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The Effect of Knowledge Management and Organizational Culture on Innovation Capacity in Red Crescent Society of Alborz Province

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Original Article

Abstract

INTRODUCTION: The Red Crescent Society, as one of the largest relief and humanitarian organizations, needs to implement modern management techniques in order to enhance the effectiveness and adaptability in complex and dynamic crisis. The aim of this study is to examine the relationship between knowledge management and organizational culture and innovation capacity in the Red Crescent Society in Alborz province.

METHODS: In this study, a standard questionnaire was used to measure knowledge management, organizational culture, and innovation capacity. Data were analyzed using descriptive and inferential statistics with SPSS and SmartPLS software.

FINDINGS: According to the findings, there are a positive and significant relationship between knowledge management and organizational culture with innovation capacity and all proposed hypotheses were confirmed.

CONCLUSION: The results suggest that organizational culture has the strongest impact on innovation capacity, while knowledge creation had the least impact.

Keywords: Knowledge management; Organizational culture; Innovation; Red Crescent Society (RCS).

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Introduction

In today's complex, competitive, and highly dynamic environment, organizations rely more on knowledge and cultural assets than on physical resources and rational control mechanisms. Organizational culture is defined as a shared system of values, beliefs, assumptions, and behavioral patterns that guide members' actions, influence how they respond to change, accept new ideas, and foster innovation, and provide a foundation for organizational survival, effective performance, and long-term success (1,2)

Recent empirical research findings also show that an idealistic and supportive culture can directly facilitate the adoption and implementation of knowledge management systems and, subsequently, increased innovation, especially when employees are encouraged to participate, learn, and take risks (3).

In this regard, knowledge management has become a critical factor in increasing flexibility, reducing organizational resistance, and gaining a competitive advantage through innovation. It is defined as a systematic process that ensures the proper knowledge reaches the right person at the right time, enabling optimal decisions and actions (4).

This process involves the creation, storage, exchange, and application of knowledge at different organizational levels. Recent studies have shown that knowledge management processes, especially knowledge creation and sharing, play a fundamental role in fostering innovation and improving organizational

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performance, and can directly increase the organization's innovative capacity (5).

A culture of knowledge sharing involves creating an environment that encourages employees to transfer tacit and explicit knowledge. This type of culture not only increases organizational creativity but also acts as an essential mediator between knowledge management and innovation. Studies have shown that a learning-oriented, collaborative culture provides the basis for knowledge sharing and its transformation into operational innovation, thereby strengthening the organization's overall performance (6).

In summary, the new literature on organizational management confirms the close relationship between organizational culture, knowledge management, and innovation capacity, and, in fact, it should be said that a supportive, learning-oriented organizational culture provides a suitable platform for knowledge sharing. Effective knowledge management transforms knowledge into strategic resources. Ultimately, innovation resulting from this interaction strengthens sustainable competitive advantage and improves the Society's performance.

In service and relief organizations such as the RCS that face unexpected crises, the ability to absorb, create, store, and apply knowledge is directly related to the quality-of-service delivery and the speed of response in emergencies. In such complex and high-pressure environments, knowledge management capacity—which includes the organization’s ability to interact with knowledge, share it among employees, and apply it in decision-making—plays a fundamental role in enhancing organizational innovation, as these processes help develop new solutions to existing problems and improve responsiveness to future needs (7).

Despite the increasing emphasis in the management literature on the role of knowledge management, organizational culture, and innovation in improving organizational performance, research that simultaneously integrates these three variables in the structure of Iranian nonprofit and relief organizations remains limited. Most previous studies have focused mainly on manufacturing industries or financial and business service organizations, with less attention paid to relief and humanitarian organizations. This research gap is especially evident in the case of the IRCS, as one of the most vital institutions responding to natural and human crises. Therefore, conducting an applied study among the employees of the RCS of Alborz Province can provide valuable empirical evidence to strengthen innovation and improve the effectiveness of this vital organization.

The present study was designed to examine the pivotal roles of knowledge management (in the dimensions of creating, sharing, storing, and applying knowledge) and organizational culture in increasing organizational innovation capacity. According to classical and contemporary literature, innovation capacity refers to an organization's ability to leverage knowledge and resources to continuously generate innovation in products, services, and processes (8). Studies have also shown that knowledge management capacity can play an effective mediating role in improving innovation performance (7).

Innovation capacity is not limited to technological innovations, but also includes organizational, service, and process innovations (9).

Measuring the factors affecting innovation capacity can help managers make investment decisions, allocate resources optimally, and select appropriate strategies for acquiring and deploying technology (10). This is especially important in crisis-oriented organizations, as innovation can improve the speed, accuracy, and quality of emergency response (11).

In organizations such as the RCS, innovation capacity is multidimensional and systematic, encompassing not only technological innovations but also a range of service, process, and operational model innovations. Service innovation is manifested through the design and implementation of faster, more accurate, and more effective methods for providing relief and first aid services; Innovation in processes is realized by optimizing workflows, the supply chain of medicines and equipment, and coordination between operational units in critical situations; and innovation in operational models is strengthened by integrating new technologies, such as drones, intelligent data management systems, and decision-making support tools, in search and rescue operations. In this framework, the simultaneous examination of knowledge management and organizational culture as key infrastructures for the formation and sustainability of innovation capacity can provide a scientific and practical basis for designing effective strategies to

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promote organizational innovation in the Alborz Province RCS.

Methods

This research is applied in terms of purpose and uses a descriptive survey as its data collection method. The statistical population included all staff and operational employees of the Alborz Province RCS in 2025, estimated at 150 people, including the deputy departments, crisis management, relief and rescue, and training units. Due to the small population, the census method was used, and, given complete access to all individuals, multi-stage cluster random sampling was performed to ensure occupational and managerial diversity in the sample. The data collection tool was a researcher-developed questionnaire using a five-point Likert scale, with items developed by adapting standard models of knowledge management, organizational culture, and innovation capacity.

Reliability and validity of the instrument

To ensure face and content validity, the questionnaire was reviewed and approved by a group of management experts and experienced managers from the RCS. Subsequently, construct validity was assessed using confirmatory factor analysis (CFA) in SmartPLS 3. The average variance extracted (AVE) and composite reliability (CR) indices were higher than 0. 50 and 0. 70 for all constructs, respectively, indicating strong and acceptable construct validity.

The questionnaire's internal reliability was measured using Cronbach's alpha. The results showed that Cronbach's alpha for all constructs and the entire questionnaire exceeded 0.70, indicating appropriate reliability and desirable internal consistency for statistical analyses.

Findings

The descriptive analyses showed that the study's statistical population comprised 150 participants. Of these, 65% were male, and 35% were female. Regarding education, 55% had a bachelor's degree and 30% had a master's degree. Also, the average service experience in the population was estimated at 11 years, and the 30- to 40-year age group had the highest share in the sample, at 45%.

Given the nature of the research model, which involves the examination of complex relationships among several variables and the simultaneous evaluation of the structural model and relationships between constructs, PLS-based Equation Modeling (SEM) was used with SmartPLS3 software.

Data Distribution Analysis

The Kolmogorov-Smirnov test showed that all research variables do not follow a normal distribution (significance level less than 0. 05). In such circumstances, the variance-based approach (Partial Least Squares – PLS) was chosen due to its greater robustness against the violation of the assumption of data normality and is the most appropriate method for analyzing the model in this study.

The results of the K-S test indicate that the significance level for all variables is less than 0.05; therefore, the assumption of normality is rejected. In these circumstances, the use of the variance-based method (PLS-SEM) is appropriate because it is more robust to violations of the assumption of data normality.

Conceptual Model and Hypotheses

The conceptual model of the research included 5 main hypotheses that were developed based on theoretical literature: (Table 1)

Hypothesis 1: Knowledge sharing has a positive and significant relationship with innovation capacity.

Hypothesis 2: Knowledge creation has a positive and significant relationship with innovation capacity.

Hypothesis 3: Knowledge application has a positive and significant relationship with innovation capacity.

Hypothesis 4: Knowledge storage has a positive and significant relationship with innovation capacity.

Hypothesis 5: Organizational culture has a positive and significant relationship with innovation capacity.

The research conceptual model was analyzed using SmartPLS 3 software. The results showed that the final model was in a favorable state in terms of overall fit indices, including R^2, Q^2, and model fit indices (such as SRMR and NFI), and that the constructs converged. (Figure 1)

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Table 1. One-sample Kolmogorov-Smirnov test for research variables

Indicator	K-S stat.	Sig. level	Test result
Knowledge Management	2.017	0.001	Not Normal
Organizational Culture	2.033	0.001	Not Normal
Innovation Capacity	2.065	0.001	Not Normal

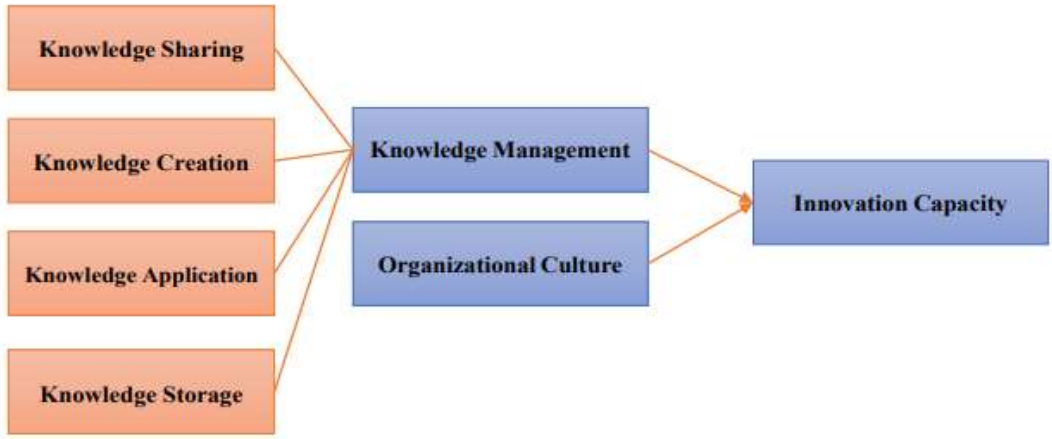

Figure 1. Research conceptual model (author)

Table 2. Summary of the results of the research hypothesis test

Row	Path	Path coefficient (β)	Effect size	t-value	Result
1	Knowledge sharing → Innovation capacity	0.309	Moderate	5.560	Approved
2	Knowledge creation → Innovation capacity	0.120	Weak	2.720	Approved
3	Knowledge application → Innovation capacity	0.322	Strong	5.268	Approved
4	Knowledge storage → Innovation capacity	0.264	Moderate	3.512	Approved
5	Organizational culture → Innovation capacity	0.532	Very strong	6.312	Approved

Research Hypotheses Examination

To test each hypothesis, the t-value for the path coefficient was examined. Based on the 95% confidence level, a t-value ≥ 1.96 was used as the criterion for significance of the paths. Paths with t-values greater than 1.96 are significant, and the corresponding hypothesis is confirmed.

All research hypotheses were confirmed, meaning that both knowledge management dimensions and organizational culture have a significant positive effect on innovation capacity in the Alborz RCS. Also, examining the path coefficients showed that knowledge sharing, with a coefficient of 0.309, significantly contributes to strengthening innovation capacity. Knowledge creation with a coefficient of 0.120 has the lowest effect. Knowledge application, with a coefficient of 0.322, has the most significant impact among the management dimensions. This finding shows that having information alone is not enough and that the practical application of learned knowledge plays the most critical role in enhancing innovation. Knowledge storage was ranked next with a coefficient of 0.264.

Among all variables, organizational culture, with a coefficient of 0.532, makes the most significant contribution to explaining innovation capacity variance, indicating that organizational cultural infrastructures, such as risk-taking and encouraging employees to express ideas, are the most important prerequisites for innovation in relief organizations.

These results indicate that the RCS's organizational structures currently focus more on the optimal use of existing knowledge (sharing, storing, and applying) than on creating new knowledge. It is also possible that the mechanisms for successfully transforming innovative ideas into organizational innovation have not yet been fully formed. (Table 2)

In conclusion, the study emphasizes that knowledge management and organizational culture are crucial elements for strengthening innovation capacity in relief organizations, and that paying attention to them can improve

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performance. And the Society's resilience helps in the face of crises.

Discussion and Conclusion

The research findings show that organizational culture plays a key role in strengthening innovation capacity, and that without creating a safe and supportive cultural environment, investing in complex knowledge management systems may not yield the desired results. Employees will only come up with their innovative ideas when they are confident that potential failures will not be punished and that managers will support innovations.

In the area of knowledge management, knowledge application demonstrated the strongest effect on innovation capacity. This finding is crucial for operational organizations such as the RCS, where operational knowledge, such as new methods for setting up relief tents in high wind conditions or new flood relief protocols, is only valuable when immediately applied by the frontline rescue and relief team.

In contrast, knowledge creation exhibited a relatively low coefficient (0.120), suggesting a potential organizational weakness. This may reflect managerial routinization or insufficient mechanisms to encourage radical innovation and fundamental improvements.

Overall, the research shows that the Alborz RCS has a high innovation potential, provided that the management remains consistent with its organizational culture, and that knowledge management processes are directed towards making knowledge practical. Simultaneous investment in cultural change and the optimization of knowledge utilization processes can significantly increase society's capacity to respond to crises and provide innovative relief services.

Based on the results of structural equation modeling, strengthening the innovation capacity in the Alborz RCS requires simultaneous attention to knowledge management and organizational culture. This research showed that the application of operational knowledge has the most significant impact on innovation; therefore, creating cross-departmental teams, operational knowledge libraries (Playbooks), and immediate feedback systems can optimize the transfer of experience and the practical use of knowledge. In addition, investing in knowledge creation through internal innovation, as well as holding hackathons and organizational challenges, encourages employees to generate new ideas and test innovative solutions, although the low coefficient for knowledge creation in the model indicates a need for greater focus in this area.

Knowledge storage also plays a key role in promoting innovation; standardizing post-crisis documentation and storing it in a central database enables effective access to and exploitation of past experiences. Along with these measures, organizational culture is essential as a cultural infrastructure for innovation; developing a culture of “trial and error”, delegating authority at the forefront, promoting transparency, rewarding innovation, and emphasizing a learning culture strengthens the innovation capacity of the population (1, 2).

Finally, it is essential to integrate knowledge management and innovation strategies and continuously monitor them through integrated, targeted policies. In addition to traditional performance indicators, soft indicators such as “number of ideas submitted” and “idea acceptance rate” can be monitored quarterly to improve the RCS's performance and responsiveness in crises. These findings indicate that integrating knowledge management and organizational culture, along with targeted structural and cultural measures, can effectively increase society's innovation capacity and improve the effectiveness of relief activities.

Compliance with Ethical Guidelines

There were no ethical considerations in this research.

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Author’s Contributions

This article is based on Seyed Yaser Rastgou idea, who was responsible for conducting the research, collecting, and analyzing the data and also editing the final manuscript submitted to the journal.

Conflict of Interests

None

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