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Structural Relationship Model of Entrepreneurial Orientation and Organizational Innovation: Mediating Role of Organizational Agility

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ABSTRACT

Objective: This study examines the structural relationship model between entrepreneurial orientation and organizational innovation and analyzes the mediating role of organizational agility.

Methods: The study was conducted on 380 employees of government and non-government departments in Kerman city in 2024, who were selected by cluster random sampling. The research method was descriptive-correlational and data were collected and analyzed using questionnaires on entrepreneurial orientation, organizational innovation, and organizational agility.

Results: The results showed that entrepreneurial orientation has a direct and significant positive effect on organizational innovation. Also, organizational agility plays an important mediating role in this relationship and strengthens the positive effects of entrepreneurial orientation on organizational innovation.

Conclusions: This study shows that organizations should pay special attention to developing entrepreneurial orientation and promoting organizational agility in order to increase innovation. The findings can provide practical guidance for managers and policymakers to improve organizational performance in today's dynamic environments.

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Introduction

In the contemporary epoch, innovation is acknowledged as a fundamental determinant for the prosperity and sustainability of organizations operating within dynamic and competitive contexts. The swift evolution of technology, globalization, and escalating customer expectations have necessitated that organizations adopt and integrate innovation across all functional dimensions to uphold their competitive edge (Tidd, 2006). Innovation represents a systematic process that encompasses the generation of novel ideas and their subsequent transformation into products, services, or operational methodologies that generate additional value for both the organization and its stakeholders (Damanpour, 1991).

A primary rationale for the significance of innovation within organizations is its potential to enhance productivity and diminish operational costs. Empirical studies have demonstrated that innovative organizations are capable of refining their processes and augmenting productivity through the utilization of advanced techniques and technologies (Kneeland et al., 2020). This proficiency is particularly critical within dynamic, technology-centric sectors, where product life cycles are abbreviated, and organizations must engage in rapid innovation to ensure their survival (Dasgupta & Gupta, 2009).

Organizational innovation may manifest in various forms, including product innovation, process innovation, and managerial innovation (Demircioglu, 2016). Product innovation pertains to the conceptualization and launch of new products and services that address market demands or foster the emergence of new needs (Tidd, 2023). Process innovation entails the enhancement of production methodologies or service delivery mechanisms that bolster efficiency and curtail costs (Jerdea, 2023). Managerial innovation includes alterations in the organizational structure, culture, or strategic orientation that promote innovation in other domains (Mignon et al., 2020).

Research has shown that several factors influence the success of innovation in organizations. These factors include organizational culture, organizational structure, leadership, and financial and human resources (Amabile, 2011). An organizational culture that encourages creativity, acceptance of change, and collaboration can provide the environment for innovation to flourish (Martins & Terblanche, 2003). In addition, flexible and decentralized structures usually facilitate innovation because they allow for rapid information exchange and decision-making (Green, 2019).

The role of leadership in organizational innovation is also significant. Leaders can stimulate innovation in organizations by encouraging creativity, providing resources, and creating a supportive environment (Bass & Avolio, 1994). Research has also shown that organizations that allocate sufficient financial and human resources to innovation are more successful than organizations that lack them (Harrison & Bazzy, 2017).

In conjunction with internal determinants, external environmental factors significantly influence the innovation process. Competitive dynamics, fluctuations in market demand, and advancements in technology constitute the principal elements that compel organizations to pursue innovative strategies. For instance, enterprises functioning within intensely competitive sectors are typically compelled to accelerate their innovation efforts (Christensen & Raynor, 2013).

Ultimately, innovation represents a multifaceted and intricate process necessitating a high degree of coordination and interaction among various determinants. Achieving success in this domain mandates the establishment of an equilibrium between creative endeavors and proficient management practices. Organizations capable of fostering a supportive and dynamic milieu for innovation exhibit a greater likelihood of achieving enduring success (Van de Ven & Engleman, 2004).

In such contexts, organizations must implement strategies that are adaptable to the evolving landscape and capable of surmounting challenges. A viable strategy is to concentrate on organizational entrepreneurship and innovation as essential mechanisms for survival and advancement within dynamic and competitive contexts. Entrepreneurial orientation, recognized as a pivotal determinant of organizational success, underscores the significance of generating and cultivating novel opportunities within the organization, thereby playing a crucial role in enhancing innovation (Hasanpour et al., 2023; Wales, 2016). Concurrently, organizational agility, defined as the capacity of the organization to respond swiftly and effectively to environmental alterations, can exert a substantial influence in this regard (Abdolmaleki et al., 2022). Acknowledging the critical nature of innovation and its contribution to the establishment of sustainable competitive advantage, numerous organizations endeavor to bolster an innovation-centric culture through the lens of entrepreneurial orientation. Organizational innovation denotes the capability of an organization to develop new ideas, processes, products, and services that can enhance overall organizational performance (Sapprasert & Clausen, 2012). In this context, organizational agility,

functioning as a mediating variable, can facilitate the interplay between entrepreneurial orientation and organizational innovation. Organizations exhibiting elevated levels of agility are equipped to promptly adapt to environmental shifts, and this capability may steer innovation in a constructive direction (Žitkienė & Deksnys, 2018).

Empirical research has indicated that entrepreneurial orientation, encompassing the dimensions of innovation, risk-taking, and foresight, exerts a direct influence on organizational performance (Covin & Slevin, 1989). Entrepreneurial orientation, as a fundamental construct within management and entrepreneurship discourse, plays a critical role in the success and expansion of organizations. This construct pertains to the strategic posture of the organization that prioritizes innovation, risk-taking, and foresight in decision-making processes (Lumpkin & Dess, 1996). Entrepreneurial orientation not only enhances the organization's capacity to discern new opportunities but also aids in the establishment of a sustainable competitive advantage through the effective utilization of existing resources (Covin & Slevin, 1989). Entrepreneurial orientation encompasses five principal dimensions: innovation, risk-taking, foresight, competitiveness, and autonomy. Innovation pertains to the pursuit and implementation of novel ideas within processes, products, or services. Risk-taking signifies an organization's propensity to embrace uncertainty and allocate resources towards high-risk ventures. Foresight underscores an organization’s competency in predicting market demands and fluctuations ahead of its competitors. Competitiveness denotes an organization’s readiness to engage actively and distinguish itself from rival entities. Lastly, autonomy signifies the latitude afforded to teams and individuals to engage in innovative decision-making processes (Correa & De Moura Ferreira Danilevicz, 2015). Empirical studies have demonstrated that entrepreneurial orientation exerts beneficial influences on organizational performance, particularly within dynamic business contexts characterized by rapid transformations and fierce competition (Wiklund & Shepherd, 2003). This construct enables organizations to fortify their competitive stance by swiftly adapting to environmental shifts and capitalizing on innovative prospects. Indeed, entrepreneurial orientation transcends a mere strategic framework for organizations; it embodies an organizational ethos that fosters creativity and innovation across all tiers of the organization (Dess & Lumpkin, 2005).

In a broader context, entrepreneurial orientation empowers organizations to enhance their performance and secure a competitive edge in the marketplace by bolstering their capacities for innovation and risk-taking. This strategic framework may facilitate the attainment of long-term objectives, particularly under conditions marked by uncertainty and tumultuous environments.

Furthermore, scholarly inquiries indicate that organizational agility plays a pivotal role in augmenting organizational performance and securing competitive advantage. Organizational agility is defined as the capacity of an organization to respond expeditiously and effectively to environmental fluctuations, leverage new opportunities, and navigate challenges within a dynamic and complex milieu (Sharifi & Zhang, 1999). In the contemporary landscape, where organizations are confronted with rapid technological advancements, evolving customer demands, and competitive pressures, agility has emerged as a critical determinant of success. This paradigm encompasses a synthesis of flexibility, responsiveness, and innovation within organizational processes and decision-making frameworks (Goldman et al., 2015).

Organizational agility, as a strategic competency, empowers organizations to reconceptualize changes not as threats but as avenues for growth and innovation (Saha et al., 2020). This construct typically encompasses four fundamental dimensions: sensitivity to environmental alterations, responsiveness, flexibility, and productivity. Sensitivity to changes refers to the organization's capability to foresee and discern environmental transitions. Responsiveness reflects the ability of the organization to make prompt decisions and execute them effectively. Flexibility denotes the organization's aptitude to reorganize resources and processes to accommodate new circumstances. Finally, productivity signifies the optimal utilization of available resources in agile contexts (Ononiwu et al., 2024).

Research has indicated that organizational agility significantly influences performance and competitive advantage. Organizations exhibiting higher levels of agility are better positioned to capitalize on innovative opportunities and mitigate environmental risks (Teece et al., 1997). Notably, organizational agility assumes heightened importance in technology-intensive sectors and environments characterized by considerable uncertainty (Overby et al., 2006).

Overall, organizational agility constitutes a pivotal competence for achieving success in volatile and challenging environments. This capability not only enables organizations to respond adeptly to alterations, but also facilitates the expeditious and effective attainment of their strategic

objectives. Nevertheless, a limited number of studies have investigated the mediating function of organizational agility within the nexus of entrepreneurial orientation and organizational innovation. This lacuna has engendered a deficiency in the existing management literature that necessitates a more comprehensive inquiry.

Kerman, recognized as one of Iran's industrially advancing cities, offers an appropriate context for the exploration of this phenomenon. The presence of a myriad of governmental and non-governmental entities within this locale affords the opportunity to juxtapose the effects of entrepreneurial orientation and organizational innovation across diverse settings. In this context, the current research endeavors to scrutinize the interrelationships among entrepreneurial orientation, organizational innovation, and organizational agility through the application of a structural model, whilst also evaluating the mediating influence of organizational agility.

In the rapidly evolving business milieu, organizations are compelled to implement swift and continuous transformations to sustain their existence and secure competitive advantages. Technological advancements and heightened global competition have prompted organizations to increasingly embrace innovation and cultivate new competencies. In this regard, entrepreneurial orientation, as a strategic framework, can significantly contribute to the facilitation of innovation. However, the fundamental inquiry remains: how can this orientation be optimally leveraged to enhance organizational innovation?

Empirical studies have indicated that entrepreneurial orientation, in isolation, cannot guarantee organizational innovation. A multitude of factors can affect this interplay, among which organizational agility is of paramount significance. Organizational agility is elucidated as the capacity of an organization to swiftly identify and react to environmental fluctuations and to capitalize on available opportunities (Goldman et al., 2015). Organizations characterized by a high degree of agility are better positioned to deploy their entrepreneurial capabilities effectively, thereby fostering innovation within their structures (Sambamurthy et al., 2003).

Concurrently, prior research has demonstrated that numerous organizations, particularly in developing nations, encounter obstacles in fostering organizational innovation and reaping the advantages of entrepreneurial orientation. In the investigation conducted by Lumpkin and Dess (1996), various dimensions of entrepreneurial orientation, encompassing innovation, foresight, and risk-taking, were analyzed. The findings revealed that these dimensions exert a direct influence

on organizational innovation and that emphasizing each dimension can yield strategic benefits for organizations. In a separate study, Damanpour and Schneider (2006) examined the distinct phases of innovation adoption within organizations. The results underscored the significance of the organizational environment and the pivotal role of senior leadership in facilitating innovation. Furthermore, the research by Sambamurthy et al. (2003) assessed the function of organizational agility as a strategic capability for prompt adaptation to environmental shifts and its consequential impact on innovation. This investigation illustrated that organizational agility may serve as a catalyst for innovation. Covin and Slevin (1989) conducted an investigation into the influence of entrepreneurial orientation within both dynamic and static environments. The findings demonstrated that organizations exhibiting a robust entrepreneurial orientation tend to achieve superior performance in conditions characterized by dynamism.

Furthermore, Tidd (2006) also elucidated that organizations are necessitated to cultivate competencies such as agility and innovation in order to sustain their competitive edge in evolving environments. Rahmanian and Daemi (2019) explored the correlation between innovation and organizational agility in the context of attaining resistance economy objectives from the perspective of officials. Their findings indicated that organizational agility exerts a significant positive influence on both process and product innovation. In another inquiry, Talari et al. (2021) examined the contribution of entrepreneurial orientation to the success of novel products within knowledge-based enterprises, particularly emphasizing the significance of ambidextrous marketing. The results revealed that entrepreneurial orientation significantly enhances innovation through the facilitation of organizational agility.

In the context of Iran, a multitude of factors, including bureaucratic inefficiencies, legal constraints, and resource inadequacies, have hindered the comprehensive realization of innovation potential within organizations. This phenomenon necessitates a more granular exploration of the mediating variables, such as organizational agility, that influence this relationship. The present study aspires to address this research void by investigating the mediating role of organizational agility in the interplay between entrepreneurial orientation and organizational innovation among personnel from both government and non-government sectors in Kerman city. Employing structural equation modeling (SEM), this study endeavors to furnish novel insights into this matter

and assist managers and decision-makers in formulating more effective strategies aimed at enhancing innovation and organizational performance.

Material and Methods

This investigation represents a correlational analysis and was executed utilizing structural equation modeling (SEM). The statistical population for this inquiry encompasses all personnel employed in both governmental and non-governmental entities within the jurisdiction of Kerman city. The sampling technique employed was cluster random sampling, and prior to engaging with the research questionnaires, all participants duly completed an informed consent document.

Instruments

1. The Entrepreneurial Orientation Scale (EOS): This instrument was developed by Gorostiaga et al. (2019) and comprises 32 items, each rated on a 5-point Likert scale (1 = completely disagree to 5 = completely agree). The original research affirmed the content and construct validity of this instrument, with a reported reliability coefficient of 0.84. In the current study, the reliability of this questionnaire was similarly determined to exceed 0.78.

2 . Organizational Innovation Questionnaire: This assessment tool, formulated by Prajogo and Sohal (2003), consists of 16 items rated on a 5-point Likert scale. This instrument evaluates innovation across various dimensions, including product, process, and administrative innovation. In the original research, the reliability of this questionnaire was documented at 0.88, whereas in this study, its reliability was identified as 0.82.

3. Organizational Agility Questionnaire: This assessment, created by Sharifi and Zhang (1999), is comprised of 28 items rated on a 5-point Likert scale. This instrument investigates several dimensions of organizational agility, such as responsiveness, flexibility, and predictability. The reliability of this tool was reported to be 0.85 in the original study, and it was found to be 0.84 in the present research.

Structural equation modeling alongside model fit indices was employed to scrutinize the data. Furthermore, to evaluate the mediation effect, the bootstrap method was utilized to investigate the mediating role of organizational agility within the relationship between entrepreneurial orientation and organizational innovation.

Results

Descriptive analysis of the mean and standard deviation of the scores of entrepreneurial orientation, organizational innovation and organizational agility is presented in Table 1. The correlation of the variables is also calculated using the Pearson correlation method and reported in Table 1.

Table 1. Mean, standard deviation and correlation coefficients between the variables of the present study

	Variable	Mean	SD	1	2
1	Entrepreneurship Orientation	102.45	4.87	-	
2	Organizational Agility	92.52	4.11	0.52**	-
3	Organizational Innovation	46.61	3.89	0.53**	0.59**

The normality of the data was examined using the Shapiro-Wilk test and its results are reported in Table 2. The contents of Table 2 show that the scores of all three variables are normal and this assumption has been confirmed.

Table 2. Normality indices of study variables

Variable	S-W	P
Entrepreneurship Orientation	1.11	0.65
Organizational Agility	0.98	0.44
Organizational Innovation	0.81	0.52

Also, other assumptions of using structural equation modeling, including the adequacy of the sample size, non-collinearity between the variables and the absence of outliers, were examined and confirmed. Examination of the proposed model by structural equation modeling (SEM) showed that the proposed model showed a good fit with the observed data. The model fit indices are presented in Table 3.

Table 3. The fit indices of proposed model

Fit indices	x^2	Df	x^2/Df	GFI	AGFI	NFI	CFI	IFI	TLI	RMSEA
Proposed model	65.381	25	2.601	0.921	0.910	0.901	0.912	0.908	0.914	0.068

According to Table 3, the comparative fit index (CFI) was calculated to be 0.91, the root mean square error of approximation (RMSEA) was calculated to be 0.068, and the goodness of fit index (GFI) was calculated to be 0.92. The analyzed model is shown in Figure 1,

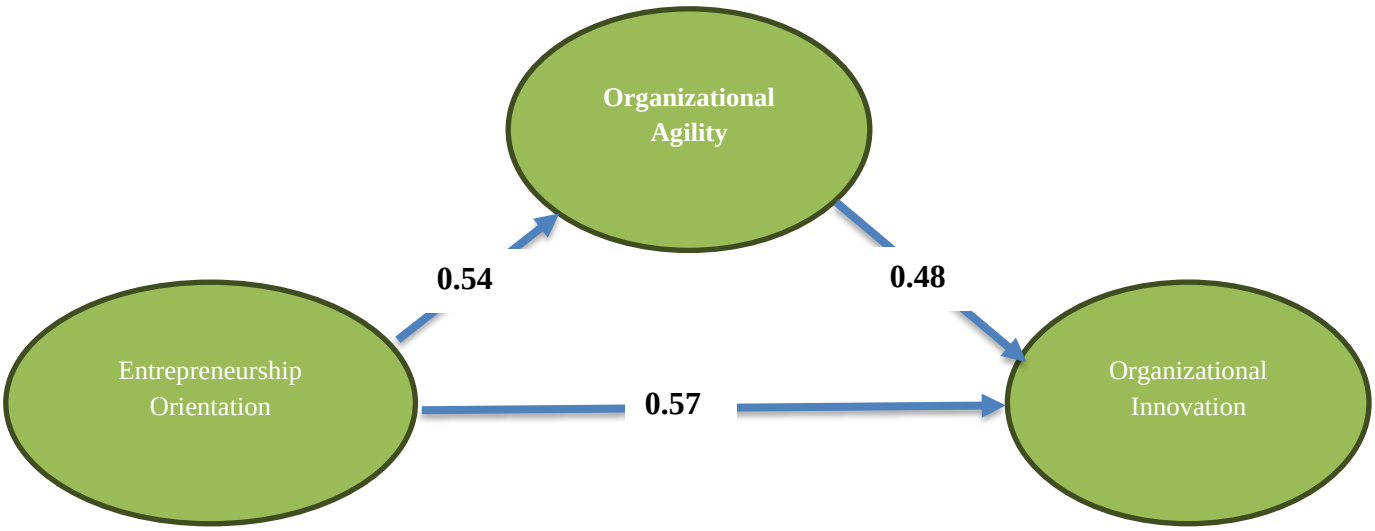

Figure 1. The proposed model

According to Figure 1, the beta value of the path from entrepreneurial orientation to organizational innovation (β=0.57, p<0.01) and the beta value of the path from entrepreneurial orientation to organizational agility (β=0.54, p<0.01) were obtained, both of which are positive and significant. Also, the path coefficient from organizational agility to organizational innovation was also positive and significant (β=0.48, p<0.01). The results related to the coefficients of the direct paths are presented in Table 4.

Table 4. Parameters of direct effects between research variables

Paths	Beta	B	Std. Error	C.R	P
Entrepreneurship Orientation to Organizational Innovation	0.57	0.61	0.129	2.27	0.001
Entrepreneurship Orientation to Organizational Agility	0.54	0.42	0.190	3.12	0.001
Organizational Agility to Organizational Innovation	0.48	0.39	0.851	1.09	0.001

The bootstrap method was used to assess the mediating effect of organizational agility on the relationship between entrepreneurial orientation and organizational innovation. The findings showed that organizational agility mediates the relationship between entrepreneurial orientation and organizational innovation. (β = 0.253, P < 0.01).

Discussion

The findings of the current investigation revealed that the proposed theoretical framework exhibits a commendable fit. The fit indices signified that the model was effectively aligned with the gathered data. The analysis of the path coefficients further demonstrated that entrepreneurial orientation exerts a positive and statistically significant influence on both organizational innovation and organizational agility. Furthermore, organizational agility also manifested a positive and significant impact on organizational innovation. Additionally, the results indicated that organizational agility serves a pivotal mediating function in the nexus between entrepreneurial orientation and organizational innovation. Prior scholarly inquiries have corroborated these observations. For instance, Sambamurthy et al. (2003) established that organizational agility can enhance innovation and yield beneficial outcomes for organizational performance. Likewise, the research conducted by Lumpkin and Dess (1996) has underscored the affirmative influence of entrepreneurial orientation on innovation. The results of the current study, in concordance with these prior investigations, elucidate that organizations can bolster their innovative capabilities by fostering entrepreneurial orientation and augmenting agility.

These findings underscore the significance of fostering an entrepreneurial culture within organizations, which promotes risk-taking, creativity, and the identification of novel opportunities. Conversely, the function of organizational agility as a mediating variable in this context emerged as another salient finding of this study. Organizational agility, by endowing organizations with adaptive capabilities and the capacity for rapid response to environmental fluctuations, enables the exploitation of innovative prospects. This underscores that organizational agility can serve as a critical facilitator, thereby amplifying the impact of entrepreneurial orientation on organizational innovation. Elucidating the mediating effects of organizational agility illustrates that this construct can function as a conduit between entrepreneurial orientation and organizational innovation. This is of paramount importance, as it indicates that organizations ought to concentrate not solely on enhancing entrepreneurial culture but also on establishing the requisite infrastructure for organizational agility to foster innovation. In light of the research findings, it is recommended that future inquiries should explore the influence of additional mediating variables, such as organizational culture or organizational structure, within the relationship between entrepreneurial orientation and innovation.

Moreover, employing larger and more heterogeneous samples from various organizations may facilitate the generalization of the findings. From a practical standpoint, it is advisable for organizations to implement training programs and empower personnel in the domains of entrepreneurship and agility.

The current study also faced certain limitations in addition to its findings. Firstly, this research was conducted exclusively in Kerman city, thus the extrapolation of results to other regions should be approached with caution. The utilization of questionnaire instruments may be susceptible to respondent bias, which represents another limitation of this investigation. Furthermore, the proposed model assessed only three variables, neglecting other potentially influential factors.

Data availability statement

The original contributions presented in the study are included in the article/supplementary material, further inquiries can be directed to the corresponding author.

Ethics statement

The studies involving human participants were reviewed and approved by the ethics committee of Islamic Azad University. The patients/participants provided their written informed consent to participate in this study.

Author contributions

All authors contributed to the study conception and design, material preparation, data collection, and analysis. All authors contributed to the article and approved the submitted version.

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Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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