Journal of Knowledge-Research Studies

Dilmaghani, Mitra; Ramezan, Majid; Rezaee, Fatemeh Sadat (2023). Identifying and Prioritizing the Influential Factors on the Organizational Change Capacity (Case Study: A Research and Training Center). *Journal of Knowledge-Research Studies*, 2(2) : 23-38.

Doi: 10.22034/jkrs.2023.57083.1029
URL: https://jkrs.tabrizu.ac.ir/article_16653.html

Identifying and Prioritizing the Influential Factors on the Organizational Change Capacity (Case Study: A Research and Training Center)

Mitra Dilmaghani[1]*, Majid Ramezan[2], Fatemeh Sadat Rezaee[3]

Received: June,12 2023 **Accepted:July, 24, 2023**

Abstract

Purpose: The velocity of change in the surrounding world has forced them to identify those factors which impact their change capacity. The present study is conducted to identify and prioritize affective factors on organizational change capacity.

Methodology: In terms of purpose, this is applied research, while it is a descriptive survey-type in the data collection method. Its population includes ten experts familiar with research subjects in a research and training center.

Findings: By reviewing the literature on change capacity, relevant, influential factors were identified, and they were concurred by the fuzzy Delphi technique, and then, they were ranked. To this end, a pair comparison questionnaire was distributed among ten experts, and after gathering the questionnaires, affecting factors were ranked using the Expert Choice11 Software package and AHP technique. Results show that organizational culture, structure, and style of leadership were the main factors that impact change capacity.

Conclusion: The results showed the factors could be divided into three categories: environmental, content, and structural elements. Environmental factors include environment and innovation; content factors include team working, intellectual capital, leadership, political behavior, and human resource management; Structural elements include strategy, structure, organizational policies, information technology, knowledge management, and technology.

Value: This is the first time in the literature that the variables related to change capacity were categorized in a conceptual classification that has not been seen in previous research.

Keywords: Change capacity, Fuzzy Delphi, Analytical hierarchy process.

1. Assistant Professor, Management Faculty, Malek Ashtar University of Technology, Tehran, Iran. (Corrsesponding Author), **mdilmahani8@gmail.com**
2. Associate Professor, Management Faculty, Malek Ashtar University of Technology, Tehran, Iran.
3. Master of Industrial Engineering, Management Faculty, Malek Ashtar university of Technology, Tehran, Iran.

Journal of Knowledge-Research Studies (JKRS)

Page | 2

Vol 2

Issue 2

Serial Number 4

2023

Extended Abstract

Introduction

Organizational change capacity is a concept highly paid attention by organizational researchers in recent years. To achieve the main purposes of our research and training center, we need to establish an innovative culture, empower our employees and organize the organic structure for taking competitive advantage in turbulent environments. Therefore, we must highly pay attention to the capacity of change in this center. To measure change capacity in an organization, one should evaluate its dimensions and elements the organization. According to relevant literature, one can refer to Soparnot's model (2011), Judge (2005), and Meyer and Stensaker (2006). In the field of change capacity, our selected model in the present study to measure organizational change capacity is Judge's eight-element model of organizational change capacity (2005), and his proposed standard questionnaire (Judge & Elenkov, 2005) is used. This model was selected for its comprehensiveness in dimensions and the number of references in the literature.

Purpose

The velocity of change in the surrounding world has forced them to identify those factors which impact their change capacity. The present study is conducted to identify and prioritize affective factors on organizational change capacity.

Methodology

In terms of purpose, this is an applied research. It is attempted here to identify and prioritize affecting factors on organizational change capacity by library studies. In terms of data collection, this research is a descriptive survey. To increase the validity and to determine the indicators to measure identified dimensions, the fuzzy Delphi technique is used. The research population consists of researchers, experts, and scholars familiar with research titles in the organizational change management field. Here, the sampling method was not random and probable. Studied samples were selected in a non-probable and judgmental way. It means that relevant scholars and experts are considered as the research population. To identify influential factors on change capacity, theoretical literature was reviewed. Likewise, to identify and validate recognized factors, questionnaires were used in the fuzzy Delphi section.

Delphi panel members include ten experts considered proper by the researcher to participate in this study. These people possessed one or more below features:

(a) Faculty members familiar with intellectual capital, knowledge management, change capacity, and entrepreneurship,

(b) Publishing scientific articles, books, and other scientific works related to intangible assets, predominantly intellectual capital, knowledge management, change capacity, and entrepreneurship,

(c) Experts and authors in discussion on intellectual capital, knowledge management, change capacity, and entrepreneurship.

Findings

The research questionnaire in the present study was designed to acquire experts' opinions on their agreement with identified dimensions; therefore, experts had

expressed their understanding through verbal variables as very low, low, medium, high, and very high.

Upon identifying organizational changes capacity criteria, the experts' questionnaire was designed in the next step. It included 34 paired comparisons, and experts were asked to point 1-9 scores to these comparisons. Ten questionnaires were distributed among experts, and according to the achieved data, they were ranked.

After completing the questionnaires, relevant data was analyzed by the Expert Choice 11 software package so that paired comparison matrices were inserted into the software individually, and then the matrix incompatibility rate for each one was computed. The software produced an integrated matrix, and three main criteria, and 14 sub-criteria were provided in an integrated manner by their weights ,as seen in below graph and tables.

Table 1 indicates the summary of weights, ranking of main criteria, their relevant sub-criteria, as well as the weights and ranking of sub-criteria in an integrated manner.

Table 1. A summary of weights and ranking of main criteria and their relevant sub-criteria as well as weights and ranking sub-criteria in an integrated manner

Criteria	Weight of criteria	Criteria rate	Sub-criteria	Sub-criteria weight in relevant criteria	Sub-criteria rate in relevant criteria	Sub-criteria final weight	Sub-criteria final rate
Environmental	0.468	1	Environment	0.473	2	0.221	2
			Innovation	0.527	1	0.26	1
Structural	0.311	2	strategy	0.380	1	0.118	3
			Structure	0.164	3	0.051	7
			Organizational policies	0.172	2	0.053	6
			IT	0.139	4	0.040	8
			KM	0.051	6	0.015	12
			Technology	0.102	5	0.031	10
Content	0.221	3	Culture	0.154	3	0.034	9
			Team working	0.058	5	0.012	13
			Intellectual capital	0.072	4	0.015	11
			Leadership	0.437	1	0.096	4
			Political behavior	0.037	6	0.0081	14
			HR management	0.242	2	0.053	5

Table 2 indicates the main influential factors on the capacity of organizational change and their ranking based on the factor importance from the highest impact to the lowest.

Table 2. Final ranking of influential factors on change capacity

Row	Effective factors	Total weight of each factor
1	Innovation	0.247
2	Environment	0.221
3	Strategy	0.118
4	Leadership	0.097
5	HR management	0.097

Journal of Knowledge-Research Studies

Journal of Knowledge-Research Studies (JKRS)

Page | 3

Vol 2

Issue 2

Serial Number 4

2023

6	Policies	0.053
7	Structure	0.051
8	IT	0.040
9	Culture	0.034
10	Technology	0.032
11	Intellectual capital	0.016
12	KM	0.016
13	Team working	0.013
14	Political behavior	0.008

For prioritizing these variables, the AHP technique was used. According to the Results (table 1), environmental factors with a weight of 0.468 have the most impact on the capacity for organizational change. The second place in the variables' ranking belongs to structural factors with a weight of 0.311, and finally, the third category with a weight of 0.221 is the content factor.

Conclusion

By reviewing the literature, the factors affecting the change capacity were identified. Then these factors were distributed among the experts through the Delphi questionnaire in 3 rounds. During these rounds, three dimensions were added to the total dimensions, and after the analysis using the fuzzy Delphi method, two dimensions with a discrepancy rate of less than ./1 were deleted. Finally, the theoretical consensus among the expert's panel was obtained, and 14 factors were identified as definitive factors affecting the capacity of change in the university. In the next step, the hieracherhical analysis method was used to prioritize these factors.

Value

This is the first time in the literature that the influential variables affecting the change capacity were recognized and categorized in a conceptual classification that has not been seen in the previous researches.

References

Abdolmaleki, Hossein et al. (2014). The Role of Social Capital in Creating Organizational Intellectual Capital (A Study of Two Iranian Automobile Companies). European Journal of Experimental Biology, 2014, 4(3):387-391.

Amirijam, B. (2017). Investigation the effect of organizational culture on organizational change capacity. *Malek Ashtar University of technology*. [In Persian].

Andreeva, T., & Ritala, P. (2016). What are the sources of capability dynamism? Reconceptualizing dynamic capabilities from the perspective of organizational change. *Baltic Journal of Management, 11*(3), 238-259. https://doi.org/10.1108/BJM-02-2015-0049

Buono, A. F., & Kerber, K. W. (2010). Creating a sustainable approach to change: Building organizational change capacity. *SAM Advanced Management Journal, 75*(2), 4-21.

Cox, K., Jolly, S., Van Der Staaij, S., & Van Stolk, C. (2018). *Understanding the drivers of organisational capacity*. RAND.

David, F.R. (2002). Strategic *management*, translated by A. Parsayian, Tehran, Cultural Research Office. [In Persian].

Dempsey, M., Geitner, L., Brennan, A., & McAvoy, J. (2021). A review of the success and failure factors for change management. *IEEE Engineering Management Review*, *50*(1), 85-93.

Heckmann, N., Steger, T., & Dowling, M. (2016). Organizational capacity for change, change experience, and change project performance. *Journal of business research*, *69*(2), 777-784. DOI:10.1016/j.jbusres.2015.07.012

Heward, S., Hutchins, C., & Keleher, H. (2007). Organizational change–Key to capacity building and effective health promotion. *Health Promotion International*, 22(2), 170-178. DOI:10.1093/heapro/dam011.

Judge, W. Q., & Blocker, C. P. (2008). Organizational capacity for change and strategic ambidexterity: Flying the plane while rewiring it. *European Journal of Marketing*, *42*(9/10), 915-926. DOI: 10.1108/03090560810891073

Judge, W. Q., & Elenkov, D. (2005). Organizational capacity for change and environmental performance: an empirical assessment of Bulgarian firms. *Journal of Business Research*, *58*(7), 893-901. DOI: 10.1016/j.jbusres.2004.01.009.

Judge, W., Naoumova, I., & Douglas, T. (2009). Organizational capacity for change and firm performance in a transition economy. *The International Journal of Human Resource Management*, 20(8), 1737– 1752. DOI: 10.1080/09585190903087107.

Katsaros, K. K., Tsirikas, A. N., & Kosta, G. C. (2020). The impact of leadership on firm financial performance: the mediating role of employees' readiness to change. *Leadership & Organization Development Journal*, *41*(3), 333-347. DOI:10.1108/LODJ-02-2019-0088

Lauzier, M., Lemieux, N., Montreuil, V. L., & Nicolas, C. (2020). On the transposability of change management research results: A systematic scoping review of studies published in JOCM and JCM. *Journal of organizational change management*, *33*(5), 859-881. DOI: 10.1108/JOCM-12-2018-0366

Le, P. B., & Lei, H. (2018). The effects of innovation speed and quality on differentiation and low-cost competitive advantage: The case of Chinese firms. *Chinese Management Studies*, *12*(2), 305-322. DOI: 10.1108/CMS-10-2016-0195

Mahdavi, N. (2016). *Studying the impact of IT competencies on organizational transformation.* graduate dissertation. Azad *Islamic University. [In Persian].*

Meyer, C., & Stensaker, I. G. (2007). Developing capacity for change. *Journal of Change Management*, 6(2), 217-231. DOI: 10.1080/14697010600693731

Moaya, A. (2014) *.studying the relationship between strategic thinking and organizational change capacity elements*. Malek-Ashtar University of technology. [In Persian].

Rafei, F. (2012). Studying influence of KM processes on organizational entrepreneurship in a research organization. Master's dissertation. *Malek Ashtar University of Technology.* [In Persian].

Ramezan, M. (2010). *Designing and testing knowledge productivity measurement model in Iranian public organizations*. Doctoral Dissertation. University of Tehran. [In Persian].

Ramezan, M. ,& Hasnavi, R. (2014). *Knowledge productivity in knowledge organizations*. Atinegar Publications. [In Persian].

Robbins, S. (2000*), Organizational theory (Seyed Mahdi Alvani and Hassan Danayifard,trans.*).Safar Publications. [In Persian].

Robbins, S. (2016). *organizational behavior: Concepts controversies and applications. (F. Omidvaran, M. R. Akhavan Anvary and K. Raisifar,trans.)*.Ketab Publications. [In Persian].

Saadat, E. (2001). *Human resource management*. SAMT [In Persian].

Sanjaghi, M. E., Ramezan, M., & Rahimian Kalateh baly, H. (2013). Organizational change capacity and organizational performance: An empirical analysis on an innovative industry. *Journal of Knowledge-based Innovation in China*, *5*(3), 188-212. . DOI: 10.1108/JKIC-07-2013-0012

Soparnot, R. (2011). The concept of organizational change capacity. *Journal of Organizational Change Management*, *24*(5), 640-661.. DOI: 10.1108/09534811111158903.

Supriharyanti, E., & Sukoco, B. M. (2023). Organizational change capability: a systematic review and future research directions. *Management Research Review*, *46*(1), 46-81. DOI: 10.1108/MRR-01-2021-0039

Thomhain, H. J. (n.d.). *Management of technology managing effectively in technology-intensive organizations*. Rasa Cultural Services Institute. [In Persian].

Yasir, M., Imran, R., Irshad, M. K., Mohamad, N. A., & Khan, M. M. (2016). Leadership styles in relation to employees' trust and organizational change capacity: Evidence from non-profit organizations. *Sage Open*, *6*(4), 46-81. DOI: 10.1177/2158244016675396

Journal of Knowledge-Research Studies

Dilmaghani, Mitra; Ramezan, Majid; Rezaee, Fatemeh Sadat (2023). Identifying and Prioritizing the Influential Factors on the Organizational Change Capacity (Case Study: A Research and Training Center). *Journal of Knowledge-Research Studies*, 2(2) : 23-38.

Doi: 10.22034/jkrs.2023.57083.1029
URL: https://jkrs.tabrizu.ac.ir/article_16653.html

Identifying and Prioritizing the Influential Factors on the Organizational Change Capacity (Case Study: A Research and Training Center)

Mitra Dilmaghani[1]*, Majid Ramezan[2], Fatemeh Sadat Rezaee[3]

Received: June,12 2023 **Accepted:July, 24, 2023**

Abstract

Purpose: The velocity of change in the surrounding world has forced them to identify those factors which impact their change capacity. The present study is conducted to identify and prioritize affective factors on organizational change capacity.

Methodology: In terms of purpose, this is applied research, while it is a descriptive survey-type in the data collection method. Its population includes ten experts familiar with research subjects in a research and training center.

Findings: By reviewing the literature on change capacity, relevant, influential factors were identified, and they were concurred by the fuzzy Delphi technique, and then, they were ranked. To this end, a pair comparison questionnaire was distributed among ten experts, and after gathering the questionnaires, affecting factors were ranked using the Expert Choice11 Software package and AHP technique. Results show that organizational culture, structure, and style of leadership were the main factors that impact change capacity.

Conclusion: The results showed the factors could be divided into three categories: environmental, content, and structural elements. Environmental factors include environment and innovation; content factors include team working, intellectual capital, leadership, political behavior, and human resource management; Structural elements include strategy, structure, organizational policies, information technology, knowledge management, and technology.

Value: This is the first time in the literature that the variables related to change capacity were categorized in a conceptual classification that has not been seen in previous research.

Keywords: Change capacity, Fuzzy Delphi, Analytical hierarchy process.

1. Assistant Professor, Management Faculty, Malek Ashtar University of Technology, Tehran, Iran. (Corrsesponding Author), **mdilmahani8@gmail.com**
2. Associate Professor, Management Faculty, Malek Ashtar University of Technology, Tehran, Iran.
3. Master of Industrial Engineering, Management Faculty, Malek Ashtar university of Technology, Tehran, Iran.

1. Introduction

In the 1990s, some organizational change researchers discussed the necessity of creating and grooming change capacity in organizations, albeit there was no clear concept of change capacity at that time. In their article, Mayor and Stensaker (2006) stated that despite increasing attention and broad Concurrence by researchers and scholars on the needs of organizations to develop their capacities for rapid adaptability, flexibility, and innovation, there is no single or reputable definition of change capacity. Provided definition by William Judge (2005) on change capacity can be considered the first valid and accurate definition of this concept. Organizational change capacity is a dynamic organizational capability that allows the company to adapt its old capabilities to new opportunities and threats and to create new abilities, too (Blocker and Judge, 2008). Also, organizational change capacity is the ability of the organization to change as a conventional response to environmental changes. Change capacity is a permanent ability that (1) reflects a dynamic process of constant learning and enables the organization to progress in the context of ambiguity and uncertainty and (2) yields the ability to implement such changes (Soparnot, 2008). Organizational change capacity is the organizational available ability to encounter or respond unpredictable and precarious nature of the environment. Such general capability is multidimensional and includes three aspects: (1) human resources and skills; (b) official systems and procedures; (c) organizational culture, values, and norms (Judge, 2011: 14). Change capacity is considered a capacity of compatibility and initiative, and it is focused more on the results than this organizational capability (Soparnat, 2011: 660). Organizational change capacity is a dynamic and multidimensional ability that allows organizations to improve and update their current competencies and to use new competencies for their survival and growth (Judge, 2011: 14). One of the most critical dimensions of organizational change capacity initiatives leadership is the leader's ability in diagnosing and evolving organizational capacity for change (Bossidy and Charan, 2002). Worley & Lawler (2006) asserts that "the most important capability of an organization is changeability and, today, organizations lack such ability." In another study, Judge and Douglas define organizational change capacity as "a combination of managerial and organizational abilities which allows it to adapt to changing situations more rapidly and efficiently than rivals." Change capacity means to allocate and develop changes and operational capabilities which retain long term performance (Stensaker and Meyer, 2006: 220). Organizational change capacity is a concept highly paid attention by organizational researchers in recent years. To achieve the main purposes of our research and training center, we need to establish an innovative culture, empower our employees and organize the organic structure for a competitive advantage in turbulent environments. Therefore, we must highly pay attention to the capacity of change in this center. To measure change capacity in an organization, one should evaluate its dimensions and elements in the organization. According to relevant literature, one can refer to Soparnot's model (2011), Judge (2005), and Meyer and Stensaker (2006). In the field of change capacity, Our selected model in the present study to measure organizational change capacity is Judge's eight-element model of organizational change capacity (2005), and his proposed standard questionnaire (Judge & Elenkov, 2005) is used. This model was selected for its comprehensiveness in dimensions and the number of references in the literature. According to the above

Journal of Knowledge-Research Studies

Journal of Knowledge-Research Studies (JKRS)

Page | 24

Vol 2

Issue 2

Serial Number 4

2023

description, uncertain and complex environmental factors have led organizations, especially research centers, to recognize these factors and adapt themselves to survive and competing. Therefore, in this research, we tried to identify the main elements which affecting organizations to increase their capacity to change.

1.1.Change Capacity

Nowadays, the business environment is changing rapidly and becoming very difficult to predict (Yasir et al., 2016; Le and Lei, 2018). Organizations constantly change, sometimes gradually evolving and at other times quickly redirecting strategies, structures, business models, and operations. An abundance of studies analyzes and synthesizes the antecedents, the process, and the outcomes to help understand how organizations change and what makes them successful or not when changing (Dempsey et al. 2022; Lausier et al. 2020). Change occurs everywhere with increasing speed and complexity (Ramezan et al., 2013). These changes have put tremendous pressure on academic and business organizations to change. Change management has a vital role in all organizations, as it is the essence of successful organizations: the purpose of leadership is to create helpful change. As a result, leaders and their organizations pay great attention to change management and attempt to deal effectively with the change of environment and to initiate change; however, they sometimes fail because of poor change management and lack of leadership practices for change (Judge, 2011). Therefore, it is necessary to continuously explore new initiatives or the right pathways for managing change effectively (Yasir et al., 2016). Leaders who participate in all-important decisions in the organizational operating process play a decisive role in building and improving organizational change capacity(OCC).

Organizational capacity commonly refers to an organization's ability to perform work or the enabling factors that allow it to perform its functions and achieve its goals (Cox, 2018). Organizational change is included capacity building. Organizational changes should be explicitly considered in any organization. Capacity building is perceived in three main components to ensure that a service system has proper reaction. They include: incumbency in practice, action framework, and capacity in practice. Capacity building is initially needed as an invisible act to recharge the system. Five main actions are reported to guide capacity building: organizational development, human resources development, resources allocation, leadership, and participation (Heward et. al, 2007: 172).

There are various theories that refer to change capacity. We should attempt to clarify the theoretical focus before recognizing relevant constituents. According to March (1981), what we call organizational change is a solution package through different parties in an organization that responds to other parties in the environment. This definition leads us toward change contents, namely, solution on its origination (Soparnot, 2011: 641).

Changes should be analyzed on several levels: change as a content (what changes), as a process (how to change it), context (why change is necessary), and as an interaction. Variables may be mutually defined in a hierarchy of joint elements (actions, reactions, and interactions). Such factors enable us to provide a preliminary definition of change capacity. Pettigrew (1985) suggests that change capacity is the ability of the company to generate solutions (content) that leads to environmental evolution (external environment) and organizational evolution (internal context), and successful execution of the change process. Or, they are executed in the heart of the company by reactions to changes

Journal of Knowledge-Research Studies

Journal of Knowledge-Research Studies (JKRS)

Vol 2

Issue 2

Serial Number 4

(compatibility) or by generating them (practical action) and transferring the changes (process). Although this definition is necessary, it is only a descriptive definition, and its ability to explicate change capacity is limited (Sapornat, 2011: 641).

1.2.Definition of Organizational Change Capacity

In the 1990s, some researchers raised the necessity of creating and grooming change capacity in organizations. However, there was no explicit concept of change capacity. In their article, Mayor and Stensaker (2006) stated that despite increasing attention and broad agreement by researchers and specialists on the needs of organizations to develop their capacities for rapid adaptability, flexibility, and innovation, there is no single or reputable definition of change capacity.

In another study, Judge and Douglas (2009: 635) define organizational change capacity as "a combination of managerial and organizational abilities which allows it to adapt to changing situations more rapidly and efficiently than rivals." Also, organizational change capacity is the general ability of an organization for practical readiness or response to the environment (Moaya, 2015: 157).

Organizational change capacity is the ability of the organization to change through a conventional and normative response to environmental changes. It is a permanent ability that (1) reflects a dynamic process of constant learning and enables the organization to progress in the context of ambiguity and uncertainty and (2) yields the ability to implement such changes (Buono and Kerber, 2010: 5). In another definition, organizational change capacity is a dynamic organizational capability which allows the company to adapt its old capabilities with new opportunities and threats and to create new abilities too (Judge and Elenkov, 2005: 894). While most of the definitions start from the dynamic capabilites framework, there are disagreements as to what the nature of the capacity for change is and how to measure it (Supriharyanti and Sukoco, 2022). Heckmann et al. (2016, p. 779) integrate existing definitions and conceptualizations to describe the organizational capacity for change as "a broad dynamic, multidimensional capability that enables an organization to initiate and successfully achieve changes of different types, sizes, and forms on an ongoing basis. OCC is multidimensional, comprising different aspects of leadership, culture, employee behavior, and an organizational infrastructure supporting organizational change". The focus on organizational capabilities includes employee behaviors but departs from the attitudes and beliefs as captured by readiness for change.

1.3.Three Dimensions of Change Capacity

In his study, in result as the company with 100 years of background and apt for posed changes, emulating the environment and even shaping its environment, Richard Sapornat (2011) introduced change capacity, including three dimensions: context, process, and learning. Context includes resources that facilitate the change process. The process integrates change implementation principles. Learning is engaged in organizational inner capacity. In his opinion, change capacity is a combination of change management and organizational learning capacity. In his study, he could provide a framework for change capacity and

Journal of Knowledge-Research Studies

Journal of Knowledge-Research Studies (JKRS)

Page | 26

Vol 2

Issue 2

Serial Number 4

2023

could determine its dimensions and measures. This framework consists of two aspects: (1) it indicates that change capacity depends on initial conditions as same as management. (2) Change capacity is a route toward change strategic management (Sapornat, 2011: 640).

According to Buono and Kerber (2010), building organizational change capacity reflects three main areas which involve change-related processes: organizational context, which supports change, and organizational culture, which facilitates organizational culture and execution (Ramezan, et al. 2013: 190). In the present paper, we attempt to identify and rank influential factors on change capacity. Identified factors are shown in Table 1.

Table 1: Effective factors in change capacity

Identified factors	The impact on change capacity	Researchers
The effects of IT and information systems on change capacity	Distributing and improving knowledge flow in organization, innovation, competency, added value, customer's imagination, employees' attitudes, managers' insights, and managing the context where knowledge is generated.	Mahdavi (2017)
The impact of innovation on change capacity	Today's competitive environment needs constant innovation. Innovation is the result of the knowledge creation process. Knowledge innovation is the continuous socialization, externalization, combination, and internalization process.	Ramezan (2010)
The impact of organizational structure on change capacity	Differentiations and integration determine relations among such jobs, communications systems, and coordination among the jobs. The result is a mechanic and organic form. Mechanic structure: low readiness for change and innovation. Organic design: team working creativity, maximum flexibility, and agility	Ramezan (2010)
The impact of organizational size on change capacity	The total number of employees is a determinant of organizational structure, and a size increase would raise formality in organizational structure	Robins (2002)
The impact of the environment on change capacity	The general environment includes everything. A specific environment is a part of the organization that relates directly to organizational goals. Environmental certainty results from both sustainable and unsustainable dynamism of environmental factors as well as the simplicity and complexity of the environment. A dynamic environment generates more certainty than a static one, and complexity increases environmental uncertainty. Such an environment would improve the capacity and readiness of the organization for changes.	Rafei (2012)

Journal of Knowledge-Research Studies

Journal of Knowledge-Research Studies (JKRS)

Vol 2

Issue 2

Serial Number 4

The impact of intellectual capital on change capacity	Intellectual capital is an intangible asset to combine different approaches. Intellectual capital is human capital, structural capital, and social capital. Paying attention to intellectual capital leads to generating and increasing capacity for changes in organizations.	Robins (2002)
The impact of strategy on change capacity	Achieving long-term goals, looking at the organization in view of the company's mission; working methods and, allocating needed resources to realize the goals; decreasing formality in the organization; increasing flexibility; increasing change capacity in organization; formulating strategy would cause innovation.	Robins (2002)
The impact of organizational culture on change capacity	Organizational culture supports knowledge sharing. Strong organizational culture intensifies the continuation of trends in behavior. It improves resiliency. Discussing and stating on organization strategy and policy, creativity and innovation culture, superior position for idea makers, the value of team work	Robins (2016)
The impact of organizational policies on change capacity	Internal promotion; the priority is with current staff	Ramezan and Hosnavi, 2012
The effect of political behavior on change capacity	A behavior out of job rules; activities not included as an official role in the organization; it resolves conflicts from different tastes	David, 2002
The impact of empowerment development and training on change capacity	Grooming human resources, creating unofficial learning opportunities, and grooming human resources would affect organizational culture	Robins, 2002
Technology	State-of-the-art technologies and variable global markets, create new challenges for businesses in terms of velocity, cost, and quality	Robins (2002)

Journal of Knowledge-Research Studies

Journal of Knowledge-Research Studies (JKRS)

Vol 2

Issue 2

Serial Number 4

2023

2.Methodology

In terms of purpose, this is applied and explorative research. Researchers try to identify and prioritize affecting factors on organizational change capacity by literature review and the experts' views. Data were collected through field research methods. To increase the validation of identified dimensions, the fuzzy Delphi technique was used. In practice, fuzzy Delphi is a series of questionnaires with frequent periods along with controlled feedback which attempts to achieve consensus among a group of experts on a specific topic. The research population consists of researchers, experts, and scholars familiar with research titles in the organizational change management field. Here, the sampling method is not random and probable. The selected samples were chosen in a non-probable and judgmental way. It means that relevant scholars and experts were considered as

the research population. To identify influential factors on change capacity, theoretical literature was reviewed. Likewise, to identify and validate recognized factors, questionnaires are used in the fuzzy Delphi section.

2.1. Formation and Combination of Delphi Panel

Delphi technique is implemented by the contribution of those who have relevant knowledge and expertise on the research scope. These people are recognized as the Delphi panel. Selecting eligible members for this panel is the most critical step of this technique since its validity depends on their eligibility and knowledge, contrary to what is common in quantitative surveys, these people are not selected by probable sampling since the Delphi technique is for collective decision-making and needs eligible specialists who have a deep understanding and knowledge of research scope. Usually, panel members are selected by a non-probable sampling method. One of the methods used in this regard is purposeful or judgmental sampling. This method is based on the assumption that the researcher's knowledge can be usable for selecting panel members. In this method, the researcher starts picking panel members by identifying an individual(s) from aware persons, and in this way, they achieve proper people for continuing research. It is used mainly when it is difficult for researchers to recognize appropriate people. Another essential point in forming the panel is the number of appropriate members. If there is homogeneity, 10 – 20 members are recommended. On this basis, Delphi panel members are selected for this research by non-probable sampling and a combination of purposeful or judgmental methods. In this research, Delphi panel members include ten experts considered proper by the researcher to participate in this study. These people possessed one or more below features:

(d) Faculty members familiar with intellectual capital, knowledge management, change capacity, and entrepreneurship,

(e) Publishing scientific articles, books, and other scientific works related to intangible assets, predominantly intellectual capital, knowledge management, change capacity, and entrepreneurship,

(f) Experts and authors in discussion on intellectual capital, knowledge management, change capacity, and entrepreneurship.

2.2. Fuzzy Delphi: steps and results

Delphi's technique is based on respondents' views. In this technique, verbal expressions are used to measure opinions. Verbal expressions have limitations to reflect fully the respondent's mental latencies. For example, the phrase "high" for A, who is a stringent, person differs from term "high" for B. If a crisp number were used to quantify both individuals' views, the results would have been skewed. In other words, although the experts' competence and mental abilities are used for decision-making, the quantifying of experts' opinions cannot wholly reflect the human thinking style. Using fuzzy sets is more consistent with human linguistic and sometimes vague descriptions, and it is better to make decisions in the real world by applying fuzzy numbers. In this research, to ensure that extracted dimensions from theoretical literature are valid and to achieve consensus on

Journal of Knowledge-Research Studies

Journal of Knowledge-Research Studies (JKRS)

Vol 2

Issue 2

Serial Number 4

identified dimensions, and to examine the validity of the initial model, the fuzzy Delphi technique is used. It is used in such dimensions as provided below.
For describing the fuzzy Delphi technique implementation algorithm, two applications of the Delphi technique must be distinguished.
• Delphi technique for "screening criteria"
• Delphi technique for “forecasting”.
Therefore, two types of qualitative research should be distinguished in using the Delphi technique. Some studies are exploratory and heuristic. In such studies, researchers are seeking to identify the most fundamental elements of a phenomenon. Some studies are also being conducted aimed at forecasting. In this study, the fuzzy Delphi technique implementation algorithm was used to identify the most fundamental elements of change capacity.

2.3. Defining language variables

The research questionnaire in the present study is designed to take experts’ opinions on their agreement with identified dimensions; therefore, experts have expressed their agreement through verbal variables as very low, low, medium, high, and very high. Since people’s different traits impact their mental interpretations of qualitative variables, they have answered with identical mindsets by defining qualitative variables. These variables are defined as triangular fuzzy numbers in Table 2.

Table 2: Triangular fuzzy numbers of verbal variables

Verbal variables	Triangular fuzzy numbers	Finalized fuzzy numbers
Very high	(1, 0.25, 0)	0.9375
High	(0.75, 0.15, 015)	0.75
Medium	(0.5, 0.25, 0.25)	0.5
Low	(0.25, 0.15, 0.15)	0.25
Very low	(0, 0, 0.25)	0.0625

In the table above, finalized fuzzy numbers are computed by the Minkowski equation as below:

Equation (1) (Minkowski):

$$x = m + \frac{\beta - \alpha}{4} \qquad (1)$$

3. Findings

3.1. The first round of the survey

Here, identified components were sent to experts, and their agreement was obtained. Based on the proposed options and defined language variables in the questionnaire, the results are outlined in Table 3.

Journal of Knowledge-Research Studies (JKRS)

Page | 30

Vol 2

Issue 2

Serial Number 4

2023

Table 3: The results of computing responses in the first round of the survey

Row	Factors	Agreement rate				
		Very low	Low	Medium	High	Very high
1	IT	2	0	0	6	2
2	Knowledge management	2	0	1	5	2
3	Innovation	2	0	1	1	6
4	Structure	2	0	1	3	4
5	Size	2	1	2	3	2
6	Environment	0	0	3	5	2
7	Intellectual capital	2	0	1	4	3
8	Strategy	2	0	0	5	3
9	Culture	2	0	0	2	6
10	Training and empowerment	2	0	2	3	3
11	Policies	0	0	0	7	3
12	Political behavior	0	0	4	2	4
13	Technology	2	0	1	7	0

The results are computed in terms of the below equations:

$$A_i = \left(\mathrm{a}_1^{(i)}, \mathrm{a}_2^{(i)}, \mathrm{a}_3^{(i)}\right), i = 1,2,3, \dots, n \quad (2)$$

$$A_{\text{ave}} = (m_1, m_2, m_3) = \left(\frac{1}{n}\sum_{i=1}^{n} \mathrm{a}_1^{(i)}, \frac{1}{n}\sum_{i=1}^{n} \mathrm{a}_2^{(i)}, \frac{1}{n}\sum_{i=1}^{n} \mathrm{a}_3^{(i)}\right) \quad (3)$$

Where:

A_i is the opinion of the i*th* expert, and $A_{\text{ave}}$is the average of experts' opinions. The results are shown in Table 4.

Table 4: The average of experts' views on the results of the first round of the survey

Factors		Triangular fuzzy average (m, α, β)	De-fuzzy average
1	IT	(014 ، 0.14 ، 0.65)	0.65
2	Knowledge management	(0.15 ، 0.15 ، 0.625)	0.625
3	Innovation	(0.09 ، 0.09 ، 0.725)	0.7
4	Structure	(0.12 ، 0.17 ، 0.675)	0.6625
5	Size	(0.16 ، 0.16 ، 0.55)	0.55
6	Environment	(0.15 ، 0.2 ، 0.725)	0.7125
7	Intellectual capital	(0.135 ، 0.16 ، 0.65)	0.64375
8	Strategy	(0.125 ، 0.15 ، 0.675)	0.66875
9	Culture	(0.08 ، 0.18 ، 0.75)	0.905

Journal of Knowledge-Research Studies (JKRS)

Page | 31

Vol 2

Issue 2

Serial Number 4

10	Training and empowerment	(	0.145	،	0.17	،	0.625	)	0.61875
11	Policies	(	0.105	،	0.18	،	0.825	)	0.80625
12	Political behavior	(	0.13	،	0.23	،	0.65	)	0.625
13	Technology	(	0.18	،	0.13	،	0.575	)	0.5875

In Table 3, the average triangular fuzzy is computed by equation (2), and the de-fuzzy process is done by Minkowski equation (1). The final acquired average indicates the agreement of experts with each factor.

3.2.The second round of the survey

Based on the experts' opinions, the second questionnaire was revised and resent to the experts. The results are shown in Table 5.

Table 5: The results of computing responses in the second round of the survey

Row	Factors	Agreement rate				
		Very low	Low	Medium	High	Very high
1	IT	0	0	1	4	5
2	Knowledge management	0	0	0	6	4
3	Innovation	0	1	1	3	5
4	Structure	0	2	2	6	0
5	Size	0	0	6	2	2
6	Environment	0	0	4	3	3
7	Intellectual capital	1	0	2	2	5
8	Strategy	0	0	2	6	2
9	Culture	0	0	2	2	6
10	Training and empowerment	0	0	2	6	2
11	Policies	0	0	3	5	2
12	Political behavior	0	1	5	4	0
13	Technology	0	0	3	6	1
14	Leadership and management	0	0		1	9
15	Team working	0	0	4	2	4
16	HR management actions	0	0	1	5	4

Similar to phase one, the results from responses in the second round are analyzed by equations (1), (2) and (3) and, are outlined in Table 6.

Journal of Knowledge-Research Studies

Journal of Knowledge-Research Studies (JKRS)

Vol 2

Issue 2

Serial Number 4

2023

Table 6: The average of experts' opinions on the results of the second round of survey

Factors		Triangular fuzzy average (m, α, β)	De-fuzzy average
1	IT	(0.085 ، 0.21 ، 0.85)	0.81875
2	Knowledge management	(0.09 ، 0.19 ، 0.85)	0.825
3	Innovation	(0.085 ، 0.22 ، 0.8)	0.76625
4	Structure	(0.17 ، 0.17 ، 0.6)	0.6
5	Size	(0.085 ، 0.22 ، 0.8)	0.7662
6	Environment	(0.145 ، 0.22 ، 0.725)	0.70625
7	Intellectual capital	(0.105 ، 0.205 ، 0.75)	0.725
8	Strategy	(0.14 ، 0.19 ، 0.75)	0.7375
9	Culture	(0.08 ، 0.23 ، 0.85)	0.8125
10	Training and empowerment	(0.14 ، 0.19 ، 0.85)	0.8375
11	Policies	(0.15 ، 0.2 ، 0.725)	0.7125
12	Political behavior	(0.2 ، 0.2 ، 0.575)	0.575
13	Technology	(0.165 ، 0.19 ، 0.7)	0.69375

After computing the average of experts' opinions, the degree of differences between the first and second rounds were identified. Results are shown in table 7:

Table 7: The degree of differences between the first and second rounds of the survey

Factors		The first phase of fuzzy average	The second phase of the fuzzy average	Difference between the first and second phases
1	IT	0.65	0.81875	0.16
2	Knowledge management	0.625	0.825	0.2
3	Innovation	0.7	0.76625	0.06
4	Structure	0.6625	0.6	0.06
5	Size	0.55	0.7662	0.21
6	Environment	0.7125	0.70625	0.006
7	Intellectual capital	0.64375	0.725	0.081
8	Strategy	0.66875	0.7375	0.068
9	Culture	0.905	0.8125	0.09
10	Training and empowerment	0.61875	0.8375	0.21
11	Policies	0.80625	0.7125	0.093
12	Political behavior	0.625	0.575	0.05
13	Technology	0.5875	0.69375	0.106
14	Leadership and management	0	0.91875	0.91875
15	Team working	0	0.725	0.725
16	HR management actions	0	0.8	0.8

Journal of Knowledge-Research Studies

Journal of Knowledge-Research Studies (JKRS)

Page | 33

Vol 2

Issue 2

Serial Number 4

As seen in the above table, there is a consensus among experts on components 3, 4, 6, 7, 8, 9, 11, and 12, and their differences in the first and second rounds have been lower than "very low" (0.1) so survey was stopped on these factors.

3.3.The third round of the survey

In addition to making needed changes, the third questionnaire was revised in this step and was resent to experts along with their previous statements and differences with averages. The only difference was that eight indicators were stopped, and the survey was conducted by remaining eight items.

Table 8: The results of computing responses in the third round of the survey

Row	Factors	Agreement rate				
		Very low	Low	Medium	High	Very high
1	IT	0	0	2	5	3
2	Knowledge management	0	0	2	5	3
3	Size	0	0	5	5	0
4	Training and empowerment	0	0	3	5	2
5	Technology	0	0	3	7	
6	Leadership and management	0	0	0	5	5
7	Team working	0	0	4	2	4
8	HR management actions	0	0	3	2	5

Journal of Knowledge-Research Studies

Journal of Knowledge-Research Studies (JKRS)

Vol 2

Issue 2

Serial Number 4

2023

Concerning equations (1), (2), and (3) equations, the average fuzzy computations are shown in table 9.

Table 9: The average of experts' opinions on the results of the third round of the survey

Factors		Triangular fuzzy average (m, α, β)	De-fuzzy average
1	IT	(0.125 ، 0.2 ، 0.775)	0.75625
2	Knowledge management	(0.125 ، 0.2 ، 0.775)	0.75625
3	Size	(0.2 ، 0.2 ، 0.625)	0.625
4	Training and empowerment	(0.15 ، 0.2 ، 0.725)	0.7125
5	Technology	(0.18 ، 0.18 ، 0.675)	0.675
6	Leadership and management	(0.075 0.2 0.875)	0.84375
7	Team working	(0.13 0.23 0.75)	0.725
8	HR management actions	(0.105 0.23 0.8)	0.76875

Considering equation (4) by Cheng and Lin, the degree of experts' differences in phases 2 and 3 are shown in Table 10.

Table 10: The differences between the second and third rounds of the survey

	Factors	The second phase of the fuzzy average	The third phase of the fuzzy average	Difference between second/third phases
1	IT	0.81875	0.75625	0.062
2	Knowledge management	0.76625	0.75625	0.14
3	Size	0.825	0.625	0.068
4	Training and empowerment	0.8375	0.7125	0.12
5	Technology	0.69375	0.675	0.01
6	Leadership and management	0.91875	0.84375	0.075
7	Team working	0.725	0.725	0
8	HR management actions	0.8	0.76875	0.031

As seen in the above table, there is a consensus among experts that the second and third rounds have been lower than "very low" (0.1), so the survey was stopped one of these factors.

3.4.Ranking criteria and sub-criteria

To prioritize the organizational changes capacity dimensions, an experts' questionnaire was designed in the next step. It included 34 paired comparisons, and experts were asked to give 1-9 scores to these comparisons. Ten questionnaires were distributed among experts, and according to the achieved data, they were ranked.

After completing the questionnaires, relevant data was analyzed by the Expert Choice 11 software package so that paired comparison matrices were entered into the software individually. Then the matrix incompatibility rate for each one was computed. The software produced an integrated matrix, and three main criteria, and 14 sub-criteria were provided in an integrated manner by their weights, as seen in below graph and tables.

3.5.Final rating of the sub-criteria

Table 11 indicates the summary of weights, ranking of main criteria, their relevant sub-criteria, as well as the weights and ranking of sub-criteria in an integrated manner.

Table 11: A summary of weights and ranking of main criteria and their relevant sub-criteria as well as weights and ranking sub-criteria in an integrated manner

Criteria	Weight of criteria	Criteria rate	Sub-criteria	Sub-criteria weight in relevant criteria	Sub-criteria rate in relevant criteria	Sub-criteria final weight	Sub-criteria final rate
Environmental	0.468	1	Environment	0.473	2	0.221	2
			Innovation	0.527	1	0.26	1
Structural	0.311	2	strategy	0.380	1	0.118	3
			Structure	0.164	3	0.051	7
			Organizational policies	0.172	2	0.053	6
			IT	0.139	4	0.040	8
			KM	0.051	6	0.015	12
			Technology	0.102	5	0.031	10
			Culture	0.154	3	0.034	9

Journal of Knowledge-Research Studies

Journal of Knowledge-Research Studies (JKRS)

Vol 2

Issue 2

Serial Number 4

Content	0.221	3	Team working	0.058	5	0.012	13
			Intellectual capital	0.072	4	0.015	11
			Leadership	0.437	1	0.096	4
			Political behavior	0.037	6	0.0081	14
			HR management	0.242	2	0.053	5

Table 12 indicates the main influential factors on the capacity of organizational change and their ranking based on the factor importance from the highest impact to the lowest.

Table 12: Final ranking of influential factors in change capacity

Row	Effective factors	Total weight of each factor
1	Innovation	0.247
2	Environment	0.221
3	Strategy	0.118
4	Leadership	0.097
5	HR management	0.097
6	Policies	0.053
7	Structure	0.051
8	IT	0.040
9	Culture	0.034
10	Technology	0.032
11	Intellectual capital	0.016
12	KM	0.016
13	Team working	0.013
14	Political behavior	0.008

Journal of Knowledge-Research Studies

Journal of Knowledge-Research Studies (JKRS)

Page | 36

Vol 2

Issue 2

Serial Number 4

2023

4.Conclusion

Capacity for change, defined as the capability to implement a change, can be assessed and developed about multiple, continuous, and adaptive changes. This aligns with previous contributions (Andreeva and Ritala 2016). OCC can provide the capabilities within the organization to implement different types of changes and be seen as an antecedent, based on which readiness for change can be developed. The organizational change capabilities (drawing on processes, flexibility, climate, leadership, learning, and culture) could support building the shared beliefs and attitudes that the organization can implement a particular initiative. This proposition aligns with Katsaros et al. (2020) conclusion that developing readiness demands building dynamic core competencies, among others. Researchers usually focus on designing the change capacity models and measuring this concept in organizations through different dimensions. For example, Rahimian (2013) studied the relationship between organizational change capacity and organizational performance, while Amirijam (2017) studied the impact of organizational culture on organizational change capacity. Other authors have also entered this field of research and investigated the change capacity as a main variable that impact on the competitive advantage.

Our study was conducted for the first time, and there is no similar one. The purpose of this paper is not to measure the degree of change capacity. Still, researchers tried to explore the affecting factors on organizational change capacity through library studies and drawing a primary conceptual framework

consisting of the most essential variables affecting the capacity for organizational change. To validate this framework, the fuzzy Delphi technique was used. Therefore, ten experts in our population were selected as expert panel members. The Delphi questionnaires were designed and distributed among these experts in 3 rounds. In each round, the degree of agreement was calculated, and the consensus about the variables was achieved. As shown in Figure 1, these factors can be divided into three categories: environmental, content, and structural factors. Environmental factors include environment and innovation; content factors include team working, intellectual capital, leadership, political behavior, and human resource management; Structural factors include strategy, structure, organizational policies, information technology, knowledge management, and technology. This is the first time in the literature that the variables related to change capacity were categorized in a conceptual classification that has not been seen in previous researches.

Table13: influential factors in organizational change capacity

Environmental factors	Content factors	Structural factors
-Environment -Innovation	-Team working -Intellectual capital -Leadership -Political behavior -Human resource management (HRM)	-Strategy -Structure -Organizational policies -Information Technology (IT) -Knowledge management -Technology

Journal of Knowledge-Research Studies

Journal of Knowledge-Research Studies (JKRS)

Vol 2

Issue 2

Serial Number 4

For prioritizing these variables, the AHP technique was used. According to the results (table 11), environmental factors with a weight of 0.468 have the most impact on the capacity for organizational change. The second place in the variables' ranking belongs to structural factors with a weight of 0.311, and finally, the third category with a weight of 0.221 is the content factor.

5.References

Abdolmaleki, Hossein et al. (2014). The Role of Social Capital in Creating Organizational Intellectual Capital (A Study of Two Iranian Automobile Companies). European Journal of Experimental Biology, 2014, 4(3):387-391.

Amirijam, B. (2017). Investigation the effect of organizational culture on organizational change capacity. *Malek Ashtar University of technology*. [In Persian].

Andreeva, T., & Ritala, P. (2016). What are the sources of capability dynamism? Reconceptualizing dynamic capabilities from the perspective of organizational change. *Baltic Journal of Management*, *11*(3), 238-259. https://doi.org/10.1108/BJM-02-2015-0049

Buono, A. F., & Kerber, K. W. (2010). Creating a sustainable approach to change: Building organizational change capacity. *SAM Advanced Management Journal*, *75*(2), 4-21.

Cox, K., Jolly, S., Van Der Staaij, S., & Van Stolk, C. (2018). *Understanding the drivers of organisational capacity*. RAND.

David, F.R. (2002). Strategic *management*, translated by A. Parsayian, Tehran, Cultural Research Office. [In Persian].

Dempsey, M., Geitner, L., Brennan, A., & McAvoy, J. (2021). A review of the success and failure factors for change management. *IEEE Engineering Management Review*, *50*(1), 85-93.

Heckmann, N., Steger, T., & Dowling, M. (2016). Organizational capacity for change, change experience, and change project performance. *Journal of business research*, *69*(2), 777-784. DOI:10.1016/j.jbusres.2015.07.012

Heward, S., Hutchins, C., & Keleher, H. (2007). Organizational change–Key to capacity building and effective health promotion. *Health Promotion International*, 22(2), 170-178. DOI:10.1093/heapro/dam011.

Judge, W. Q., & Blocker, C. P. (2008). Organizational capacity for change and strategic ambidexterity: Flying the plane while rewiring it. *European Journal of Marketing*, *42*(9/10), 915-926. DOI: 10.1108/03090560810891073

Judge, W. Q., & Elenkov, D. (2005). Organizational capacity for change and environmental performance: an empirical assessment of Bulgarian firms. *Journal of Business Research*, *58*(7), 893-901. DOI: 10.1016/j.jbusres.2004.01.009.

Judge, W., Naoumova, I., & Douglas, T. (2009). Organizational capacity for change and firm performance in a transition economy. *The International Journal of Human Resource Management*, 20(8), 1737– 1752. DOI: 10.1080/09585190903087107.

Katsaros, K. K., Tsirikas, A. N., & Kosta, G. C. (2020). The impact of leadership on firm financial performance: the mediating role of employees' readiness to change. *Leadership & Organization Development Journal*, *41*(3), 333-347. DOI:10.1108/LODJ-02-2019-0088

Lauzier, M., Lemieux, N., Montreuil, V. L., & Nicolas, C. (2020). On the transposability of change management research results: A systematic scoping review of studies published in JOCM and JCM. *Journal of organizational change management*, *33*(5), 859-881. DOI: 10.1108/JOCM-12-2018-0366

Le, P. B., & Lei, H. (2018). The effects of innovation speed and quality on differentiation and low-cost competitive advantage: The case of Chinese firms. *Chinese Management Studies*, *12*(2), 305-322. DOI: 10.1108/CMS-10-2016-0195

Mahdavi, N. (2016). *Studying the impact of IT competencies on organizational transformation*. graduate dissertation. Azad *Islamic University. [In Persian]*.

Meyer, C., & Stensaker, I. G. (2007). Developing capacity for change. *Journal of Change Management*, 6(2), 217-231. DOI: 10.1080/14697010600693731

Moaya, A. (2014) .*studying the relationship between strategic thinking and organizational change capacity elements*. Malek-Ashtar University of technology. [In Persian].

Rafei, F. (2012). Studying influence of KM processes on organizational entrepreneurship in a research organization. Master's dissertation. *Malek Ashtar University of Technology*. [In Persian].

Ramezan, M. (2010). *Designing and testing knowledge productivity measurement model in Iranian public organizations*. Doctoral Dissertation. University of Tehran. [In Persian].

Ramezan, M. ,& Hasnavi, R. (2014). *Knowledge productivity in knowledge organizations*. Atinegar Publications. [In Persian].

Robbins, S. (2000*), Organizational theory (Seyed Mahdi Alvani and Hassan Danayifard,trans.*).Safar Publications. [In Persian].

Robbins, S. (2016). *organizational behavior: Concepts controversies and applications. (F. Omidvaran, M. R. Akhavan Anvary and K. Raisifar,trans.)*.Ketab Publications. [In Persian].

Saadat, E. (2001). *Human resource management*. SAMT [In Persian].

Sanjaghi, M. E., Ramezan, M., & Rahimian Kalateh baly, H. (2013). Organizational change capacity and organizational performance: An empirical analysis on an innovative industry. *Journal of Knowledge-based Innovation in China*, *5*(3), 188-212. . DOI: 10.1108/JKIC-07-2013-0012

Soparnot, R. (2011). The concept of organizational change capacity. *Journal of Organizational Change Management*, *24*(5), 640-661.. DOI: 10.1108/09534811111158903.

Supriharyanti, E., & Sukoco, B. M. (2023). Organizational change capability: a systematic review and future research directions. *Management Research Review*, *46*(1), 46-81. DOI: 10.1108/MRR-01-2021-0039

Thomhain, H. J. (n.d.). *Management of technology managing effectively in technology-intensive organizations*. Rasa Cultural Services Institute. [In Persian].

Yasir, M., Imran, R., Irshad, M. K., Mohamad, N. A., & Khan, M. M. (2016). Leadership styles in relation to employees' trust and organizational change capacity: Evidence from non-profit organizations. *Sage Open*, *6*(4), 46-81. DOI: 10.1177/2158244016675396