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Wisdom Ecosystem Model in Research Organizations of the Islamic Republic of Iran

Mohammadreaza Gharayi Ashtiyani[1*], Naser Poursadegh[2], Seyed Javad Rezaei[3]

[1] *Associate Professor, Supreme National Defense University, Tehran, Iran. (Corresponding author) mrga402@chmail.ir, 0009-0008-8243-3956*
[2] *Professor, Supreme National Defense University, Tehran, Iran. dr.naser.poursadegh@gmail.com*
[3] *PhD student at Supreme National Defense University, Tehran, Iran. rsjavad@gmail.com, 0000-0002-2959-1110*

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ABSTRACT

In the country's policy-making and decision-making arena, many new and dynamic issues are faced by the country's research agents. To solved these problems, must be prepared a cycle between the most theoretical layers and the most operational layers. By designing and formulating the wisdom ecosystem model in the field of decision-making, it is possible to create this operational cycle that prepares the back and forth between these levels. This research was carried out with the objectives of "compilation of the ecological model of wisdom in the field of decision-making of research organizations" with a mixed approach and with an exploratory and contextual method. The two statistical populations of this research are: a) the general research community; 25 people with special characteristics to answer the questionnaire, and b) expert society; There were 15 experts who formed the panel group and tried to produce literature by holding brainstorming sessions and by summarizing the mentioned cases, they completed the conceptual model of the research. Based on this research, the dimensions and components of wisdom ecosystem in the field of decision-making of Iranian research organizations are: Senior managers (wise judgment, foresight and insight, rationality, applying experiences, understanding the correlation of affairs, understanding issues), Environment (communication channels, dynamics, external knowledge), Knowledge centers (human resource management, human resources, organizational culture, knowledge management, strategy and leadership, decision making and policy making), Actors (universities and research centers of the country, government, industry, Supreme National Security Council, Islamic Council and foreign actors), and upstream documents (laws and regulations, modern Islamic civilization, science and technology document and second step statement). **©authors**

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1. Introduction

The discussion of wisdom in research organizations (ROs) is an interesting topic. Wisdom in ROs refers to the integration of deep understanding, ethical behavior, sound judgment, and effective management of complex situations to enhance decision-making, innovation, and overall organizational performance. By emphasizing the application of these qualities in real-world contexts, it goes beyond traditional knowledge and expertise. Wisdom ecosystem is one of the basic concepts in ROs and has attracted the attention of researchers and organizational managers in recent years. A wisdom ecosystem does not mean increasing individual knowledge, but is used to create a work and learning environment that promotes knowledge sharing, collaboration, and innovation. In general, the knowledge system in ROs accelerates the improvement of the organization's performance and decisions. It increases the possibilities of cooperation and interaction between the members of the organization, and it helps the organization to be competitive in the field of research and innovation.

In the country's policy-making and decision-making arena, many new and dynamic issues are faced by research agents. If the solution of these issues is to be pursued at the level of civilization, it is necessary to prepare a back and forth between the field of action and the field of opinion; In other words, a cycle should be provided between the most theoretical layers and the most operational layers. By designing and formulating the wisdom ecosystem model in the field of decision-making, it is possible to create this operational cycle that prepares the back and forth between these levels.

From the point of view of knowledge strategic management, efficient and correct management of institutions and organizations in the current era is only possible with the synergy and utilization of knowledge, experience (gathering of people of science and practice) and rationality. In this process and wisdom-based ecosystem, data, information, knowledge and experience are put together and help managers in the decision-making process and eliminate the gap between science and practice.

According to the literature published by the researchers, it can be concluded that the adopted decisions and policies were not sound, comprehensive and perfect and this is due to things like: the lack of appropriateness of decisions with implementation, lack of understanding of goals, lack of suitability of policy makers (lack of skills, science and knowledge of policy making, short-term view of solving problems) and so on. This means, correct decision-making has not been done. As a result, the right decision is not made; and as a result, appropriate policies are not adopted. Because our decision-making process does not work properly, therefore we see the following examples in this field:

- We cannot identify the priorities accurately and comprehensively, especially in the research and technology sector;
- When we are under technologically pressure , that We make decisions for this area;
- Foresight is less considered;
- Research projects and their acquisition based on need-technology is not defined.

Therefore, the main challenge of the current research is how to strengthen the decision-making process in the field of research and technology with the design of wisdom ecosystem and help the resulting decisions and policies to be correct, accurate, comprehensive and wise.

2. Literature Review

Von & Geilinger (2014) in "Knowledge creation in the eco-system"investigate the role of knowledge ecosystem in creating innovation in organizations. This book explains the importance of creating work environments where people can share their knowledge and use various interactions. In an article, Vanderburn and Holland (2018) investigate the evolution of learning environments in organizations to become learning communities and emphasize the importance of creating motivation for sharing knowledge and developing social skills. In the

Article of "Sustainable and smart product innovation ecosystem", Yin et al. (2020) investigated how to create a knowledge ecosystem in organizations through knowledge management and examined the relationship between organizational culture, organizational structure and the creation of a knowledge ecosystem. From the mentioned cases, it is clear that creating and strengthening the knowledge ecosystem in research organizations can help to develop knowledge, increase the capabilities of teams and create a common environment for knowledge exchange and innovation .

Grossman (2017) discusses the role of wisdom in organizations and how it helps in effective decision-making, communication and conflict resolution. Midley (2002) in his book "Knowledge, Information and Wonder" explores the concept of knowledge in various contexts, including research organizations, and how it complements traditional forms of knowledge. Intezari et.al. (2022) in an article examines the use of wisdom in leadership in organizational settings and discusses the practical aspects of wisdom. Kaipa et al. (2013) introduced a conceptual framework for organizational wisdom in a research and discussed its dimensions and consequences for effective decision making and innovation. In a research, Kaipa (2014) deals with the concept of organizational wisdom and its role in decision-making processes in complex environments. Sternberg et al. (2019) in a book entitled "Using Wisdom in Solving Global Challenges" examines the intersection of knowledge and organizational behavior, including its relationship with research organizations.

Dunn et al. (2021) in a research entitled "The effect of knowledge sharing on innovation in ROs: the mediating role of knowledge ecosystems" examines the role of knowledge sharing in creating innovation in research organizations. They show that the wisdom ecosystem as a work environment that encourages knowledge sharing, collaboration and innovation can be effective in creating innovation. Ahmad & Karim (2019), in investigating the effects of knowledge sharing and collaboration in research teams on research performance, found that the wisdom ecosystem can help increase collaboration and knowledge sharing in research teams. Castaneda & Cuellar (2020) in investigating the role of knowledge sharing in creating innovation in ROs, show that the wisdom ecosystem can help create a suitable work environment for knowledge sharing and promoting innovation. In an article, Thomas & Autio (2019) investigated the role of the wisdom ecosystem in creating innovation in ROs. They show that creating a suitable wisdom ecosystem can help develop knowledge, increase team capabilities, and create a common environment for knowledge exchange and innovation. Qasimzadeh et al. (2020) in a research on the role of wisdom ecosystem in creating innovation in ROs state that creating a suitable wisdom ecosystem can help create a common environment for sharing knowledge and promoting innovation. Roundy (2020) in investigating the impact of wisdom ecosystem on organizational innovation in ROs show that creating a suitable wisdom ecosystem can help increase the capabilities of teams and promote innovation. Yang et al. (2021) during a study on the impact of the wisdom ecosystem on research performance in ROs show that creating a suitable wisdom ecosystem can help increase cooperation and knowledge sharing in research teams. Gaofeng et al. (2021) investigate the effect of wisdom ecosystem on innovation in ROs, focusing on Chinese universities, and state that creating a suitable wisdom ecosystem can help develop knowledge, create a suitable environment for knowledge sharing and promote Innovation helps. Li et al. (2019) studied the role of wisdom ecosystem in promoting innovation in research organizations focusing on Japan and showed that creating a suitable wisdom ecosystem can help create a suitable environment for sharing knowledge and promoting innovation. In an article, Yang et al. (2021) have investigated the role of wisdom ecosystem in creating innovation in Chinese universities and show that creating a suitable wisdom ecosystem can help develop knowledge, create a suitable environment for knowledge sharing and promote innovation.

Production of wisdom can be considered with "Sense making" synonym. Shoemaker and Dai's article (2009) mention the Sense-making process from weak-signals. There is a major difference between receiving signals and understanding their sensing. Managers as well as organizations tend to see the world in a certain way and confuse their mental maps according to the prevailing atmosphere. Weak signals that are not appropriate are often ignored and distorted or brushed aside, leaving the organization exposed. According to Shoemaker and Day, all managers are prone to distortion of facts and wrong biases and prejudices. In many cases, organizations do not see other solutions due to the tendency of decision-makers towards the most convenient and tangible results, while they see the signals but ignore them. Research shows that less than 20% of the world's companies have sufficient capacity to identify, interpret and act on weak signals of threats and opportunities ahead. Whenever parts of the available evidence point in the opposite direction or key information in our hands is incorrect, our mind naturally shapes the facts according to the presuppositions made. (Choo, 2005)

Wisdom in ROs refers to correct and informed decision-making ability based on knowledge, experience and understanding. It involves using critical thinking, expertise and judgment to navigate complex problems and challenges in the research field. In summary, wisdom in ROs encompasses a range of characteristics and practices that enable researchers to: informed decision-making, collaborate effectively, ethical implications, risk-management, effectively and clearly Communicateing, continuously learning and adapting.

"Wisdom Organization" provides an information-based view of organizations and is a model of how organizations use information to adapt to external changes and foster internal growth. Based on this perspective, developed by Choo (2005), organizations work with information to achieve three outcomes. An organization that is able to effectively integrate sense-making, knowledge creation and decision-making can be described as a wisdom organization. In wisdom Organization, actions are based on a shared understanding of the context and ideals of the organization and are leveraged by the existing knowledge and skills of its members. Therefore, the wisdom organization has information and knowledge that gives it a special advantage and allows it to maneuver with intelligence, creativity, and sometimes cunning. By managing information sources and information methods, a wisdom organization is able to: (Choo, 2005)

- Senses the change in environment and reacts to that, but shapes and influences beneficial changes in the environment.
- Expands yourself knowledge base and abilities, but also forgets old assumptions and beliefs.
- Faced with complex challenges, that makes decisions are sometimes logical and sometimes creative.

After evaluating each of the three processes of Sense-making, knowledge creation, and decision-making, now it is the turn of the interactions between these processes. These interactions are described in Figure (1). In Sense-making, organizations look at their changing environments and ask the question, what is really going on in these environments? The consequences of Sense-making include providing a continuous set of interpretations applied in relation to the organization and its environment, which creates a common context for it. "Action" is also a frame of reference for creating knowledge and making decisions. Therefore, knowledge creation is guided by addressing these questions: “What knowledge do we need? And how is this knowledge obtained? Also, the result of knowledge creation can be new capabilities or innovations (products or prototypes). Decision-making is therefore guided by the questions: “What courses of action are available? And how to choose?

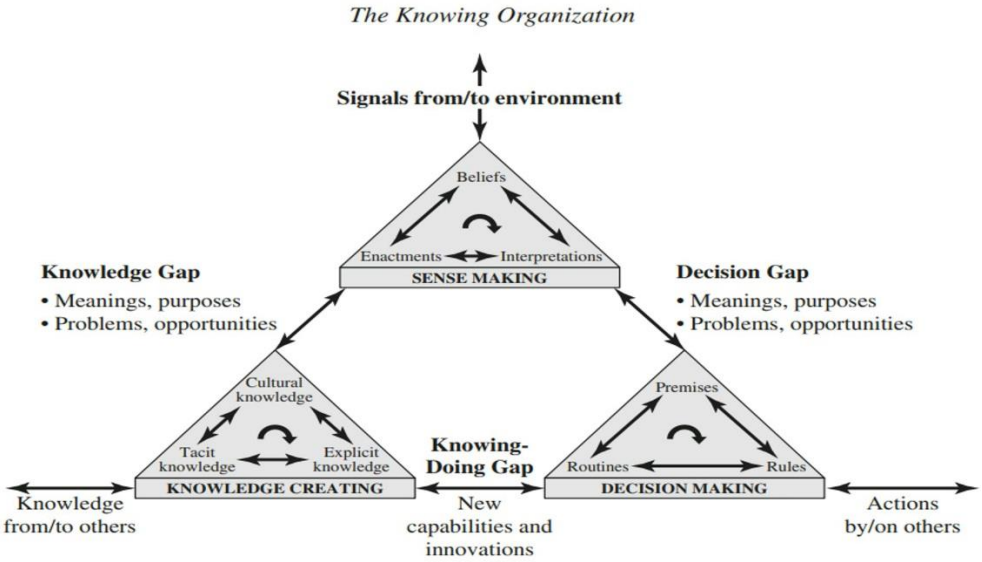

Figure 1. Sense-Making, Knowledge Creating, and Decision Making in the Knowing Organization

Table 1. *Dimensions and components of wisdom ecosystem extracted from literature review*

Dimensions	Components	Reference
Top Managers	Cognition	Kist and Toler (2009); Daft (2011); Radan (2012); Mustafa Nejad (2019);
	Perception	American Nursing Association (2008); Ahmadi and Manijeh (2009); Moradi (2015);
	Insight	Kramer (1990); Sternberg (1990 and 2003); Kramer (2000); Christian, Burley and Kessler (2000); Baltz and Staudinger (2000); Ardlet (2003); Mehdizadeh (2004); Roysel (2005); Kunzman and Baltz (2005); Byrne and Assonsen (2005); Badiyan Gorti et al. (2008); United Nations Secretariat (2007); Imam Khomeini (2010); Khamenei (2015, 2020, 2009, 1989, 2016); Mozafari (2011); Harani (1982); Hamidizadeh (2010); Mahmoudi Maimand and Miramini (2013); Ismailpour and Delshad Tehrani (2015); Rabi Netaj and Azadbani (2013); Moinipour and Lakzaei (2011); Boats (2010); Zalizadeh (2014); Sholah Amiri et al. (2015); Shoghi et al. (2016); Jafari et al. (2016); Muradpiri (2016); Grossmann (2017); Mahmoudi (2017);
Knowledge Centers	Existing Knowledge	United Nations Secretariat (2007); Hamidizadeh (2010); Mahmoudi Maimand and Miramini (2013); Chu (2006); Ebrahimi (2016); Akhwan and Abbasi (2017); Design (2019)
	Knowledge Acquisition	Shang (2005); Chu (2006); Hamidizadeh (2010); Arendt and Whitman (2014); Ghorbanzadeh and Khaleghinia (2018); Duan et.al. (2021);
	Knowledge Creation	Nick & Choo (2002); Bahrami and Ontes (2005); Chu (2006); Hamidizadeh (2010); Dehghani (2013); Shahcheraghi (2015); Akhan et al. (2017);
Decision Making	Solutions	Alaris (2004); Alwani (2006); Sato (2014); Rådberg et al. (2023)
	Evaluation and Prioritization	Farboodi (2000); Alwani (2006); Maleki (2006); Sato (2014); Sadeghi Malmiri et al. (2012); Alaris (1383); Fuladi et al. (2016); Sheikhinejad (2008); Hammond and others (2005); Lambert (2006); Rasafi and others (2012); Azizi (2012); Safari and Fathi (2013); Imanipour (2013); Jamali Mahmoui (2010); Golzar Adabi (2006); Kazari and others (2010); Diony Odom (2015); Spring (2013); Rådberg et al. (2023); Yan et.al. (2020);
	Selection	Alwani (2006); Sato (2014); Kist and Toler (2009); Velivand Zamani and others (2009); Akrami and others (2010); Sadeghi Malmiri et al. (2012); Alaris (1383); Fuladi et al. (2016); Maleki (2006); Farboodi (2000); Sheikhinejad (2008); Hammond and others (2005); Lambert (2006) Rådberg et al. (2023); Grossmann (2017); Midgley (2002);
Exchange with the Environment	Signal Exchange	Farboodi (2000); Chu (2006); Ghazizadefard (2008); Sheikhinejad (2008); Isolated (2010); David (2011); Fuladi et al. (2016);
	Knowledge Exchange	Maleki (2006); Chu (2006); Gütl & Chang (2008); Aghamohammadi and Dehghan (2013); Fuladi et al. (2016); Rahmani et al. (2016);
	Effectiveness/ Effectiveness	Kaplan (2004); Schoemaker & Day (2009); Fuladi et al. (2016); Yan et.al. (2020);

In summarizing the studies conducted on the scientific literature related to the concept of "wisdom ecosystem" which was mentioned earlier, the dimensions and components of the ecosystem were identified. Table (1) mentions the dimensions and components of the wisdom ecosystem and the documents that these dimensions refer to. Wisdom ecosystem based on literature and research background can be considered as having four main dimensions: top managers, environment, decision making and knowledge centers. The four mentioned pillars are in mutual interaction with each other and the change and transformation in each of the pillars will lead to the transformation and change in the other pillars.

3. Method

The research method in this research is descriptive-survey. By combining the two methods of library and field studies, the

researchers seek to provide an objective, real and systematic description of achieving the knowledge ecosystem in the decision-making area of research organizations". Therefore, and according to the problem, the goal and the main question of the research, the research method is mixed using content and theme analysis and is of a case and contextual type.

Table 2. *Steps, Methods and Techniques used in this research*

Step	*Description*	*Methodology*	*Technique*
1	*Exploratory study in the field of research*	*Library documents*	*Content analysis, MAXQDA software*
2	*Collecting the opinions of experts and experts and compiling concepts*	*Library documents*	*Metasynthesis, content analysis and proofreading*
3	*Elaboration of knowledge system framework*	*Descriptive and inferential*	*Interview, questionnaire, theme analysis, MAXQDA software*
4	*Religious concepts and categories*	*Integrated approach (normative, exploratory, etc.)*	*Interview, questionnaire*
5	*Analysis of findings*	*Descriptive and inferential*	*Smart PLS*
6	*The final formulation of the knowledge system*	*Descriptive and inferential*	*Questionnaire and survey of experts*

Table 3. *Population* and sample size

Step	Objective	Number Of Questions	The Test Community	Sample Size	Test
1	Discovering and compiling the concepts of basic concepts	Research Questions	Experts	15	Interview
2	Preparation of questionnaire	26	Experts	5	Interview
3	Final questionnaire, face validity assessment			25	Formal Agreement
	Final questionnaire, content validity assessment				Lawshe Coefficient
	Final questionnaire, reliability assessment				PLS

The statistical population of this research includes a group of experts who include top and middle managers in the field of decision-making and policy-making and related processes, professors and researchers who are experts and experts in the field of research. Considering that the entire statistical population of this research is limited and of course somewhat unknown, the sampling method in this research is purposeful and with a snowball sampling strategy based on theoretical saturation. The initial sampling was based on the availability of people, the knowledge of the researcher, the list of available sources, experience, the keyness of the people and the like, and then, through them, the next people were determined to answer the questionnaire. This process continued through several stages until complete theoretical saturation. Also, 15 of them were selected and interviewed in order to conduct exploratory interviews due to their mastery of all the fields of research. Also, 5 experts were interviewed for the final compilation of the research architecture framework and the final questionnaire.

4. Findings

At first, a questionnaire was prepared based on the summary of the themes of the researcher's analysis, and after obtaining the experts' opinions, a descriptive statistical analysis of the effective factors in the formation of the wisdom ecosystem in the field of decision-making and policy-making of ROs was prepared from the experts' point of view. Opinions of experts are taken based on a 5-point Likert scale, where large values indicate greater agreement of experts with that dimension and component. Descriptive statistics of expert opinion values are given in tables (4). Values with a high average (close to 5) indicate the full agreement of experts with that dimension and component in the ecosystem of knowledge.

Table 4. *Descriptive statistics of experts' opinions regarding the effective dimensions in the ecosystem of knowledge*

No.	Dimensions of Wisdom Ecosystem	Percentage of Options				
		Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
1	Top Managers	100%				
2	Environment	100%				
3	Knowledge Centers	92%	4%	4%		
4	Upstream Documents	80%	20%			
5	Actors	80%	16%	4%		

Table 5. *Average values, CVR and CVI*

Dimensions / Component	Average	CVR>0.56	CVI
1. Top managers	5.00	1.00	0.92
1-1. Wise judgment	4.64	1.00	
1-2. Foresight and insight	4.68	1.00	
1-3. rationality	4.80	1.00	
1-4. Applying experiences	4.44	0.67	
1-5. Understanding and correlation of affairs	4.60	1.00	
1-6. Knowledge of issues	4.84	0.83	
2. Environment	5.00	1.00	0.89
2-1. Communication channels	4.92	1.00	
2-2. dynamic	4.88	0.83	
2-3. External knowledge	4.76	0.83	
3. Knowledge Centers	4.88	1.00	0.92
3-1. Human resources management	4.64	1.00	
3-2. Manpower	4.48	1.00	
3-3. Organizational Culture	4.52	0.83	
3-4. Strategy and leadership	4.44	0.83	
3-5. Decision making and policy making	4.60	0.83	
3-6. knowledge management	4.84	1.00	
4. Actors	4.76	0.83	0.86
4-1. Universities	4.72	1.00	
4-1. Educational and Research Centers	4.40	1.00	
4-2. Industry	4.20	1.00	
4-3. Government	3.52	0.83	
4-4. Supreme Council for Cultural Revolution	3.64	0.67	
4-5. Parliament	3.32	0.67	
5. Upstream documents (Governance)	4.80	1.00	0.96
5-1. Terms and Conditions	4.12	0.83	
5-2. New Islamic Civilization	4.52	1.00	
5-3. Science and Technology document of the country	4.76	1.00	
5-4. Statement of the Second Step	4.68	1.00	
CVI_{total}= 0.91			

Table 6. *Validity and reliability indicators of variables in SmartPLS software*

	Cronbach's Alpha	rho_A	Composite Reliability (CR)	Average Variance Extracted (AVE)
Top Managers	0.828	0.851	0.872	0.534
Environment	0.869	0.910	0.908	0.712
Knowledge Centers	0.853	0.883	0.890	0.577
Upstream Documents	0.743	0.886	0.851	0.668
Actors	0.855	0.944	0.884	0.530

In the measurement model analysis, it is determined whether the theoretical concepts are correctly measured by the observed variables or not. For this purpose, their validity and reliability are examined. In a PLS model, the reliability of indicators of latent variables (constructs), factor loadings (external), reflective variables of the model should be referred to the table of factor loadings and the t-test column, and the values of this column at the 95% significance level should be greater than 1.96. In the internal consistency (reliability of the structure) to evaluate the reliability of each of the observable variables, a table of factor loadings should also be formed, if this value is above 0.4, there is no need to remove it from the model if forced (Mohsenin & Esfidani, 2013). If a question's factor load value is less than 0.4, it should be removed from the set of questions. The factorial of all questions is higher than 0.4, which indicates the appropriateness of the questions in the questionnaire.

Table 7. *Divergent validity of Fornell & Larcker*

	Top Managers	Environment	Knowledge Centers	Upstream Documents	Actors
Top Managers	0.731				
Environment	0.261	0.844			
Knowledge Centers	0.586	0.495	0.759		
Upstream Documents	0.773	0.310	0.688	0.817	
Actors	0.369	0.047	0.305	0.195	0.728

Based on four reliability tests: 1. Cronbach's alpha with values above 0.7, 2. Delvin Goldstein's combined reliability test with CR>0.7 values, 3. Spearman's reliability coefficients with values above 0.7 (Ringle, 2012) and 4.shared reliability test with values above 0.5, according to table (6), the reliability of the model is confirmed, and now we can claim that the results of our research can be generalized to other samples of the same community.

Table 8. *Quality test of reflective measurement model*

	SSO	SSE	Q^2 (=1-SSE/SSO)
Top Managers	150.000	102.403	0.317
Environment	100.000	54.763	0.452
Knowledge Centers	150.000	90.851	0.394
Upstream Documents	75.000	47.543	0.366
Actors	175.000	116.040	0.337

According to Table.8, considering that most CV COM values are higher than 0.35 or strong, and two values are much higher than 0.15 (average) and close to strong. Therefore,

our measurement model has a very good quality.

Table 9. *Coefficient of determination R^2*

	R^2	R^2 Adjusted
Top Managers	0.648	0.598
Knowledge Centers	0.592	0.511

Table 10. *Divergent validity of Fornell & Larcker*

	Top Managers	Environment	Knowledge Centers	Upstream Documents	Actors
Top Managers			0.000		
Environment	0.002		0.217		
Knowledge Centers					
Upstream Documents	1.287		0.272		
Actors	0.142		0.065		

This research has two endogenous variables, so it has two separate regression equations and each equation is supposed to predict the behavior of an endogenous variable. Therefore, there are two R^2 indicators for this research, in the first equation, six variables predict wise judgment, foresight and insight, rationality, application of experiences, understanding and correlation of affairs, and knowledge of issues, and in the second equation, six exogenous variables of resource management It predicts human power, organizational culture, strategy and leadership, decision-making and policy-making, and knowledge management. According to the opinion of Chin (1998), if the number of independent variables is K<=5, the value of R^2 is interpreted with three numbers of 0.19, 0.33, 0.67, which are interpreted as weak, medium and strong respectively, and according to the opinion of Hair (2010), if the number of exogenous variables is more out of 5, values of 0.25, 0.5, 0.75 which are respectively weak, medium and strong, which can be evaluated with three Chinese values in the present research (Table.9).

Table 10, the F2 coefficient test values show the contribution of each of these variables in predicting the dependent variable. F2 can be interpreted with three numbers of 0.02, 0.15 and 0.35 as weak, medium and strong respectively.

Another indicator of confirming the relationships in the structural model is the significance of the path coefficients, which is shown in Table (11). The significance of the coefficients of the complementary path is the magnitude and direction of the sign of the beta coefficient of the model. If the value obtained above the minimum statistic is considered at the confidence level, that relationship or hypothesis is confirmed. At the significance level of 90%, 95%, and 99%, this value is compared with the minimum t-statistics of 1.64, 1.96, and 2.58, respectively.

Based on the significance of path coefficients, the following results are obtained:

- Top managers have a positive (direct) and significant impact on knowledge centers.
- Upstream documents have insignificant influence on senior managers.
- Upstream documents have a positive (direct) impact on knowledge centers.
- The environment has a positive (direct) impact on top managers and knowledge centers.
- Role-players have a positive (direct) impact on top managers and knowledge centers.

Table 11. *Significance of path coefficients at the 99% confidence level*

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	P Values	Result
Top Managers → Knowledge Centers	0.482	0.478	0.053	9.066	0.000	Confirmation
Upstream Documents → Top Managers	0.033	0.031	0.039	0.842	0.400	Rejection
Upstream Documents → Knowledge Centers	0.216	0.225	0.044	4.899	0.000	Confirmation
Environment → Top Managers	0.820	0.815	0.041	19.854	0.000	Confirmation
Environment → Knowledge Centers	0.474	0.464	0.057	8.250	0.000	Confirmation
Actors → Top Managers	0.218	0.221	0.033	6.633	0.000	Confirmation
Actors → Knowledge Centers	0.136	0.141	0.052	2.640	0.009	Confirmation

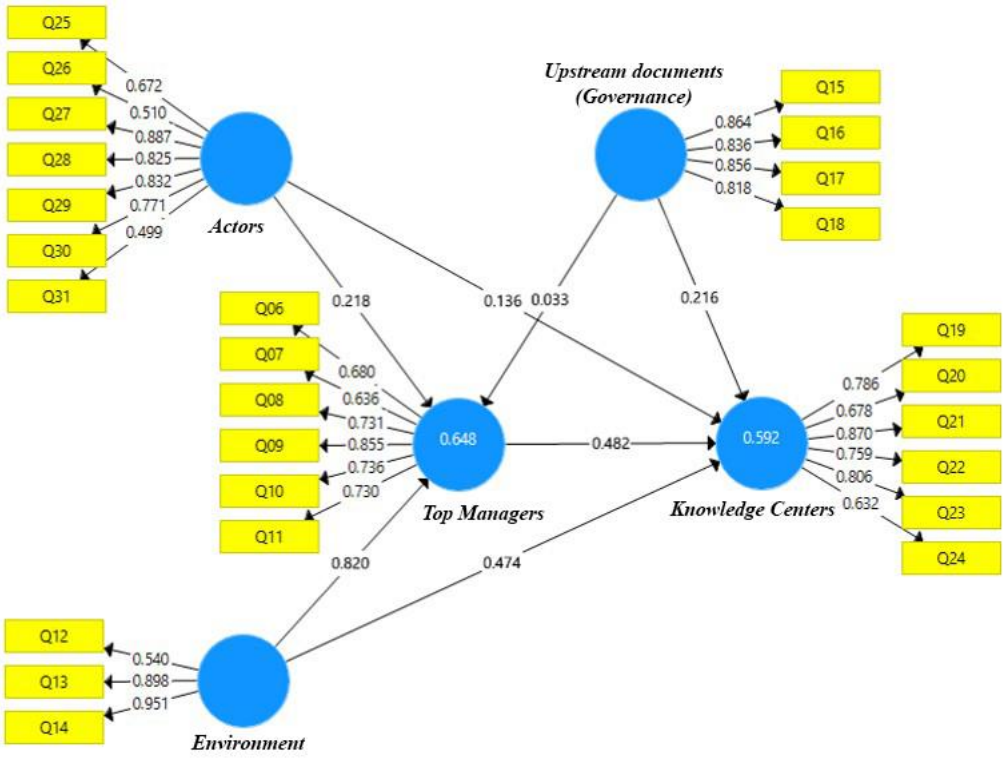

Figure 3. Path coefficients of measurement and structural models

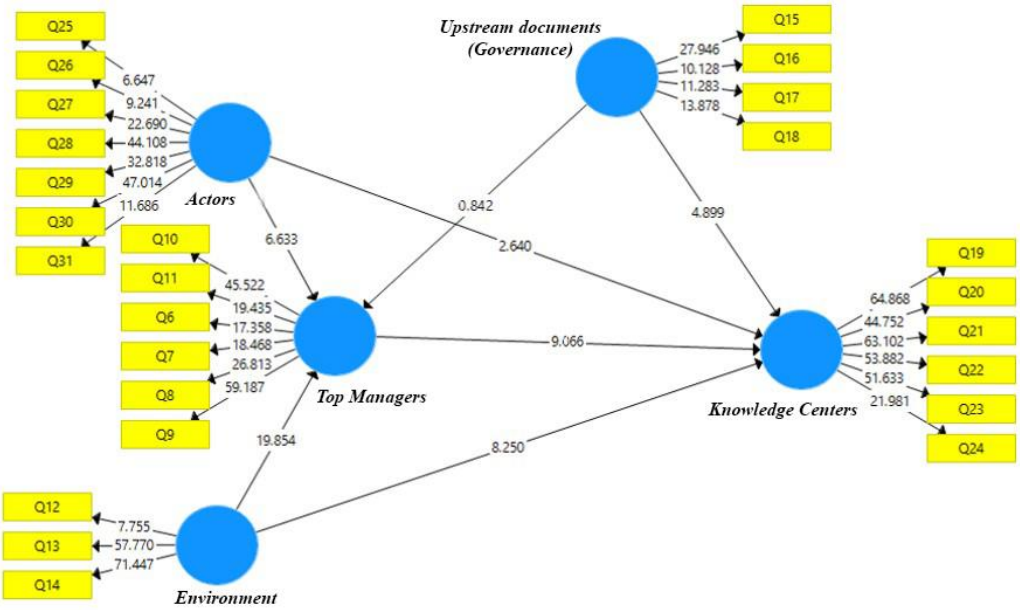

Figure 4. Significant values of measurement and structural models at the 95% confidence level

5. Discussion

5-1. Dimensions and components of Wisdom Ecosystem

Based on the output of the analysis, the dimensions and components of the wisdom ecosystem are as described in Table (12). The environment, as one of the dimensions, includes the other three dimensions of the wisdom ecosystem (Top managers, knowledge centers and decision-making). The process of generating wisdom begins with receiving signals from the environment or exchanging signals with the environment. Top managers receive signals, data and information from environmental changes (including political, cultural, economic changes, etc.), Based on their abilities in "observation", "strategic intelligence", "determining focus points", "situation recognition". Then, according to the signals

and data identified from the environment, based on the indicators of rationality (including political rationality, economic rationality, cultural rationality, legal rationality, etc.), the ability to mobilize and employ others in solving problems, the ability to use appropriate and timely From knowledge and etc. they understand environmental changes. Finally, based on insight and thought, they deal with the issue and problem solving on the one hand and provide solutions to solve it. The solutions provided by top managers must go through other stages before reaching the decision-making and policy-making stage. In fact, there is a distance from the top managers' solutions to the final decision, which is the decision gap.

Table 12. *Dimensions and Components of Wisdom Ecosystem*

Dimensions	Component
Top managers	Wise judgment
	Foresight and insight
	Rationality
	Applying experiences
	Understanding and correlation of affairs
	Knowledge of issues
Environment	Communication channels
	Dynamic
	External knowledge
Knowledge Centers	Human resources management
	Manpower
	Organizational Culture
	Strategy and leadership
	Decision making and policy making
	Knowledge management
Actors	Universities
	Educational and Research Centers
	Industry
	Government
	Supreme Council for Cultural Revolution
	Parliament
Upstream documents (Governance)	Terms and Conditions
	New Islamic Civilization
	Science and Technology document of the country
	Statement of the Second Step

Based on the problemology of top managers, knowledge centers should identify the knowledge gap between the current state and the desired state of knowledge, focusing on problem solving and problem solving presented by senior managers. Then, while evaluating the existing knowledge that is stored in the knowledge base, they should acquire knowledge and create new knowledge. The innovations of the knowledge centers provide new ideas to solve the issues raised by top managers, which resolves the rationality gap needed for decision making and policy making.

In the final stage of the wisdom process, the solutions provided by the top managers and the ideas and innovations of the knowledge centers are gathered and evaluated. In this evaluation, which is done considering the macro policies and laws and procedures of the ROs, the solutions provided by the top managers and knowledge centers are ranked and prioritized. Finally, the final decision is made by evaluating the consequences of the solutions. By applying the decision, influencing the environment and receiving feedback on the effects of the decision, the wisdom process continues.

5-2 .Wisdom Ecosystem Actors

Based on the results of the major analysis, the actors who have a very influential role in the wisdom ecosystem (with an average agreement greater than 4) are: Ministry of Science, Research and Technology; Universities; Educational and research centers; industry and foreign actors (regional and extra-regional research centers). These actors have the most influence in making decisions and policies in the wisdom ecosystem. In the next stage, there are actors such as: the Cultural Revolution Council, the Government Board, the Islamic Council and some personalities and scientific men.

5-3 .Function of Knowledge Ecosystem in ROs

Based on the analysis of the content and theme of the literature review and in-depth interviews with experts, the function of the wisdom ecosystem in the field of decision-making and policy-making can be listed as follows:

- Smart decision-making and policy-making based on wisdom and knowledge
- Enhancing the culture of wisdom in the field of research and technology, especially in decision-making and policy-making
- Redesigning organizational processes based on wisdom
- Organizational learning based on wisdom and religious values
- Growth and development of creativity

- Converting wisdom into action and policy by streamlining decisions and policies based on knowledge

6. Conclusion

Based on data analysis, the ecosystem of wisdom at the decision-making level is a set of system relationships based on a specific discourse in which wisdom is produced through the processing and combination of elements such as experience, rationality, insight, etc. Then by exploiting the wisdom produced in the field of decision-making (wisdom-based decision), it leads to change and transformation in the organization and the environment; The wisdom ecosystem has a learning process in which the experiences gained from decision-making are used again in the process of processing and producing wisdom in the next stages.

Wisdom ecosystem is an interactive ecosystem consisting of four pillars: top managers, environment, decision-making and knowledge centers. The four mentioned pillars are in mutual interaction with each other and the change and transformation in each of the pillars will lead to the transformation and change in the other pillars. The wisdom process begins with the occurrence of an event in the environment and ends with the collection of data around the event and their analysis, the mixed information in the form of knowledge in the human (top manager). In this process, the top manager based on the knowledge of the problem (past experiences, rationality, understanding the correlation of the event and judgment based on insight and foresight), makes a suitable decision or policy to be implemented.

A) Top managers

The main pillar of the ecosystem is human wisdom (top manager). It is humans who give sensing to data. Knowledge originates from the dynamic minds of people who have special knowledge and expertise. It is human characteristics that make it possible to do better. It is the interaction of human forces and wills that leads to the knowledge of subjects. Human activities affect the ecosystem.

In the educational perspective of Islam, it is the human being who, based on reason and thinking, values and beliefs and insight, distinguishes truth from error or right from wrong, and reaches a general understanding (Majlesi 1404 AH; Javadi Amoli, 2011). The human element of the wisdom ecosystem receives its knowledge from the intermingled information of the environment and also interacts with the knowledge centers to make judgments and decisions in order to benefit from previous knowledge and experiences and provides the outputs of the human element to the knowledge centers.

"Top managers" can be considered as the human pillar of wisdom ecosystem. The exposure of top managers to information and environmental signals is based on the process of recognition and identification, perception and insight, which are actually considered the components of this dimension of wisdom ecosystem.

B) Knowledge Centers

Another dimension of wisdom ecosystem is knowledge centers. The mission of knowledge centers is to identify the "knowledge gap" and "knowledge creation" in order to eliminate the said gap. Based on the wisdom organization model (Choo, 2005), after interpreting environmental signals and information and creating meaning from environmental information, the wisdom organization realizes its knowledge gap and tries to solve this gap. This is done in knowledge centers. Universities and research centers have a mission, based on the interpretations and meanings of top managers of environmental events, to identify the knowledge gap for decision-making at the policy level and to fill this gap through recognizing the current and desirable state of knowledge, acquiring knowledge and creating knowledge.

C) Decision-Making

Decision-making, among the dimensions of wisdom ecosystem, is the closest dimension to the field of action (Nik & Choo, 2002). Decision-making can be considered as a product of wisdom ecosystem. Top managers with Sense-making from data and information related to environmental changes, and creating knowledge of knowledge centers, should ultimately lead to decision making in the RO. Decision-making at the policy level

can contain three components: 1) identification of possible solutions by top managers and knowledge centers; 2) evaluating the proposed solutions and prioritizing them based on organizational rules and procedures; and 3) Consequence assessment and selection of the chosen solution.

D) Environment

The environment can be considered as the background and platform that the wisdom ecosystem is formed in relation to it. On the one hand, the environment is the starting point of the wisdom production process and on the other hand, it is the end point; because signals and information are obtained from the environment and finally, when it leads to a decision, it affects the environment. Based on this, the environment is considered one of the four pillars of wisdom ecosystem. The other three dimensions of wisdom ecosystem become meaningful in relation to the environment. Therefore, corresponding to each dimension of wisdom ecosystem, one component can be counted for the environment.

- Corresponding to top managers, "signal exchange" with the environment can be proposed;
- Corresponding to knowledge centers, "knowledge exchange" with the environment can be mentioned;
- Corresponding to decision-making, "impact and effectiveness (feedback)" can be mentioned.

In fact, "signal exchange", "knowledge exchange" and "impact and effectiveness (feedback)" are three environmental components of the knowledge ecosystem.

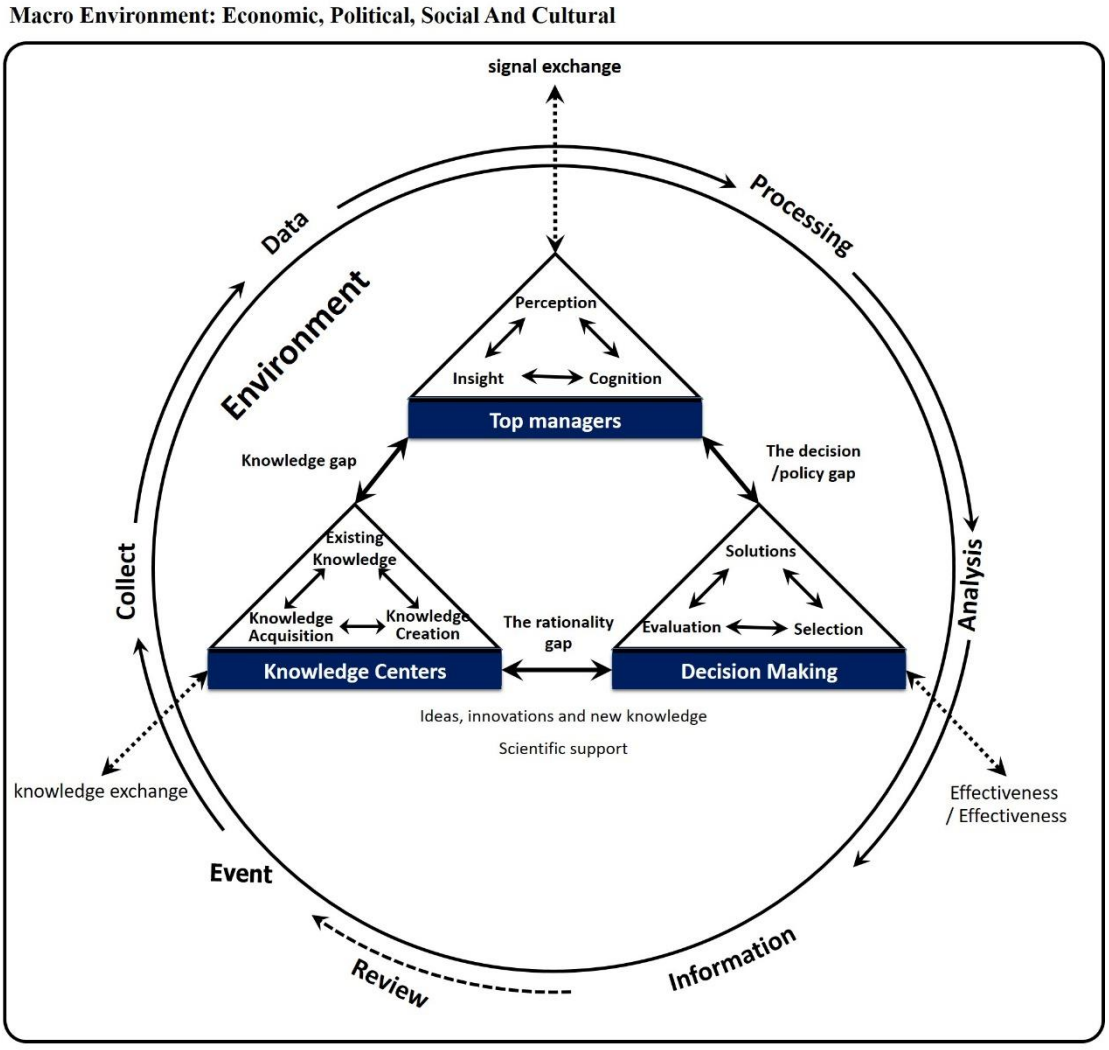

Figure 5. Wisdom ecosystem in ROs decision-making of I.R.Iran

6-1 .Suggestions

This study has provided a suitable field for additional researches, each of which will improve wisdom in the field of decision-making and policy-making in ROs by clarifying a corner of its hidden subtleties. Therefore, the following suggestions are presented below. Proposals can be presented from different strategic, organizational, group and individual perspectives, discourse, different approaches, major players and how they interact, etc. as follows:

1. Research in line with the development and expansion of wisdom ecosystem based on more samples from the statistical population for the ability to generalize the model in other statistical populations;
2. Research in line with the development and expansion of the wisdom ecosystem at the national and regional level;
3. Developing the model regarding the institutional mapping of each of the actors of the wisdom ecosystem;
4. Development of the model regarding the function and role of each player in the wisdom ecosystem;
5. Development of the model regarding the role of humans in the wisdom ecosystem;
6. Expanding the model regarding the role of knowledge models governing the wisdom ecosystem and the necessary infrastructures in this regard;
7. Expanding the model regarding legal requirements and systems needed for implementation.
8. The macro-architecture of wisdom-based decision-making and policy-making processes in the ROs.

Research Limitations

This research was faced with limitations, the most important of which is the lack of background studies and research conducted in the country in this field. In addition to this time limit, the scope of the subject and the limitation of experts have been effective in deepening the knowledge desired by the researchers.

Declaration of Competing Interest

The author declares that he has no competing financial interests or known personal relationships that would influence the report presented in this article.

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