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Fuzzy Assessment of Agility in Public Organizations (Case Study: Social Security Organization of Qazvin)

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ABSTRACT

The use of agility in the public sector can be a suitable context for growth and development of this concept. If the public sector finds agility, many old and worn out mechanisms will be withdrawn and specific improvements in servicing will be achieved.
Unfortunately, few studies have been done on the measurement of organizational agility. The objective is to measure agility, identify the main barriers to the improvement of agility, and help managers to achieve an agile organization.
With the aim of assessing the agility of organizations, an extensive survey of the literature was conducted. 7 main dimensions and 83 indicators related to agility were identified by the comments of experts were elicited. Firstly, the questionnaire provided with the identified dimensions were handed out among experts of Social Security Organization of Qazvin. Then, using fuzzy technique, agility level of the organization was determined and sequence of impact on agility and the main barriers to agility of the organization (in terms of each of the dimensions and indicators) were identified.

1- INTRODUCTION

Change is one of the greatest characteristics of organizations and institutions in today's competitive world. Agility is an organization's ability to make changes in order to exploit the opportunities caused by these changes. An agile organization is one that can change and adapt itself to environmental changes as a successful strategy. Although few studies have been don on what agility is and how organizations can be agile, it is always vital for practitioners and theorists of organizational agility to answer such questions. Measurement of indicators for strategic planning and determining the current agility level of an organization, determining the need for agility and identifying this gap, and creating a formula to overcome this weakness seem to be necessary. As defined, agility index is very difficult to calculate, because this measurement should be in the midst of change. Most agility indicators have a past-oriented approach. A different approach for measuring agility is the use of complexity. So, since agility is an unpredictable change, this approach would not be appropriate more. However, other methods for measurement of agility have the same weakness. This problem, which is limitation for this method, is solved if there is enough experimental information available to show that complexity and agility are the same. Fuzzy logic is another method which provides a very convenient tool for decision making [1]. Thus, the details of this study is a way to measure agility with fuzzy logic.

2- Concept of agility

The concept of agility explains a new approach to production and organizational management which is necessary for success in a modern, dynamic, and changing market. Although many different definitions of "agility" and "agile manufacturing" in the literature are mainly referred to the ability to respond quickly and adapt in reaction to unpredictable and continuous changes in the competitive environment of markets, success and rapid response to changes require an organization to be able to adapt all organizational elements such as goals, technology, and individuals to unexpected changes [2]. The concept of "agility" was developed in the area of production [3], the concept of "agile organization" was created, so that agility could be applied in other organizational roles and functions [4].

There are many theories about the understanding of agility. One of these attitudes which is very broad and includes different definitions and descriptions is of procedures and technologies that have been implemented in industry over the past two decades. For instance, according to Yusef (1999)[5] , agility is a combination of using recognized and developed technologies and production methods. [4] supports this definition and states that agile

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production is to combine all technologies of flexible production with experiences obtained from total quality management, timely production, and lean production.

Although much is said and written about agility, no consensus on the definition of agility has not occurred yet. According to Webster-Merriam Dictionary, agility is the ability to move quickly and easily and the ability to think and make conclusion fast. Agility can be a feature of an individual, an approach (for example, software development), a source (like information technology), an organization, a supply chain, and even a business network. Agility has been defined as being able to change business and business processes beyond the normal level of flexibility [6]. There many definitions of agility, but none of them are oppose each other. The most important definitions proposed for agility are presented in Table 1-1.

Table 1-1- Definitions proposed for agility

Reference	Definitions of agility
[3]	A system that rapidly moves between models/production line and answer the needs of customers ideally and in a real time
[4]	Strategic and comprehensive response to irreversible structural changes. These changes can slowly destroy the bases of competition based on mass production
[7]	Flexibility and rapid response and co-operation
[8]	The ability of an organization to detect changes (which can be opportunities or threats, or a combination of both) in its business and consequently provide focused and rapid responses to customers and shareholders with the reorganization of resources, processes, and strategies
[9]	The ability to respond and create openings of opportunity from personal needs and orders of customers, quickly and with a reasonable cost in the chaotic and turbulent environment of market
[10]	The ability to operationally and strategically respond to changes in the external environment
[11]	Flexibility and ability to react to changes in the environment
[12]	The ability of an organization to explore competitive and profitable opportunities, prepare and provide the knowledge, assets, and relations to gather these opportunities, and adapt the organization to sudden changes in business conditions
[13]	A set of processes that allow an organization to feel the changes in internal and external environments, effectively respond them, and at the same time improve organizational competencies effectively and affordably by learning from the experiences
[14]	The ease and speed, by using each of these two, organizations can modify or change their processes to respond to threats or opportunities in markets
[15]	Application of existing technology and business process capabilities to create new business value, while costs and risks are limited in organizations
[16]	The ability to dynamically correct, restructure, or rearrange a business process (and its various components) to adapt it to potential and essential requirements of an organization
[6]	Agility can be a feature of an individual, an approach (for example, software development), a source (like information technology), an organization, a supply chain, and even a business network. Agility has been defined as being able to change business and business processes beyond the normal level of defined flexibility
[17]	The ability of an organization to usefully take advantage of opportunities in a changing market, be fast, flexible, and responsive to the needs of customers, and satisfy the customers in terms of quality and imposing minimum cost by using innovative solutions and cooperation with consumers
[18]	The ability to identify and respond to opportunities and threats with ease, speed, skill, and dexterity
[8]	Flexibility of organizational structures, business models, and products that is directed from flexible operations, special situations of processes, implemented flexible tools, and creative and innovative individuals towards deriving and new opportunities and developing business strategies in order to create new advantage and distinction value to the customers and organization
[19]	The degree of an organization's ability to detect and respond to innovation and competitive action

3- Agility in the public sector

The concept of agile government is not a new subject in business world. During election days, politicians have always discussed "agile government" as a motto. However, regardless of politics, the results and successes of agile public organizations are interesting and admirable. Studies show that these agile organizations gain an increasing success rate (approximately twenty percent) in the implementation of development measures, compared with their competitors. Governments that invest in field of speed, greater flexibility, and higher responsiveness most probably will reach their goals, because political, social, economic, and technological factors affect governments and their decisions as quickly as possible, citizens and businesses need faster and more professional services, and, as a result, policies should be developed and implemented faster than the past. Also, less agile organizations have reported slightly higher savings in operating costs of development plans. These findings indicate an inevitable replacement relationship; agility requires to maintain a certain degree of organization's flexibility and resources. According to the definition, if the major concern is the cost, it is impossible to achieve agility. However, agile governments recognize general interests such as increasing the productivity which is more important than saving money [20].

Now the question remains is that how can a public organization become more agile.

Although priorities have changed and become diverse by the political sector, findings show that more agile organizations focus on seven aspects of agility including organizational changes, leadership, culture and values, serving the customers, staff, e-government, and performance management. The present study is an

attempt to measure the agility of Social Security Organization of Qazvin province as a public-service organization. It is noteworthy to say that more than 54% of the population of this province are supported by Social Security Organization, putting the Province of Qazvin in the fifth place among all provinces of Iran in terms of the population covered by insurance. In the province of Qazvin, 214000 people are insured and 45000 people are the original annuitants of Social Security Organization. Including those under the supervision, 730000 people are enjoying the services of Social Security Organization in this province. Social Security Organization of Qazvin pay monthly 300 billion Rial for the rights of annuitants and 30 billion Rial for Unemployment Insurance Benefits. These services are done in only seven branches and by less than 120 employees [8].

Conceptual model of research

According to the literature review and extracting the comments and views of university professors, the proposed conceptual model of research was inspired from studies of Karni IT Services with 7 dimensions (Figure 1-1) (Table 1-2).

Figure 1-1- Conceptual mode of research

Leadership: This includes the influence of one person over others. Success or failure of an organization largely depends on the quality of leadership in that organization. Leaders utilize special techniques and features to achieve organizational goals. Some of leaders possess unique attributes, some exhibit special behaviors, and the success of some depends on their followers [21].

Performance management: This is an organized approach in which performance, performance assessment, collection and analysis of performance data, and using this data lead to improved organizational performance through the process of setting strategic goals [8].

Organizational culture: Organizational development is a long-term activity or effort which is supported and guided by the senior management. This effort aims to correct and improve the organization's current and future prospects, empower the members, teach problem-solving process through the management of organizational culture with special emphasis on the culture of formal working groups and other groups and employing advisors, and facilitate the theories and techniques of behavioral sciences and action research [22].

E-government: The use of information and communication technologies in public administrations combined with organizational change and new skills in order to improve public services and democratic processes and enhance the support for public policies [8].

Customer: Customer is a natural or legal person that receives a product or service [8]. Nowadays, customer is one that an organization is willing to influence their behavior by creating values. Customers of an organization are divided into two groups:

- Customers outside the organization: Individuals who refer to the relevant organization from the outside as clients in order to obtain an appropriate value or desirability commensurate with their personal, group, or organizational needs and interests.
- Customers inside the organization: The staff of an organization are considered as internal customers, as each person inside the organization is a customer and they have their own customers. If the output that is exchanged between employees of an organization is incomplete, the organization will not be able to meet the needs of external customers [8].

Table 1-2- Indices of dimensions of research conceptual model

j	Abbreviation	Dimension	Index	References
1	mh1	Performance management	The use of ideas, suggestions, innovations, creativities, and technical and professional capacities of staff in solving the problems in order to continuously improve the organization's activities	[23]
2	mh2	Performance management	Establishment of accountability for performance (personal accountability, group accountability, and accountability of beneficiaries)	[24]
3	mh3	Performance management	Providing appropriate facilities for employees	[25]
4	mh4	Performance management	Rewarding the optimal performance of employees	[26]
5	mh5	Performance management	Encouraging the employees for more participation in making decisions that affect their activities	[25]
6	mh6	Performance management	Paying attention to individual differences of employees, establishing a relationship with all of them, and stimulating them to learn from experiences through delegating the responsibilities	[27]
7	mh7	Performance management	Supervisors and managers should clarify performance expectations and come to an agreement with employees on business objectives and priorities	[26]
8	mh8	Performance management	Identifying the best performances to improve	[28]
9	mh9	Performance management	Controlling and managing the complaints in order to understand the strengths and weaknesses in providing services and their continuous improvement	[25]
10	mh10	Performance management	Adjustment and managers focus on priorities	[29]
11	mh11	Performance management	Facilitating the flow of information within the organization and accessibility of employees to accurate and valuable information and also information on strategic objectives and environmental changes	[30]
12	mh12	Performance management	Measuring the level of participation of individuals in the team's success	[31]
13	mh13	Performance management	Applying appropriate models for evaluating employee performance and establishing a comprehensive performance management system in the organization in order to encourage and enhance agility	[32]
14	kh1	Serving the customers	Providing appropriate working services, hours, and places for employees and convenience for all customers	[33]
15	kh2	Serving the customers	Encouraging the employees to increase their knowledge and politeness and their ability to build confidence and trust in customers	[33]
16	kh3	Serving the customers	After identifying the weaknesses of the criteria for customer satisfaction, organization must seek the causes of weaknesses and take the necessary measures to resolve them	[34]
17	kh4	Serving the customers	Encouraging the employees be always ready to answer the questions of customers and show willingness to help them	[33]
18	kh5	Serving the customers	Easy access of customers to managers through simple and available ways	[6]
19	kh6	Serving the customers	Staff training on the relationship with customers, understanding customers' needs, and trying to meet them	[35][20]
20	kh7	Serving the customers	Work evaluation on customers	[32]
21	kh8	Serving the customers	Matching serving the customers with business processes	[15]
22	kh9	Serving the customers	Providing appropriate incentives, trainings, and facilities in order to increase customer acceptance toward e-government and filling the digital gap	[36]
23	kh10	Serving the customers	Expanding the expectations and increasing the choices of customers	[32]
24	kh11	Serving the customers	Using the comments and suggestions of customers to provide better organizational services	[37][31]
25	kh12	Serving the customers	Considering the culture and values of customers when providing services	[29]
26	fh1	Culture and values	Providing a suitable context for organizational flexibility for restructuring and technological acculturation as an appropriate mechanism for creating and transferring new technologies	[30]
27	fh2	Culture and values	Decision-making based on consensus	[21]
28	fh3	Culture and values	Creating an environment that promotes change	[32]
29	fh4	Culture and values	Accessibility of employees to required knowledge	[5]
30	fh5	Culture and values	Setting the goals and rewards of teamwork	[38]
31	fh6	Culture and values	Developing a sense of teamwork throughout the organization	[8]
32	fh7	Culture and values	Building a sense of confidence and trust in leaders and respect for employees	[29]
33	fh8	Culture and values	Improving participation culture and changing the supporters	[30]
34	fh9	Culture and values	Creating a place in the organization to improve the changes resulted from organizational flexibility	[30]
35	fh10	Culture and values	Developing a flexible and innovative organizational culture	[30]
36	fh11	Culture and values	Leveraging the intellectual abilities of staff in cultural change	[30]
37	d1	E-government	High automation of flexible equipment using the technology	[39][40]
38	d2	E-government	Using multiple channels to serve the customers	[41][40][42]
			The use of semantic web (W3C) in which computers are content-aware with users	

39	d3	E-government	interaction on the Web and interaction of requests with each other and with users	[41]
40	d4	E-government	Doing activities in a virtual organizations	[39][43]
41	d5	E-government	Having knowledge and keeping abreast with technological innovations in IT	[39][40]
42	d6	E-government	Utilization of information technology by sharing data between groups that are geographically dispersed because of organizational barriers	[39]
43	d7	E-government	Providing full transactional websites and data and service sharing with main agencies and partners	[36]
44	d8	E-government	Designing a simple, intuitive, and user-friendly website which can be personalized	[41]
45	d9	E-government	Integration of activities, systems, and organizations involved in electronic services	[41][44]
46	d10	E-government	Providing the website of organization with required information	[45][46]
47	d11	E-government	Providing electronic consultation for customers	[45]
48	d12	E-government	Investment on information technology in order to improve the methods through which government services to citizens	[35]
49	g1	Organizational change	Determining the training needs of staff and educational standards needed to determine the educational needs	[47]
50	g2	Organizational change	Mobile-based Customer Relationship Management (MCRM): Establishing continuous two-way interactions between customers and companies in any place	[34]
51	g3	Organizational change	Taking serious the involvement of employees	[8]
52	g4	Organizational change	Identifying the opportunities and needs to improve the process and serving the customers	[6]
53	g5	Organizational change	A comprehensive system to change customer needs to provided services	[48]
54	g6	Organizational change	Implementation of new technologies in serving the customers	[31]
55	g7	Organizational change	The ability of staff and working process to be rapidly changed and adapted to future changing demands	[49]
56	g8	Organizational change	Allocating resources by managers to meet the needs of customers if required	[20]
57	g9	Organizational change	Creating appropriate hardware and software infrastructures of rapid, flexible, and cheap change for organizational business processes	[50][32]
58	g10	Organizational change	Paving the way for the process of restart of organizational culture from traditional values and changing them to reflect new opinions and ideas by managers	[32]
59	l1	Leadership	Theoretical Investigation of reengineering: finding the existing problems, evaluating existing solutions, redesigning all processes, evaluating existing facilities and facilities needed, reviewing methods of problem solving	[51]
60	l2	Leadership	Establishment of a system for using performance information to improve organizational efficacy	[24]
61	l3	Leadership	Financial and moral support for and encouraging the employees to find innovative solutions to problems	[8][21]
62	l4	Leadership	Determining quantitative (objective) goals with defined responsibilities, specific behavioral competencies, and reliable quantitative measures to get employees focus on what needed	[52]
63	l5	Leadership	Empowering people to take responsibility in order to allocate time and resources to create learning opportunities for staff	[51]
64	l6	Leadership	Leaders must be responsive, avoid scolding, and cooperate to solve the problems of other and find solutions	[51]
65	l7	Leadership	Leading the staff to pay attention to the reasons of change through training workshops and neglecting the poor performance of the past	[53]
66	l8	Leadership	Ensuring the implementation of organizational change programs with the commitment and support of managers for organizational change programs.	[20]
67	l9	Leadership	Applying a participatory leadership style based on enhancement of groups and employees	[32][21]
68	l10	Leadership	Ongoing training and development of skills and capacity of staff	[32]
69	l11	Leadership	Leadership is focused less on command control and more on preparation, guidance, influence, delegation of authorities, and persuasion	[49]
70	n1	Labor	Providing proper contexts by the staff in response to changing needs of customers	[49]
71	n2	Labor	Creating incentives for continual learning of skills, tasks, technologies and new working methods in personnel	[54]
72	n3	Labor	Building the capacity and competence in employees to simultaneously work in a variety of tasks in different teams	[32]
73	n4	Labor	Empowering the staff in solving the problems and the ability to create innovative ideas and analysis and evaluation of information related to change	[55]
74	n5	Labor	Encouraging the employees to quickly adapt to new working environments and accept new responsibilities	[56]
75	n6	Labor	Continuous training of new responsibilities to employees and their awareness of teamwork and negotiation	[57][5]
76	n7	Labor	Training the staff to increase professional flexibility, cope with stress, endure and deal with uncertain and unexpected conditions, and predict issues related to change	[58][30]
77	n8	Labor	Participation of employees in organizational decision making	[23]
78	n9	Labor	Delegating operational decisions to competent employees	[23]
79	n10	Labor	Empowering the staff to make independent decisions	[56]
80	n11	Labor	Accessibility of employees to information and advanced technologies	[3][2][55]
81	n12	Labor	Employing trained, clever, and intelligent employees who feel comfortable with changes, new ideas and modern technologies	[32]
82	n13	Labor	Employing the responsible staff	
83	n14	Labor	Employing flexible, multi-skilled, and ready-to-change staff	[2]

*Indices are adopted from MA thesis of Siahbani, 2013

1- The framework designed to measure agility level

Inspired from the method of Lin et al. (2006)[59], the method of the present study was designed in seven steps and according to the conditions of this study as follows:

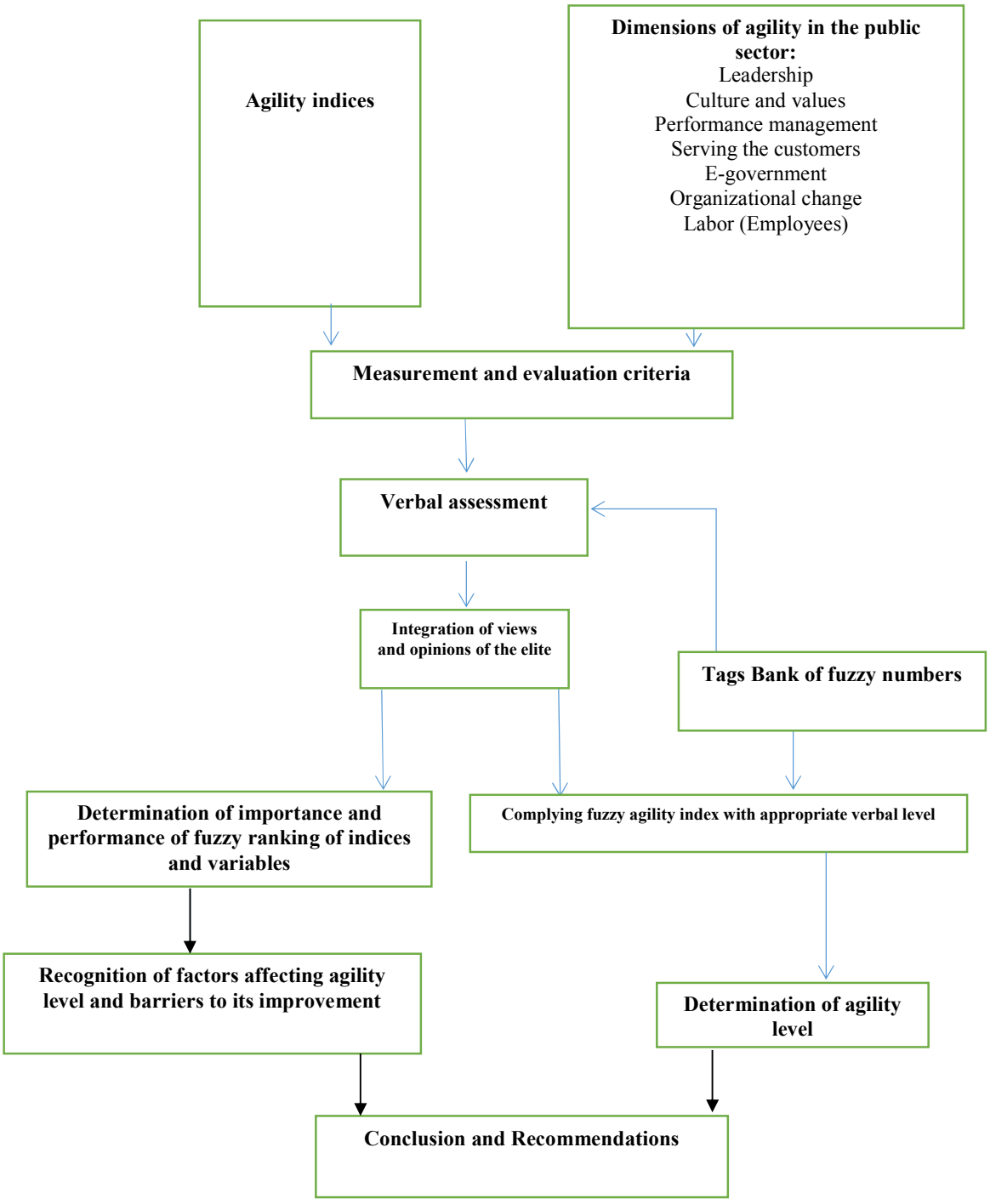

Figure 1-2- Methodology for fuzzy measurement of organizational agility

The main questions of this study are as follows:

1- Is Social Security Organization agile?
2- How is the order of importance of effectiveness of each of parameters of agility model on organizational agility?
3- What are the main barriers to the agility of an organization?
4- How is the order of importance of effectiveness of each of dimensions of agility model on organizational agility?

5-1- Step One: Identification and classification of dimensions and indicators associated with each of these dimensions in terms of organizational agility

For this purpose, a questionnaire was developed. Seven factors including leadership, culture and values, performance management, serving the customers, e-government, and organizational change were adopted from studies of [20][21] and the factor of employees (labor) was added by the author to reach the final model of research. This questionnaire was given to college elite and approved by them.

5-2- Step Two: Measurement and evaluation criteria

Based on the literature and research papers relating to any of the dimensions discussed, 84 indicators were determined. These indicators are shown in Figure 2-1.

5-3- Verbal evaluations

To evaluate the performance ranking and importance of indicators, verbal terms were used. According to studies of Yang and Lee (2002) [60] and taking into account the manner in which human consider differences, 7-item fuzzy spectrum for functions corresponding verbal variables was used to making fuzzy and rating the status of performance rankings and the importance of indicators weight [59][60] (Table 3-1).

Table 3-1- Verbal terms and fuzzy number related to each

Fuzzy number	Verbal terms Status (current)	Fuzzy number	Verbal terms Importance
(0،0.05،0.15)	Worst (1)	(0،0.05،0.15)	**Very low (1)**
(0.1،0.2،0.3)	Very weak (2)	(0.1،0.2،0.3)	**Low (2)**
(0.2،0.35،0.5)	Weak (3)	(0.2،0.35،0.5)	**Relatively low (3)**
(0.3،0.5،0.7)	Moderate (4)	(0.3،0.5،0.7)	**Moderate (4)**
(0.5،0.65،0.8)	Good (5)	(0.5،0.65،0.8)	**Relatively high (5)**
(0.7،0.8،0.9)	Very good (6)	(0.7،0.8،0.9)	**High (6)**
(0.85،0.95،1)	Best (7)	(0.85،0.95،1)	**Very high (7)**

5-4- Step Four: Estimation of verbal terms by fuzzy numbers

After assigning verbal variables to evaluate performance rankings and the importance of weight of each of the 83 indicators discussed, verbal words were directly used to determine the performance ranking of each indicator. Additionally, experts and elites of the studied organization determined the importance weight of each indicator.

Many models can be used to integrate the evaluations of different decision-makers. Arithmetic mean, median, and mode are of these models. Since arithmetic mean has been used more than other methods, it was used in the present study to integrate the views of experts [61]. Aggregated views of experts on performance ranking and the importance of weights is presented in Table 5-1.

5-5- Step Five: Fuzzy summarization of performance rankings and the importance of weights to obtain organizational agility index

In the present study, a 12-member committee of organizational elites including top managers and senior experts of Qazvin Province (E_t, t=1, 2, …, 12) evaluated agility. F_j, j= 1, 2, …, 83, R_{tj}=(a_{jt}, b_{jt}, c_{jt}), and Wtj=(x_{jt}, y_{jt}, z_{jt}) refer to factors of agility assessment, fuzzy numbers corresponding verbal rankings given to the factor j by the evaluator t, and fuzzy numbers corresponding the importance of verbal weights given to the factor j by the evaluator t, respectively. Given that R_j represents fuzzy mean od rankings and W_j refers to fuzzy mean of weights assigned to factor j by the evaluation committee, aggregation of expert opinions is calculated as follows:

$$R_j = (a_j, b_j, c_j) = \left(R_{j1} + R_{j2} + \ldots + R_{jm}\right) / m \quad \text{(Equation 1-1)}$$

$$W_j = (x_j, y_j, z_j) = \left(W_{j1} + W_{j2} + \ldots + W_{jm}\right) / m \quad \text{(Equation 2-1)}$$

Fuzzy agility index (FAI) is a combination of information which is obtained by calculating the fuzzy weighed mean of rankings and fuzzy weights of all factors influencing the agility. Fuzzy agility index is defined as follows:

$$FAI=\frac{\sum_{j=1}^{n}(W_j \cdot R_j)}{\sum_{j=1}^{n} W_j} \qquad \text{(Equation 3-1)}$$

The main variable increases with the increase in this index. Accordingly, the membership function determined for index shows the level of main index.
Organizational agility increases with the increase in FAI. FAI membership function is calculated by applying fuzzy weighted mean, as shown by Kao and Liu (2001).
FAI of studied organization in this paper is equal to:
FAI= (0.203786188506748, 0.402854952191954 ,0.70110763526822)
Since the resulting number is a triangular fuzzy number, it was complied with appropriate verbal words for a clearer understanding of the level of agility.

5-6- Step Six: Complying the fuzzy scores with appropriate verbal levels (Converting the resulting index into word)

There are several methods to fit membership function into verbal terms, such as Euclidean distance, sequential estimation, and spline analysis. Due to its high similarity to the way in which humans understand proximity, Euclidean distance method was used in the present study. The set of verbal terms for agility levels with their corresponding fuzzy functions in 9 levels proposed by Safaei and Ajami (2010)[62] was used. Membership functions associated with each of the nine levels introduced are shown in Table 1-4.

The distance between each fuzzy number denoting a level of agility and the fuzzy number representing the FAI was calculated based on Euclidean distance. If AL_i is indicative of the level of Index A in normal language, then U_{FAI} and U_{ALi}, respectively represent the fuzzy function of FAI and the normal language of Index i^{th}. The closest verbal term to the smallest distance between U_{FAI} and U_{ALi} is defined as agility level of an organization. The distance between U_{FAI} and U_{ALi} was calculated by Euclidean distance method as follows [59][60]:

$$d(FAI, AL_i) = \{\sum_{x \in p} (U_{FAI}(x) - U_{AL_i}(x))^2\}^{1/2}$$

$$p = \{x_0, x_1, ..., x_m\} \qquad \text{(Equation 1-4)}$$

$$0 = x_0 < x_1 < .... < x_m = 1$$

By substituting FAI in Equation 1-4 and using Microsoft Excel 2013, Euclidean distances were calculated (Table 1-4, Figure 1-2).

Table 1-4- Euclidean distance between the agility of organization and members of agility levels

Symbol of verbal scale	Verbal scales	Triangular fuzzy numbers	Euclidean distance of FAI from verbal scales
S	Non-agile	(0.2,0.1,0)	0.357937981
LA	Very low agile	(0.3,0.2,0.1)	0.266338782
SA	Less agile	(0.4,0.3,0.2)	0.183720154
FA	Fairly agile	(0.5,0.4,0.3)	0.128723903
A	Agile	(0.6,0.5,0.4)	0.13923574
HA	Very agile	(0.7,0.6,0.5)	0.205434514
VA	Very very agile	(0.8,0.7,0.6)	0.291582043
EA	Extremely agile	(0.9,0.8,0.7)	0.384495561
DA	Quite agile	(1,0.9,0.8)	0.480264078

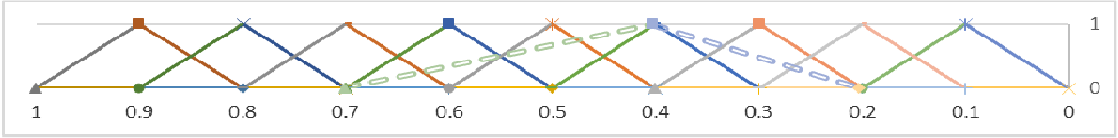

Figure 1-2- Membership function of verbal variables and fuzzy agility index

In answer to the first question of research (Is Social Security Organization agile?), since the minimum distance indicates compliance or proximity of the obtained fuzzy index with agility level of Social Security Organization of Qazvin Province, data presented in Table 1-4 and Figure 1-2 shows that the minimum distance is related to the agility level of fairly agile (FA) (0.128723903). This means that, based on studied indices, Social Security Organization of Qazvin Province is a fairly agile organization.

5-7- Step Seven: Analysis and understanding of the barriers to development using Fuzzy Performance-Importance Index (FPII)

To answer the second (How is the order of importance of effectiveness of each of parameters of agility model on organizational agility?) and the third (What are the main barriers to the agility of an organization) questions of research, the following points should be taken into account.

Evaluation of agility in the present study not only determines the agility level but also identifies the main factors incompatible with the implementation of an action plan for improving the agility. In order to identify the main barriers to improvement of agility, Fuzzy Performance-Importance Index (FPII) is defined which combines degrees and weights of efficiency level specific to each agility characteristics to each other, displaying a concept and result that influence the level of organizational agility. Contribution of a given factor to the organizational agility decreases with a decrease in FPII. Therefore, fuzzy index degree of performance importance of each factor ($FPII_i$) was used to identify the main barriers to organizational agility.

If the weights of importance are directly used in calculation of fuzzy index of performance importance, they will counteract degrees of efficiency importance in calculation of FPII. In this case, it will be difficult to identify the main barriers (low degrees of efficiency importance and high weights). If W_i is high, its transpose [(1, 1, 1) - W_i] is low. So, to consider each factor with low efficiency ranking and a high importance for each characteristic of agility (i), Fuzzy Performance-importance Index, determining the effect of each agility characteristics, is defined as follows:

$$FMII_i = R_i \cdot [(1,1,1) - W_i] \qquad \text{(Equation 1-5)}$$

Since fuzzy numbers do not always result in a fully customized set in behavior of real numbers, $FPII_i$s should be classified. Several methods have been developed for classification of fuzzy numbers. In the present study, fuzzy numbers were classified based on the method of right and left triangular fuzzy ranking, because this method not only keeps the order of ranking but also assesses the precise location of each fuzzy number. Drawback of this method is that different ranking degrees will be resulted when different fuzzy minimum-building and maximum-building sets are used.

In the ranking method proposed by Chen and Peng (1999)[63] , minimum-building and maximum-building sets, respectively, are defined as follows:

$$U_{\max}(x) = \{x \mid 0 \le x \le 1 \ \& \ 0; \text{otherwise}\} \qquad \text{(Equation 1-6)}$$

$$U_{\min}(x) = \{1 - x \mid 0 \le x \le 1 \ \& \ 0; \text{otherwise}\} \qquad \text{(Equation 1-7)}$$

Membership function of the right and left triangular fuzzy numbers of FPII, which is defined from the reference set R with distance of [0, 1], is obtained as follows:

$$U_R(FPII) = \sup_x [U_{FPII}(x) \wedge U_{\max}(x)]$$
$$U_L(FPII) = \sup_x [U_{FPII}(x) \wedge U_{\min}(x)] \qquad \text{(Equation 1-8)}$$

^ represents the small operator (minimum value)

Finally, total degree of FPII is calculated by combining the scores of left and right as follows:

$$U_T(FPII) = \frac{[U_R(FPII) + 1 - U_L(FPII)]}{2} \qquad \text{(Equation 1-9)}$$

The results are shown in Table 1-5.

Table 1-5- Ranking of studied indices

0،1159	0،1282	0،0671	0،0857	0،1244	0،1234	0،1057	0،072	0،0847	0،0864	0،09	0،0813	0،0917	0،1042	0،0843	**Rank**
0،1738	0،1898	0،1017	0،1302	0،1863	0،1822	0،1582	0،1119	0،1327	0،1309	0،1334	0،1258	0،1404	0،1594	0،1293	**$FMII_j$**
0،0772	0،0891	0،0395	0،0525	0،0844	0،0853	0،0694	0،0408	0،0488	0،0533	0،0581	0،0475	0،0563	0،0656	0،0506	
0،0257	0،0283	0،0092	0،0139	0،0275	0،0294	0،0211	0،0087	0،0108	0،0136	0،0167	0،0107	0،0146	0،0183	0،0122	
0،2708	0،2958	0،2417	0،2625	0،3083	0،275	0،2583	0،2167	0،2042	0،2417	0،2542	0،2	0،2292	0،2333	0،2125	**(111)-W_j**
0،1625	0،1875	0،1375	0،15	0،1875	0،1625	0،15	0،1125	0،1	0،1375	0،15	0،1	0،125	0،125	0،1125	
0،0833	0،0917	0،0583	0،0667	0،0917	0،075	0،0667	0،0417	0،0333	0،0583	0،0667	0،0333	0،05	0،05	0،0417	
0،5882	0،5828	0،3963	0،4628	0،5488	0،6128	0،5717	0،4951	0،6283	0،5101	0،49	0،6082	0،5819	0،6492	0،583	**W_j*R_j**
0،3978	0،3859	0،248	0،2975	0،3656	0،4397	0،3931	0،3217	0،4388	0،3342	0،3294	0،4275	0،3938	0،4594	0،3994	
0،2248	0،2171	0،1201	0،1536	0،2075	0،284	0،2349	0،1632	0،2586	0،1769	0،1865	0،2567	0،2248	0،2811	0،2297	
0،9167	0،9083	0،9417	0،9333	0،9083	0،925	0،9333	0،9583	0،9667	0،9417	0،9333	0،9667	0،95	0،95	0،9583	**W_j**
0،8375	0،8125	0،8625	0،85	0،8125	0،8375	0،85	0،8875	0،9	0،8625	0،85	0،9	0،875	0،875	0،8875	
0،7292	0،7042	0،7583	0،7375	0،6917	0،725	0،7417	0،7833	0،7958	0،7583	0،7458	0،8	0،7708	0،7667	0،7875	
0،6417	0،6417	0،4208	0،4958	0،6042	0،6625	0،6125	0،5167	0،65	0،5417	0،525	0،6292	0،6125	0،6833	0،6083	**R_j**
0،475	0،475	0،2875	0،35	0،45	0،525	0،4625	0،3625	0،4875	0،3875	0،3875	0،475	0،45	0،525	0،45	
0،3083	0،3083	0،1583	0،2083	0،3	0،3917	0،3167	0،2083	0،325	0،2333	0،25	0،3208	0،2917	0،3667	0،2917	
kh2	kh1	mh13	mh12	mh11	mh10	mh9	mh8	mh7	mh6	mh5	mh4	mh3	mh2	mh1	**Indices**
15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	**j**

0،0804	0،0988	0،1209	0،1488	0،126	0،1405	0،1289	0،1577	0،0953	0،1574	0،155	0،1079	0،2396	0،1281	0،1066	**Rank**
0،1198	0،1499	0،1788	0،2212	0،1923	0،2051	0،1873	0،2332	0،1419	0،2361	0،2287	0،1646	0،3369	0،1917	0،158	**FMII$_j$**
0،0506	0،0625	0،0831	0،1063	0،0831	0،1013	0،092	0،115	0،0619	0،1125	0،1125	0،0688	0،2013	0،0875	0،0711	
0،0133	0،0173	0،0271	0،0356	0،025	0،0374	0،0328	0،0396	0،0178	0،0384	0،0418	0،0199	0،0992	0،0278	0،0219	
0،25	0،2292	0،3667	0،3792	0،2958	0،3542	0،3625	0،4208	0،2542	0،3542	0،3542	0،25	0،4083	0،2875	0،2708	**(111)-W$_j$**
0،15	0،125	0،2375	0،25	0،175	0،225	0،2375	0،2875	0،15	0،225	0،225	0،1375	0،2875	0،175	0،1625	
0،0667	0،05	0،125	0،1333	0،0833	0،1167	0،125	0،1583	0،0667	0،1167	0،1167	0،0583	0،175	0،0833	0،075	
0،4472	0،6215	0،4266	0،5056	0،5958	0،5116	0،4521	0،4664	0،5211	0،5889	0،5705	0،6199	0،6806	0،6111	0،5396	**W$_j$*R$_j$**
0،2869	0،4375	0،2669	0،3188	0،3919	0،3488	0،2955	0،285	0،3506	0،3875	0،3875	0،4313	0،4988	0،4125	0،3664	
0،15	0،2666	0،1372	0،1656	0،2113	0،2072	0،1673	0،1448	0،1989	0،2126	0،2314	0،2563	0،3353	0،2375	0،2127	
0،9333	0،95	0،875	0،8667	0،9167	0،8833	0،875	0،8417	0،9333	0،8833	0،8833	0،9417	0،825	0،9167	0،925	**W$_j$**
0،85	0،875	0،7625	0،75	0،825	0،775	0،7625	0،7125	0،85	0،775	0،775	0،8625	0،7125	0،825	0،8375	
0،75	0،7708	0،6333	0،6208	0،7042	0،6458	0،6375	0،5792	0،7458	0،6458	0،6458	0،75	0،5917	0،7125	0،7292	
0،4792	0،6542	0،4875	0،5833	0،65	0،5792	0،5167	0،5542	0،5583	0،6667	0،6458	0،6583	0،825	0،6667	0،5833	**R$_j$**
0،3375	0،5	0،35	0،425	0،475	0،45	0،3875	0،4	0،4125	0،5	0،5	0،5	0،7	0،5	0،4375	
0،2	0،3458	0،2167	0،2667	0،3	0،3208	0،2625	0،25	0،2667	0،3292	0،3583	0،3417	0،5667	0،3333	0،2917	
fh5	fh4	fh3	fh2	fh1	kh12	kh11	kh10	kh9	kh8	kh7	kh6	kh5	kh4	kh3	**Indices**
30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	**j**

0،0804	0،0978	0،0749	0،0949	0،086	0،0659	0،0794	0،0787	0،0911	0،1233	0،1263	0،1419	0،1241	0،0817	0،0747	**Rank**
0،1221	0،1435	0،114	0،1419	0،1282	0،099	0،1191	0،1228	0،1426	0،1833	0،1873	0،2104	0،1847	0،1285	0،1127	**FMII$_j$**
0،0488	0،0653	0،0447	0،0609	0،0547	0،0394	0،0492	0،045	0،0534	0،0844	0،0872	0،1006	0،085	0،0463	0،0453	
0،0131	0،0208	0،0119	0،0176	0،0153	0،0106	0،0138	0،0097	0،0128	0،0267	0،0272	0،0333	0،0267	0،01	0،0121	
0،2792	0،3625	0،2792	0،3042	0،2875	0،2583	0،3042	0،2167	0،2208	0،3792	0،3458	0،4208	0،3167	0،2042	0،2292	**(111)-W$_j$**
0،1625	0،2375	0،1625	0،1875	0،175	0،15	0،1875	0،1125	0،1125	0،25	0،225	0،2875	0،2	0،1	0،125	
0،075	0،125	0،075	0،0917	0،0833	0،0667	0،0917	0،0417	0،0417	0،1333	0،1167	0،1667	0،1	0،0333	0،05	
0،4047	0،3464	0،3777	0،4239	0،4087	0،3578	0،3558	0،5431	0،6189	0،4189	0،4785	0،4167	0،525	0،6082	0،4671	**W$_j$*R$_j$**
0،2513	0،2097	0،2303	0،2641	0،2578	0،2231	0،2133	0،355	0،4216	0،2531	0،3003	0،2494	0،34	0،4163	0،3172	
0،1261	0،1063	0،1141	0،1334	0،1306	0،1174	0،1044	0،1828	0،2402	0،1242	0،1526	0،1158	0،1822	0،2388	0،1863	
0،925	0،875	0،925	0،9083	0،9167	0،9333	0،9083	0،9583	0،9583	0،8667	0،8833	0،8333	0،9	0،9667	0،95	**W$_j$**
0،8375	0،7625	0،8375	0،8125	0،825	0،85	0،8125	0،8875	0،8875	0،75	0،775	0،7125	0،8	0،9	0،875	
0،7208	0،6375	0،7208	0،6958	0،7125	0،7417	0،6958	0،7833	0،7792	0،6208	0،6542	0،5792	0،6833	0،7958	0،7708	
0،4375	0،3958	0،4083	0،4667	0،4458	0،3833	0،3917	0،5667	0،6458	0،4833	0،5417	0،5	0،5833	0،6292	0،4917	**R$_j$**
0،3	0،275	0،275	0،325	0،3125	0،2625	0،2625	0،4	0،475	0،3375	0،3875	0،35	0،425	0،4625	0،3625	
0،175	0،1667	0،1583	0،1917	0،1833	0،1583	0،15	0،2333	0،3083	0،2	0،2333	0،2	0،2667	0،3	0،2417	
d9	d8	d7	d6	d5	d4	d3	d2	d1	fh11	fh10	fh9	fh8	fh7	fh6	**Indices**
45	44	43	42	41	40	39	38	37	36	35	34	33	32	31	**j**

0،1056	0،0984	0،137	0،116	0،1613	0،1016	0،0794	0،0862	0،086	0،1283	0،113	0،1081	0،0747	0،079	0،1146	**Rank**
0،1569	0،1496	0،1979	0،175	0،2383	0،1528	0،1228	0،1327	0،1322	0،19	0،1684	0،1629	0،1147	0،1167	0،1714	**$FMII_j$**
0،07	0،0619	0،0997	0،0766	0،1181	0،0656	0،0464	0،0516	0،0516	0،0891	0،0756	0،0705	0،0438	0،0503	0،0766	
0،0215	0،0167	0،0375	0،0229	0،0431	0،0189	0،0108	0،0125	0،0129	0،029	0،0238	0،0214	0،0108	0،016	0،024	
0،2875	0،2583	0،3958	0،2917	0،3917	0،2583	0،2167	0،2292	0،2333	0،3	0،4125	0،2458	0،2333	0،2917	0،2917	**$(111)\text{-}W_j$**
0،175	0،15	0،275	0،175	0،2625	0،15	0،1125	0،125	0،125	0،1875	0،275	0،1375	0،125	0،175	0،175	
0،0833	0،0667	0،1667	0،0833	0،15	0،0667	0،0417	0،05	0،05	0،0917	0،15	0،0583	0،05	0،0833	0،0833	
0،5003	0،5406	0،4167	0،55	0،5171	0،5522	0،5431	0،5502	0،5383	0،5753	0،3471	0،6239	0،4671	0،3667	0،5385	**W_j*R_j**
0،33	0،3506	0،2628	0،3609	0،3319	0،3719	0،3661	0،3609	0،3609	0،3859	0،1994	0،442	0،3063	0،2372	0،3609	
0،1841	0،1854	0،1359	0،1948	0،1749	0،2101	0،2024	0،1927	0،1981	0،2217	0،093	0،2765	0،1661	0،1358	0،2036	
0،9167	0،9333	0،8333	0،9167	0،85	0،9333	0،9583	0،95	0،95	0،9083	0،85	0،9417	0،95	0،9167	0،9167	**W_j**
0،825	0،85	0،725	0،825	0،7375	0،85	0،8875	0،875	0،875	0،8125	0،725	0،8625	0،875	0،825	0،825	
0،7125	0،7417	0،6042	0،7083	0،6083	0،7417	0،7833	0،7708	0،7667	0،7	0،5875	0،7542	0،7667	0،7083	0،7083	
0،5458	0،5792	0،5	0،6	0،6083	0،5917	0،5667	0،5792	0،5667	0،6333	0،4083	0،6625	0،4917	0،4	0،5875	**R_j**
0،4	0،4125	0،3625	0،4375	0،45	0،4375	0،4125	0،4125	0،4125	0،475	0،275	0،5125	0،35	0،2875	0،4375	
0،2583	0،25	0،225	0،275	0،2875	0،2833	0،2583	0،25	0،2583	0،3167	0،1583	0،3667	0،2167	0،1917	0،2875	
r2	r1	g10	g9	g8	g7	g6	g5	g4	g3	g2	g1	d12	d11	d10	**Indices**
60	59	58	57	56	55	54	53	52	51	50	49	48	47	46	**j**

0،0881	0،1151	0،0674	0،0863	0،0799	0،1101	0،1106	0،0944	0،0716	0،0971	0،0964	0،084	0،0826	0،1134	0،0772	**Rank**
0،1313	0،1726	0،1031	0،1288	0،1213	0،1625	0،1627	0،1449	0،111	0،1445	0،1426	0،131	0،1288	0،1714	0،1167	**$FMII_j$**
0،0563	0،0766	0،0391	0،0547	0،0484	0،0744	0،0752	0،0578	0،0408	0،0633	0،0634	0،0488	0،0478	0،0744	0،0469	
0،0161	0،0236	0،0096	0،016	0،0125	0،0235	0،0247	0،0154	0،009	0،0191	0،0194	0،0111	0،0111	0،0222	0،0129	
0،2583	0،2917	0،2333	0،2917	0،2292	0،3333	0،275	0،2333	0،2167	0،3042	0،2875	0،2042	0،2208	0،2917	0،2333	**(111)-W_j**
0،15	0،175	0،125	0،175	0،125	0،2125	0،1625	0،125	0،1125	0،1875	0،175	0،1	0،1125	0،175	0،125	
0،0667	0،0833	0،05	0،0833	0،05	0،1083	0،075	0،05	0،0417	0،0917	0،0833	0،0333	0،0417	0،0833	0،05	
0،4744	0،5424	0،4196	0،4049	0،5027	0،4347	0،5473	0،5898	0،4911	0،4315	0،4545	0،6203	0،559	0،5385	0،475	**W_j*R_j**
0،3188	0،3609	0،2734	0،2578	0،3391	0،2756	0،3873	0،4047	0،3217	0،2742	0،2991	0،4388	0،3772	0،3506	0،3281	
0،1792	0،2007	0،1469	0،1358	0،1927	0،1444	0،2386	0،2364	0،1697	0،145	0،1663	0،2653	0،2078	0،1889	0،1981	
0،9333	0،9167	0،95	0،9167	0،95	0،8917	0،925	0،95	0،9583	0،9083	0،9167	0،9667	0،9583	0،9167	0،95	**W_j**
0،85	0،825	0،875	0،825	0،875	0،7875	0،8375	0،875	0،8875	0،8125	0،825	0،9	0،8875	0،825	0،875	
0،7417	0،7083	0،7667	0،7083	0،7708	0،6667	0،725	0،7667	0،7833	0،6958	0،7125	0،7958	0،7792	0،7083	0،7667	
0،5083	0،5917	0،4417	0،4417	0،5292	0،4875	0،5917	0،6208	0،5125	0،475	0،4958	0،6417	0،5833	0،5875	0،5	**R_j**
0،375	0،4375	0،3125	0،3125	0،3875	0،35	0،4625	0،4625	0،3625	0،3375	0،3625	0،4875	0،425	0،425	0،375	
0،2417	0،2833	0،1917	0،1917	0،25	0،2167	0،3292	0،3083	0،2167	0،2083	0،2333	0،3333	0،2667	0،2667	0،2583	
n6	n5	n4	n3	n2	n1	r11	r10	r9	r8	r7	r6	r5	r4	r3	**Indices**
75	74	73	72	71	70	69	68	67	66	65	64	63	62	61	**j**

Rank	$FMII_j$			$(111)-W_j$			W_j*R_j			W_j			R_j			Indices	j
0.0653	0.1012	0.0366	0.0083	0.2208	0.1125	0.0417	0.4392	0.2884	0.1558	0.9583	0.8875	0.7792	0.4583	0.325	0.2	n7	76
0.0816	0.1225	0.0506	0.0144	0.2625	0.15	0.0667	0.4356	0.2869	0.1598	0.9333	0.85	0.7375	0.4667	0.3375	0.2167	n8	77
0.0864	0.1271	0.0563	0.0169	0.2542	0.15	0.0667	0.4667	0.3188	0.1896	0.9333	0.85	0.7458	0.5	0.375	0.2542	n9	78
0.0964	0.1438	0.0625	0.0183	0.3167	0.2	0.1	0.4088	0.25	0.1253	0.9	0.8	0.6833	0.4542	0.3125	0.1833	n10	79
0.0563	0.0867	0.0313	0.0068	0.2	0.1	0.0333	0.4189	0.2813	0.1633	0.9667	0.9	0.8	0.4333	0.3125	0.2042	n11	80
0.0586	0.0914	0.0317	0.0059	0.1875	0.0875	0.025	0.4753	0.3308	0.193	0.975	0.9125	0.8125	0.4875	0.3625	0.2375	n12	81
0.0755	0.1167	0.0438	0.0096	0.2	0.1	0.0333	0.5639	0.3938	0.23	0.9667	0.9	0.8	0.5833	0.4375	0.2875	n13	82
0.0771	0.1165	0.0469	0.0121	0.2292	0.125	0.05	0.4829	0.3281	0.1863	0.95	0.875	0.7708	0.5083	0.375	0.2417	n14	83

In answer to the second question of research, Table 5-1 shows the order of importance of effectiveness of each of parameters of agility model on organizational agility which is, according to what mentioned before, the order of rankings of indices evaluated in this study. Since the degree of effectiveness of an index in improving organizational agility decreases with an increase in FPII, the ranking of this index can be used to identify barriers [59]. Hence, indices of lower ranks are the most important barriers to the agility of studied organization (Table 1-5).

In response to the fourth question of research (How is the order of importance of effectiveness of each of dimensions of agility model on organizational agility?), by calculating the mean of scores of each of the elite in each parameter separately in each dimension, ranking of agility dimensions of research model can be obtained. The results are presented in Table 1-6. Higher values of FPII in each dimension means that this dimension has the greatest effect on the current level of agility. In the calculations done and after ranking the dimensions, it was observed that serving the customers, culture and values, organizational change, leadership, performance management, e-government, and labor, respectively, have the highest ranking.

Table 1-6- Ranking of dimensions obtained in this study

Rank	$FMII_j$			$(111)-W_j$			W_j*R_j			W_j			R_j			Factors
0.1381	0.2033	0.0981	0.0346	0.3236	0.2052	0.1056	0.5618	0.38	0.2219	0.8944	0.7948	0.6764	0.63	0.48	0.33	Serving the customers
0.1153	0.1718	0.0775	0.0242	0.3106	0.1932	0.0962	0.4998	0.3236	0.1737	0.9038	0.8068	0.6894	0.55	0.4	0.25	Culture and values
0.1141	0.1701	0.0764	0.0243	0.2975	0.1825	0.0908	0.5197	0.3423	0.1882	0.9092	0.8175	0.7025	0.57	0.42	0.27	Organizational change

Rank	$FMII_j$			$(111)-W_j$			W_j*R_j			W_j			R_j			Factors
0.0944	0.1426	0.0597	0.0169	0.2557	0.1455	0.0636	0.5221	0.3506	0.1982	0.9364	0.8545	0.7443	0.56	0.41	0.27	Leadership
0.0927	0.1404	0.058	0.0159	0.2413	0.1346	0.0564	0.5489	0.3728	0.2137	0.9436	0.8654	0.7587	0.58	0.43	0.28	Performance management
0.0864	0.1299	0.054	0.0153	0.2774	0.1635	0.0757	0.4329	0.2762	0.1458	0.9243	0.8365	0.7226	0.47	0.33	0.2	E-government
0.082	0.1234	0.0508	0.014	0.2506	0.142	0.0613	0.4621	0.3072	0.1713	0.9387	0.858	0.7494	0.49	0.36	0.23	Labor

6- Executive suggestions

Given some indices were determined for each of the dimensions investigated in this study, the following recommendations are presented in order to improve each of these dimensions in agility of Social Security Organization of Qazvin Province:

1- In terms of labor and performance management and especially in respect to indices of accessibility of employees to information and advanced technologies; employing trained, clever, and intelligent employees who feel comfortable with changes, new ideas and modern technologies; and training the staff to increase professional flexibility, cope with stress, endure and deal with uncertain and unexpected conditions, and predict issues related to change, the following programs can be used by the organization to strengthen and increase the ranking of these dimensions:

- Specialized knowledge and abilities of employees in relation to technology, serving the customers, and social skills should be rewarded.
- Holding workshops on information technology, stress management, dealing with change, problem solving, and interaction with customers in the annual training programs of staff.
- Rewarding the employees who provide new and innovative solutions to problems of their own organizational unit or the organization.
- Changing the policies of recruiting newly-employed labor and changing selection approaches in order to select smart and clever individuals who are familiar with up-to-date technologies.

2- When it comes to e-government and organizational change, given that Social Security Organization faces a huge volume of referrals, it's better that part of affairs to be outsourced and many current affairs should be done via the web and cyberspace, so that there would a virtual branch of Social Security Organization at home of every employer, insured, and annuitant.

3- About leadership and in relation to applying appropriate models for evaluation of employees' performance, establishing a comprehensive performance management system in the organization in order to encourage and enhance agility, empowering the employees in problem solving, the ability to create innovative ideas, and analysis and evaluation of information related to change, leaders of organization, in addition to understand the status of all employees and allocating time to guide and train them, should know their abilities, creativities, and information needs, set programs to develop the abilities of employees, and provide them with timely information. By increasing the delegation of authorities to the branches and committees of organization, integrating the views and comments of experts throughout the country on disputes and different interpretations of the rules, and correcting the regulations, directives, and circulars, managers can try to promote the ranking of important factors of agility indices in terms of organizational leadership and improve the ranking of organizational agility.

4- In terms of serving the customers and especially in regard to easy access of customers to managers through simple and available ways, allocating resources by managers to meet the needs of customers if required, expanding the expectations and increasing the choices of customers, matching serving the customers with business processes, and work evaluation on customers, since these indices are of

effective factors in improving the agility of organizations, the following points should be taken into account to increase the level of agility:

- Procedure, type of services offered, regulations, job duration, identification required to receive services, and type of required technologies should documented by the organization.
- Providing easy and timely services to customers and outsourcing of government services to counter offices (due to the expansion in different parts of the city) which lead to greater accessibility, reduced referrals at branches, and increased satisfaction of customers.

5- As far as culture and values are discussed, it is recommended that measures be thought about creating a common culture among members, building a sense of confidence and trust in leaders and respect for employees, shared decision making among members, and developing a sense of teamwork by delegating the authorities of headquarter to provincial committees and branches. With the existence of spirit of cooperation and participation in policies, programs, and operations on one hand and creating risk-taking culture along with raising confidence in the labor force on the other hand, the space needed for joint decision making and creating a shared vision among members will be provided. In such circumstances, recognition of customers' needs and striving to meet them is achieved through more knowledge of the needs and demands of customers by committees and provincial branches.

7- Recommendations for future research

1- Researchers are recommended conduct greater and different studies (organization in industrial cities, big cities, and disadvantaged provinces and central agencies) in order to evaluate organizational agility of Social Security Organization with an interpretive-structural modeling approach. Then the results are better to be compared with the results of the present study to investigate better generalizability of results.

2- The last suggestion is to conduct the same study on other state organizations, including service organizations and non-service ones, by longitudinal method, so that data will be collected over time, the relationship between the relevant dimensions and indicators and agility of organizations will be studied over time, and effective factors will be identified more clearly.

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