs, improves employee satisfaction and productivity, facilitates knowledge sharing, and strengthens supplier relationships (Cheng et al., 2024). Examples include implementing knowledge management systems, employee development initiatives, and supplier development programs that foster organizational learning, creativity, and continuous improvement.

Although the relationship between employee innovative capability and organizational performance has received considerable scholarly attention, empirical evidence in the manufacturing sector, particularly in developing economies such as Pakistan, remains fragmented. Most previous studies have examined individual dimensions of innovation or specific organizational outcomes, providing only a limited understanding of how employee innovative capability influences the overall performance of manufacturing firms (Rammer & Es-Sadki, 2022). Moreover, the contextual factors that may strengthen or weaken this relationship in manufacturing organizations remain underexplored, highlighting the need for further empirical investigation.

Organizational culture is widely recognized as a critical contextual factor that shapes employees' innovative behaviors by influencing shared values, norms, collaboration, and knowledge-sharing practices. A supportive organizational culture encourages creativity, experimentation, and continuous learning, thereby enhancing the effectiveness of employee innovative capability in improving organizational performance. However, empirical evidence regarding the moderating role of organizational culture remains limited, particularly within Pakistan's manufacturing sector. Therefore, this study examines the relationship between employee innovative capability and organizational performance while investigating the moderating role of organizational culture, thereby contributing to the literature on innovation and organizational performance in developing economies.

Problem Statement

Innovation is widely recognized as a critical driver of organizational performance and a source of sustainable competitive advantage. It has consistently been acknowledged as a catalyst for economic growth, organizational success, and enhanced competitiveness (Hong et al., 2012; Rammer & Es-Sadki, 2022). Despite this recognition, the precise impact of innovation on organizational performance remains insufficiently understood. Existing research has produced fragmented and inconsistent findings regarding the extent to which innovation contributes to firm performance. Furthermore, two major issues continue to limit a comprehensive understanding of this relationship. First, there is limited consensus regarding the critical dimensions of innovation. Second, the mechanisms through which employees' innovative capabilities translate into improved organizational performance remain unclear (Pineiro-Chousa et al., 2025; Moreira et al., 2024; Hanaysha et al., 2022).

In developing economies such as Pakistan, organizations continue to face challenges in adopting and implementing effective innovation practices. Compared with developed and rapidly industrializing countries, many Pakistani manufacturing firms exhibit relatively lower levels of innovation, limiting their productivity, operational efficiency, and overall competitiveness. Strengthening employee innovative capability offers significant potential to improve organizational performance while contributing to industrial development and broader economic growth.

Furthermore, although organizational culture is widely regarded as an important contextual factor influencing employees' innovative behavior, its role in strengthening the relationship between employee innovative capability and organizational performance has received limited empirical attention, particularly in Pakistan's manufacturing sector. Addressing this gap, the present study examines the effect of employee innovative capability on organizational performance and investigates the moderating role of organizational culture in this relationship.

Research Gap

Despite the growing body of literature on innovation capability and organizational performance, several important research gaps remain. Existing studies have predominantly focused on innovation capability as a standalone construct, its various dimensions, or its direct effect on firm performance across different organizational contexts (Lawson & Samson, 2001; Yliherva, 2004; Laforet, 2011; Rajapathirana & Yan, 2018; Antonelli et al., 2023). While organizational culture has been recognized as an important factor influencing both innovation capability and organizational performance (Gupta & Gupta, 2019), its role as a moderating variable has received limited empirical attention. Specifically, there is a lack of evidence explaining how organizational culture influences the relationship between employee innovative capability and organizational performance. As a result, the conditions under which employees' innovative capability translates into superior organizational performance across different organizational cultural environments remain insufficiently understood.

In addition, most existing studies have been conducted in developed economies and have employed conventional analytical approaches, limiting the generalizability of their findings to developing countries. Empirical evidence from Pakistan, particularly the manufacturing sector, remains scarce despite the sector's increasing need for innovation to enhance competitiveness and sustainable growth. Furthermore, few studies have adopted a comprehensive analytical framework that integrates Exploratory Factor Analysis (EFA), Confirmatory Factor Analysis (CFA), and Structural Equation Modeling (SEM) to validate the measurement model and examine the structural relationships simultaneously. Therefore, the present study addresses these theoretical, methodological, and contextual gaps by examining the effect of employee innovative capability on organizational performance and investigating the moderating role of organizational culture in Pakistan's manufacturing sector, thereby providing both academic and practical insights for improving organizational competitiveness.

1.1 Significance of the Study

Current study assists to examine the academic assistance of this study is an ideal way taking crucial benefits from the contextual analysis under consideration. As reported diverse components of organizational performance that are valuable in connection to different industries that laid foundation to adopt measures of success. In specific, current study is showcase the nexuses of innovative capabilities, organization culture and organizational performance spotted in literature. Secondly, will examine the concept of innovation in sugar industry along with the capabilities which equipped the KP sugar industry to get the guidance and become successful innovator. Thirdly, study is giving an idea to the sugar industry of KP for enhancement of organizational performance with the help of organization culture. Fourthly, current study is also become valuable tool for KP sugar industry to increase market value with help of personal capabilities and organization culture. Fifthly, in hand study is contribute existing body of knowledge in connection to innovative capability capturing organizational performance under moderated role of organization culture. Finally, in order to better understand these phenomena, the current research will enable new and established researchers develop quantitative nexuses of organizational performance, organizational culture, and innovative capability in various parts of the world.

Employee Innovative Capability

Innovation is widely recognized as a strategic capability that enables organizations to achieve sustainable competitive advantage in dynamic business environments. According to Azeem et al. (2021), based on the OECD and Eurostat definition, innovation refers to the introduction or significant improvement of products, services, processes, marketing strategies, organizational practices, or workplace arrangements that create value for organizations and their stakeholders. Accordingly, employee innovative capability reflects employees' ability to generate, develop, and implement novel ideas that enhance organizational effectiveness.

Employee innovative capability is developed through continuous improvement in employees' knowledge, skills, technological expertise, and creative abilities. In an environment characterized by rapid technological advancement and short product life cycles, organizations increasingly rely on employees' innovative capabilities to respond to changing market demands and sustain competitive advantage (Abourobah et al., 2023). Since innovation is largely knowledge-based, capabilities developed through research and development (R&D) and organizational learning are difficult for competitors to imitate, making them valuable strategic resources.

Akman and Yilmaz (2008) described innovative capability as an organizational competency that promotes an innovation-oriented culture and enhances an organization's ability to respond effectively to environmental changes. Similarly, Kyrdoda et al. (2023) defined it as an organization's capacity to continuously generate and implement innovations in response to changing market conditions. However, empirical findings regarding the relationship between innovation capability and organizational performance remain mixed. For instance, Asad et al. (2025) reported no significant relationship between service innovation and productivity, while Criado et al. (2025) found that certain innovation initiatives negatively affected the performance of public sector organizations.

Building on Schumpeter's innovation theory, innovation capability encompasses several dimensions, including product, process, marketing, and organizational innovation. Recent studies have further extended this concept to include technological, service, green, and open innovation (Yildiz et al., 2024; Palsson & Hellstrom, 2023; Abu Rumman et al., 2019; Zhang, 2022). Collectively, these dimensions highlight that employee innovative capability is a multidimensional construct that enables organizations to improve performance, adapt to environmental changes, and sustain long-term competitiveness.

Organizational Culture

Organizational culture plays a vital role in shaping employees' behaviors, organizational adaptability, innovation, and overall performance. It refers to the shared values, beliefs, and norms that guide organizational practices and influence how employees interact, make decisions, and respond to workplace challenges. According to Abdelrahman et al. (2025), organizational culture comprises three interconnected levels basic assumptions, values, and artifacts which collectively shape organizational behavior and determine how organizations respond to both internal and external challenges.

The Competing Values Framework (CVF) developed by Quinn and Rohrbaugh (1983) is one of the most widely adopted models for understanding organizational culture. The framework classifies organizational culture into four types: Clan, Adhocracy, Market, and Hierarchy (Cameron & Quinn, 2006). Clan culture emphasizes teamwork, trust, and employee development; Adhocracy culture promotes creativity, flexibility, and innovation; Market culture focuses on competitiveness and goal achievement; while Hierarchy culture values formal rules, coordination, and operational efficiency. Organizations that effectively balance these cultural orientations are better positioned to enhance innovation and achieve superior performance (Bamidele, 2022).

A supportive organizational culture encourages employee participation, knowledge sharing, and continuous learning, creating an environment where innovative ideas can be effectively generated and implemented. Conversely, rigid organizational cultures may constrain creativity and reduce employees' willingness to innovate (Hasan, 2023). Therefore, organizational culture is considered an important contextual factor that can strengthen the relationship between employee innovative capability and organizational performance, particularly in manufacturing organizations operating in highly competitive environments.

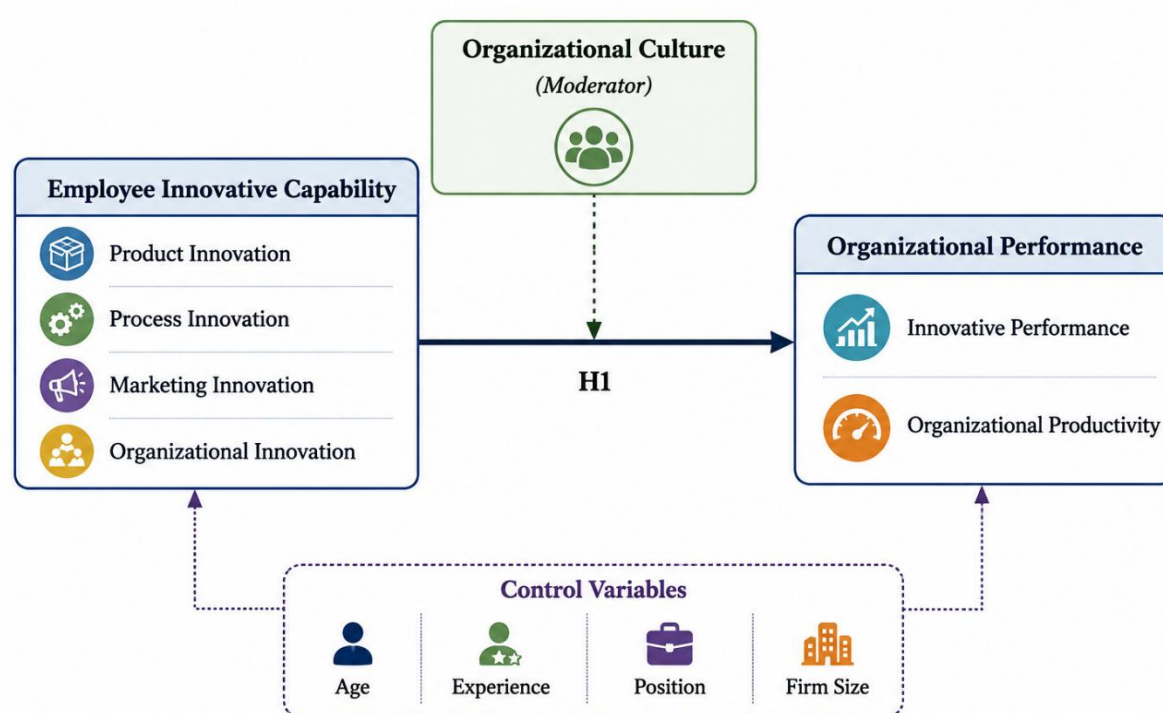
Organizational Performance

Organizational performance refers to the extent to which an organization achieves its strategic goals and objectives. Traditionally, organizational performance has been evaluated using financial indicators such as revenue, profitability, return on assets, return on equity, and sales growth. However, relying solely on financial measures is insufficient for assessing long-term competitiveness in today's dynamic business environment (Guttermann, 2023).

Consequently, contemporary performance measurement adopts both financial and non-financial indicators. Modern frameworks, such as the Balanced Scorecard (BSC), evaluate organizational performance through financial outcomes, customer satisfaction, internal business processes, and learning and growth perspectives. Other important dimensions include intellectual capital, organizational knowledge, social responsibility, stakeholder satisfaction, and operational efficiency (Alshukri et al., 2024).

Innovation is widely recognized as a key determinant of organizational performance because it enhances organizational learning, continuous improvement, and adaptability. Fatema et al. (2023) argued that innovative performance serves as a critical link between strategic orientation and organizational outcomes. Likewise, empirical evidence suggests that organizations implementing product, process, and administrative innovations achieve superior operational performance in terms of quality, flexibility, productivity, and cost efficiency (Van Nguyen et al., 2024). Continuous innovation also strengthens organizational capabilities, improves learning, and enhances overall organizational performance (Shuaib et al., 2023).

Theoretical Framework





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- 2 CHAPTER 3
- 3 Research methodology
- 3.1 3.1 Introduction

This chapter outlines the research technique utilized in the current study to assess the influence of innovative capabilities on organizational performance with a moderated role of organizational culture in the sugarcane sector of KP Pakistan in a systematic manner.

Research Philosophy

Research philosophy provides the foundation for selecting appropriate research methods. This study adopts the positivist philosophy, which asserts that knowledge is generated through objective observation and scientific inquiry (Popper, 2005; Toulmin, 1959). Introduced by Auguste Comte, positivism emphasizes the empirical testing of hypotheses using measurable data (Busari, 2013). As this study employs a quantitative research approach using structured questionnaires to examine the relationship between employee innovative capability, organizational performance, and the moderating role of organizational culture, the positivist philosophy is considered the most appropriate paradigm.

Research Method

This study adopts a quantitative research method, which is consistent with the positivist research philosophy. Quantitative research follows a deductive approach, where hypotheses derived from existing literature are tested using empirical data (Newman & Benz, 1998). Data were collected through a structured questionnaire, enabling the measurement of variables using standardized scales and statistical analysis. The quantitative survey method was selected because it provides objective, reliable, and generalizable findings and has been widely employed in previous studies examining innovation capability and organizational performance in developing countries (Iacono et al., 2009).

Research Design

This study employs a cross-sectional research design, in which data were collected from respondents at a single point in time. A cross-sectional design is appropriate for examining the relationships among employee innovative capability, organizational performance, and organizational culture without manipulating the study variables (Kothari, 2004). The target respondents comprised middle- and lower-level managers working in sugar manufacturing firms in Khyber Pakhtunkhwa (KP), Pakistan. Data were collected using a structured questionnaire, and the completed responses were analyzed to test the proposed hypotheses.

Population of the Study

The population refers to the complete set of individuals or units that share common characteristics relevant to a research study (Kamal, 2006; Zikmund, 2003). The target population for this study comprised 1,886 employees, including middle- and lower-level managers, working in sugar manufacturing firms in Khyber Pakhtunkhwa (KP), Pakistan. This population was selected to examine the relationship between employee innovative capability, organizational performance, and the moderating role of organizational culture.

Sampling Technique and Sample Size

This study employed a convenience sampling technique to select respondents from the target population. Convenience sampling was considered appropriate due to its accessibility and practicality in collecting data from employees of sugar manufacturing firms in Khyber Pakhtunkhwa (KP), Pakistan (Sekaran, 1995). The sample size was determined using Yamane's (1967) formula:

$$n = \frac{N}{1 + N(e)^2}$$

where n is the sample size, N is the population size (1,886), and e is the level of precision (0.05). Based on this formula, the required sample size for the study was 330 respondents.

Data Collection Instrument

Primary data were collected using a structured, self-administered questionnaire, which is a widely used instrument in quantitative research (Sekaran, 1995). The questionnaire was distributed among middle- and lower-level managers of sugar manufacturing firms in Khyber Pakhtunkhwa (KP), Pakistan, to measure employee innovative capability, organizational culture, and organizational performance. All measurement scales were adopted from previously validated studies to ensure the reliability and validity of the instrument.

Variable	Items (Codes)	Source
Employee Innovative Capability	IC1–IC18	Çalik et al. (2017)
Organizational Culture	OC19–OC29	Cameron & Quinn (1999)
Organizational Performance	OP30–OP34	Chen & Huang (2009); Pritchard (2008)



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Data Analysis

3.14 The collected data were analyzed using SPSS and AMOS-SEM. Reliability, convergent validity, discriminant validity, and model fitness were assessed through the measurement model. The proposed hypotheses and moderating effect of organizational culture were tested using Structural Equation Modeling (SEM), while Pearson correlation and regression analyses were conducted to examine the relationships among the study variables.

3.15 Ethical Considerations

3.16 Participation in this study was voluntary. Respondents provided informed consent, and the confidentiality and anonymity of their information were ensured. The collected data were used solely for academic purposes.

3.17 Reliability Analysis

Reliability Stat		
Item name	Alpha value	No of constructs
Employee innovation capabilities	.879	14
Organization culture	.809	7
Organizational performance	.836	9

3.18 Following table presents the Cronbach's alpha values for the study constructs. All constructs exceeded the recommended threshold of 0.70, indicating satisfactory internal consistency. Employee Innovative Capability demonstrated the highest reliability ($\alpha = 0.879$), followed by Organizational Performance ($\alpha = 0.836$) and Organizational Culture ($\alpha = 0.809$). These results confirm that the measurement scales are reliable and suitable for further analysis.

Correlation analysis

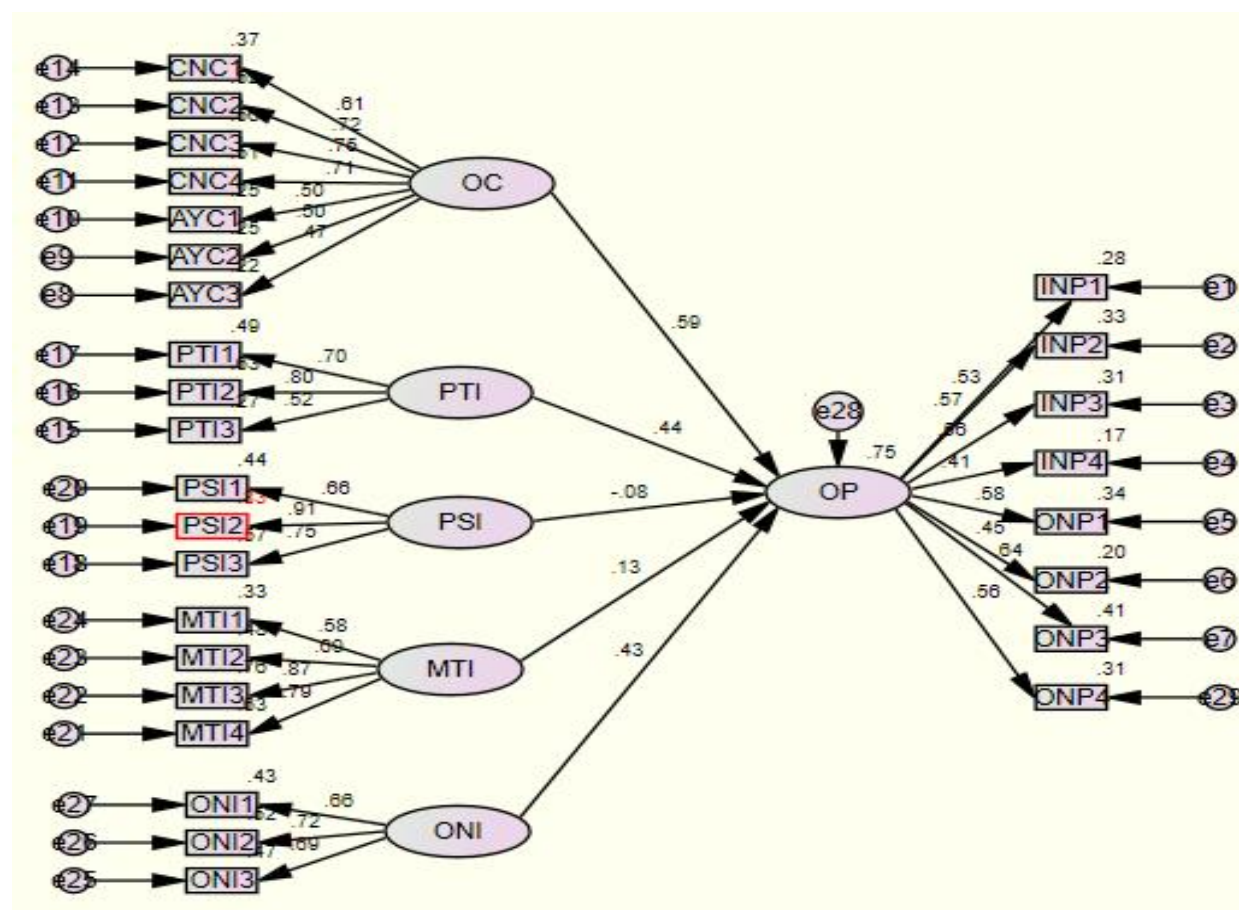
Exogenous variables	Correlation coefficient	S.E.	C.R.	P
Organization culture	.190	.046	4.144	***
Product innovation	.185	.042	4.370	***
Process innovation	.501	.070	7.177	***
Market innovation	.630	.079	7.972	***
Organization innovation	.272	.046	5.947	***

3.19 Above table presents the estimates for the exogenous variables. The results show that organizational culture ($\beta = 0.190$, C.R. = 4.144, $p < 0.001$), product innovation ($\beta = 0.185$, C.R. = 4.370, $p < 0.001$), process innovation ($\beta = 0.501$, C.R. = 7.177, $p < 0.001$), market innovation ($\beta = 0.630$, C.R. = 7.972, $p < 0.001$), and organizational innovation ($\beta = 0.272$, C.R. = 5.947, $p < 0.001$) are all positive and statistically significant. Among these, market innovation exhibits the strongest estimate, followed by process innovation, indicating that all exogenous variables make significant contributions to the measurement model.

Regression analysis

Path relationship		Estimate (Beta)	S.E.	C.R.	P-value	R ²
OP	<---PTI	.438	.095	5.409	***	.749
OP	<---PSI	-.078	.035	1.569	.117	
OP	<---MTI	.126	.032	2.461	.014	
OP	<---ONI	.435	.072	5.846	***	
OP	<---OC	.588	.114	5.915	***	

			Estimate	S.E.	C.R.	P	Label
Organizational Performance	<---	PTI	.134	.044	3.054	.002	
Organizational Performance	<---	PSI	.092	.043	2.151	.031	
Organizational Performance	<---	PTI*OC	.086	.021	4.194	***	
Organizational Performance	<---	PSI*OC	-.058	.024	-2.436	.015	
Organizational Performance	<---	OC	.461	.053	8.614	***	
Organizational Performance	<---	MTI	.111	.039	2.825	.005	
Organizational Performance	<---	ONI	.080	.041	1.939	.053	
Organizational Performance	<---	MTI*OC	-.203	.021	-9.594	***	
Organizational Performance	<---	ONI*OC	.125	.026	4.827	***	



Above Figure presents the structural model examining the effects of the dimensions of employee innovative capability and organizational culture on organizational performance. The results indicate that organizational culture has the strongest positive effect on organizational performance ($\beta = 0.588$, $p < 0.001$), followed by product innovation ($\beta = 0.438$, $p < 0.001$) and organizational innovation ($\beta = 0.435$, $p < 0.001$). Market innovation also has a significant positive effect ($\beta = 0.126$, $p = 0.014$), whereas process innovation does not significantly influence organizational performance ($\beta = -0.078$, $p = 0.117$). The model explains 74.9% of the variance in organizational performance ($R^2 = 0.749$), indicating strong explanatory power.

Moderation analysis

Moderation Table presents the moderation analysis results. The findings indicate that product innovation ($\beta = 0.134$, $p = 0.002$), process innovation ($\beta = 0.092$, $p = 0.031$), market innovation ($\beta = 0.111$, $p = 0.005$), and organizational culture ($\beta = 0.461$, $p < 0.001$) have significant positive effects on organizational performance, whereas organizational innovation has a marginally insignificant effect ($\beta = 0.080$, $p = 0.053$). Regarding the interaction effects, organizational culture significantly strengthens the relationships between product innovation and organizational performance ($\beta = 0.086$, $p < 0.001$) and between organizational innovation and organizational performance ($\beta = 0.125$, $p < 0.001$). However, it significantly weakens the relationships between process innovation ($\beta = -0.058$, $p = 0.015$) and market innovation ($\beta = -0.203$, $p < 0.001$).

with organizational performance. These findings suggest that the moderating effect of organizational culture varies across the dimensions of employee innovative capability.

Discussion

This study examined the effect of employee innovative capability on organizational performance and the moderating role of organizational culture in the sugar manufacturing industry of Khyber Pakhtunkhwa, Pakistan. The findings indicate that employee innovative capability significantly enhances organizational performance, confirming that innovation is a key driver of organizational success and competitiveness (Gunday et al., 2011). Among the innovation dimensions, product, market, and organizational innovation positively influenced organizational performance, whereas process innovation showed no significant effect.

The study further reveals that organizational culture has a significant positive influence on organizational performance, supporting the view that a supportive culture promotes innovation and improves organizational effectiveness (Naranjo-Valencia et al., 2016). Moreover, organizational culture significantly moderates the relationship between employee innovative capability and organizational performance, indicating that the effectiveness of innovation depends on the organizational environment. Overall, the findings highlight the importance of fostering an innovation-oriented culture to enhance organizational performance.

Conclusion

This study examined the influence of employee innovative capability on organizational performance and the moderating role of organizational culture in the sugar manufacturing industry of Khyber Pakhtunkhwa, Pakistan. The findings confirm that employee innovative capability significantly enhances organizational performance, while organizational culture positively influences performance and moderates the relationship between innovation capability and organizational performance. These results suggest that organizations can achieve superior performance by fostering employees' innovative capabilities within a supportive organizational culture.

The study contributes to the innovation and organizational behavior literature by providing empirical evidence from Pakistan's manufacturing sector, where limited research has examined the interplay between employee innovative capability, organizational culture, and organizational performance. From a practical perspective, managers should promote innovation-oriented practices and cultivate a supportive organizational culture to enhance organizational effectiveness and sustain competitive advantage.

Recommendations

Based on the findings, the following recommendations are proposed:

1. Organizations should strengthen employee innovative capability through continuous training, knowledge sharing, and investment in research and development activities.
2. Managers should foster an innovation-oriented organizational culture that encourages creativity, collaboration, and employee participation in decision-making.
3. Greater emphasis should be placed on product, market, and organizational innovation, as these dimensions demonstrated significant positive effects on organizational performance.
4. Since process innovation showed an insignificant effect, organizations should review and improve process innovation initiatives to ensure they effectively contribute to organizational performance.
5. Policymakers and industry leaders should formulate strategies that support innovation adoption and cultivate organizational cultures that enhance sustainable competitiveness within the sugar manufacturing sector.

Limitations and Future Research

This study has several limitations that provide opportunities for future research. First, the study employed a cross-sectional quantitative design; future studies may adopt longitudinal or mixed-method approaches to obtain deeper insights into the relationships among the study variables. Second, the research was limited to the sugar manufacturing industry in Khyber Pakhtunkhwa, Pakistan, which may restrict the generalizability of the findings. Future studies should include other manufacturing sectors and provinces to enhance external validity. Finally, this study examined organizational culture as a moderator. Future research may investigate other mediating or moderating variables, such as organizational learning, leadership style, knowledge management, or employee engagement, to further explain the relationship between employee innovative capability and organizational performance.

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