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Segmenting Critical Success Factor for Generating Corporate Entrepreneurship Based on Fuzzy DEMATEL and Fuzzy AHP in Iranian Institutes

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ABSTRACT

By achieving modern methods, Corporate Entrepreneurship and institutes are constantly trying to search for other solutions to inspire more innovation so that based on their interests and attitudes, they voice their opinion to the superiors of the organization. Numerous researches all indicate that Entrepreneurial Attitude can change the organizations. Therefore, organizations and large companies consider "Entrepreneurial Attitude" more than before. They are constantly ready to meet customers' demands and pull marketing. In this paper, we study the functional factor that initiate corporate organization. In Fuzzy analytic hierarchical process (Fuzzy AHP) and Fuzzy decision making trial and evaluation laboratory (Fuzzy DEMATAL), we ranked critical success factor of the Corporate Entrepreneurship in Iranian Institutes.

Key words: Fuzzy DEMATEL, Fuzzy AHP, Corporate Entrepreneurship

1. Introduction

Many different theories and methods of performance for conducting an evaluation have been applied in various organizations for many years. These approaches include ratio analysis, total production analysis, regression analysis, Delphi analysis, Balanced Scorecard, Analytic Hierarchical Process(AHP), Data Envelopment Analysis (DEA), Decision Making Trial and Evaluation Laboratory(DEMATEL), Fuzzy AHP(FAHP), Fuzzy DEMATEL, etc. Each method has its own basic concept, aim, advantages and disadvantages. Which one to choose for assessing performance depends on the status and type of the organizations? However, all successful enterprises have some common features including a specific vision, positive actions, and effective performance evaluation (Wu et al., 2009).

Decision makers always like to know which option is the best of all alternatives. In the category of cardinal information on the criteria or attribute of multiple criteria decision making (MCDM) methods, alternatives are ranked by their cardinal values of performance (Shih, 2008; Chou, 2010). Although there are different definitions for MCDM in literature, regardless of the type of MCDM task, two pivotal problems arise; how to compare an alternative? And how to evaluate them? First problem is especially important if the results of evaluations of alternatives are presented by interval or fuzzy numbers (Sevastjanov and Figat, 2007).

Decision making is the most important and popular aspect of application of mathematical methods in various fields of human activities. In real world situations, decisions are nearly always made on the basis of information that is at least partially fuzzy in nature (Vasant et al., 2007). Also Decision making is the process of defining the decision goals, gathering relevant criteria and possible alternatives, evaluating the alternatives for advantages and disadvantages, and selecting the optimal alternatives (Wu, 2008).

However, in the real life, the available information in a MCDM process is usually uncertain, vague, or imprecise, and the criteria are not necessarily independent. To tackle the vagueness in information and the essential fuzziness of human judgment or preference, fuzzy set theory was proposed by Zadeh in 1965, and a decision making method in a fuzzy environment was developed by Bellman and Zadeh (Yang et al., 2008; Kahraman, 2007). Fuzzy set theory was developed exactly based on the premise that the key elements in human thought are not numbers, but linguistic terms or labels of fuzzy sets. A fuzzy decision making method under multiple criteria consideration is needed to integrate various linguistic assessments and weights to evaluate location situation and determine the best selection (Chou, 2007).

MCDM may be considered as a complex and dynamic process including one managerial level and one engineering level. The managerial level defines the goals, and chooses the final “optimal” alternative.The multi criteria nature of decisions is emphasized at this managerial level, at which public officials called ‘‘decision makers’’ have the power to accept or reject the solution proposed by the engineering level (Opricovic and Tzeng, 2004).

The DEMATEL technique was used to investigate and work on the complicated problem group. DEMATEL was developed on the belief that pioneering and proper use of scientific research methods could ameliorate comprehension of the specific problematic, the cluster of intertwined problems, and contribute to recognition of practical solutions by hierarchical structure. DEMATEL has been successfully applied in many situations, such as marketing strategies, e-learning evaluation, control systems and safety problems (Chen, 2009). Fuzzy DEMATEL method is used for solving and modeling some of the complex group of decision-making problems such as strategic planning, e-learning evaluation and decision making in R&D projects (Coussement and Poel, 2008).

Learning and innovation for organizations that are trying to survive and effectiveness, is a basic requirement, and many organizations are desperately looking for an innovative and entrepreneurial approach to improve efficiency and effectiveness, and are flexible. In this regard, the CE is rapidly becoming the tool of choice for many organizations, especially large organizations. Corporate entrepreneurship and entrepreneurial skills and the effort to create a mindset and mentality into making these features into the culture and activities of the organization (Alter, 2006). Also, according to Juliet and George (2005), most organizations in transition from a stable and simple environments are complex, dynamic environments. In such conditions, but survival, not development organizations to take the risk. Therefore, to maintain the growth and survival of most organizations today, require the development of CE.The CE requirement for the revival and promotion of the company. CE refers to the company's commitment to develop and introduce new products, new processes and new systems of organization (Light et al, 2005; Kevin and Slevin, 2011). Looking at the statistics provided by the Centers for technological development, many companies are required to provide the knowledge base for improving their innovation. In this context, the question arises that what are the factors affecting Corporate Entrepreneurship promoting formatting?

In the literature on entrepreneurship in general emphasized that entrepreneurship is important for the improvement of entrepreneurial thinking and behavior is good. Although much has been written regarding the need for organizations to be entrepreneurial, but too long ago to determine exactly how to create and maintain are Corporate Entrepreneurship, has been done.Current models regarding the scope of CE has identified the individual, organizational and environmental factors are important in relation to the behavior of the CE exist (Kevin and Slevin, 2011).

In the 1990s and since then, many efforts of researchers to conduct empirical studies conducted to To explore the background of CE activities (Patrvn and Galantvn, 2008) The cumulative results of the research show that organizational factors, in particular, play an important role in encouraging entrepreneurship, organizational (Andrew, 2003). However, agreement on the internal factors, the CE is not included Drs. (Namary and Mvdys, 2007). Researchers have been trying to follow some of the key variables that can affect entrepreneurship organizations, they can identify. Sullivan and colleagues (2008) in his article stated organizational variables include structure / formality oriented decision making / management, rewards / incentives, culture, risk-taking and proactive market and external environment, including the policy elements, complexity, compassion and the ability to change In addressing the impact of entrepreneurial activity. Based on the findings, the researchers created a CE requires commitment and support from top management, organic structure, less recognizes oriented, flexible and decentralized decision-making, control systems, with little recognition, rewards, incentives and culture positive, supportive, flexible and a high degree of stimulus 's., Morgan et al (2008) Effect of CE amplifier consists of four factors: management support, reward, autonomy and organizational constraints on the ability of the CE response.

Sratv et al (2008) in his article on entrepreneurship development indices to assess the entrepreneurial activities. This paper seeks to develop a comprehensive framework for the creation of elements used by entrepreneurs at all levels, individual level, job level and organizational level is. Townsend and Hart (2008) in Mqalhshan by testing a sample of 264 employees in three categories: Introduction to entrepreneurship organizations stated: process, context, and individual characteristics. Results showed that three factors had an impact on corporate entrepreneurship and corporate entrepreneurship can be triggered.

Jvhana and Aygnasy (2007) in his article entitled "Strengthening entrepreneurship through internal marketing", 223 employees of government departments were examined. The authors describe four factors promoting corporate entrepreneurship Were identified: job rotation (amount of years that it takes to transfer the employee to another department), rewards systems / payment based on performance during training and testing (acquisition of skills required for jobs). The results show that the most important factor in the course of the experiment and after the training, reward systems and, ultimately, job turnover. The results showed that the internal marketing practice can have positive effects on the development of entrepreneurship in the public sector.

Vanessa (2010) in his thesis barriers to entrepreneurship, including systems, structures, orientation, procedures, people and culture is known. This study aimed to increase awareness of how to develop and promote innovation and entrepreneurial activity within organizations is Bstvana. The research sample included 100 employees and questionnaire data were gathered through random sampling. Then he states the following strategies to overcome barriers to entrepreneurship: good climate, attract and retain talented and creative people, creating the perfect balance between innovation and efficiency.

These factors, separately and combined efforts of CE backgrounds are considered important, because they affect the internal environment of the organization, the environment and supporting the entrepreneurial measures the tendency of The organization is determined. MONICA study (2008), clearly shows that inter-organizational factors, the type of CE activities in an organization are affected. Important point that no universal agreement about what factors in promoting entrepreneurship efforts There are more important.

Introduction to Methodology and Model

The aim of the present study, the type of research can be applied also in terms of data collection (research design) is a type of research. The model used is based on data from operational research descriptive survey runs. The method used to collect data, a questionnaire designed to assess factors related to that of the 12 directors of government institutions invited to the meeting were to identify and prioritize the factors. Then, using the fuzzy DEMATEL model HP-phase Wye, and the results were analyzed to evaluate the answers.

2.2. Fuzzy DEMATEL

DEMATEL method is presented in 1973 as a kind of structural modeling approach about a problem. It can clearly see the cause-effect relationship of criteria when measuring a problem (Chen-Yi and Gwo-Hshiung, 2007). The decision-m aking involved in selecting appropriate management systems to create sustainable competitive advantages is a very important topic, which can be formulated as a MCDM problem (Tsai and Chou, 2009). Applying the DEMATEL illustrates the interrelations among criteria, finds the central criteria to represent the effectiveness of factors or aspects, and avoids the "over fitting'' for evaluation. Thus, non-additive methods, fuzzy measure and fuzzy integral are used to calculate the dependent criteria weights and the satisfaction value of each factor or aspect for fitting with the patterns of human perception (Chen-Yi and Gwo-Hshiung, 2007).

The Although this DEMATEL method is a good technique for evaluating problems and making decisions, we decide the relationships of systems to be usually given by crisp values in establishing a structural model (Liou et al., 2007; Chiu et al., 2006). However, it is generally understood that human perceptions on decision factors are usually judged subjectively. The judgment in social science is always represented as exact numbers. In many practical cases, the human preference model is uncertain and might be reluctant or unable to assign exact numerical values to describe the preferences (Tseng and Lin, 2008). The matrices or digraph portrays a contextual relation between the elements of the system, in which a numeral represents the strength of influence .Hence, the Fuzzy DEMATEL method can convert the relationship between the causes and effects of criteria into an intelligible structural model of the system (Chen-Yi and Gwo-Hshiung, 2007; Kim, 2006; Lee et al., 2008) The Fuzzy DEMATEL method has been successfully applied in many fields (Lee et al., 2008).

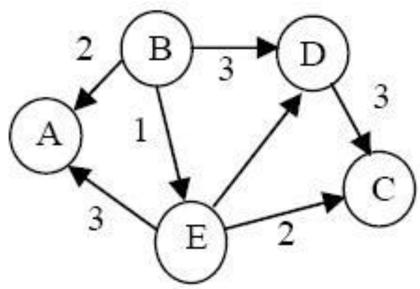

Figure 2.1.The digraph of the Fuzzy DEMATEL (example)(Lee et al., 2008).

STEP1:Defining the evaluation criteria and designing the fuzzy linguistic scale

However, Evaluation criteria have the nature of causal relationships and usually comprise many complicated aspects (Wu and Lee, 2007). To gain a structural model dividing involved criteria into cause and effect groups, the Fuzzy DEMATEL method is an appropriate technique. To deal with the ambiguities of human assessments, the research discard the comparison scale used in crisp DEMATEL method but adopt the fuzzy linguistic scale used in the group decision-making proposed[21-14-78-34].**(** Wu and Lee, 2007**;** Kim, 2006; Coussement, Poel, 2008b; Chen-Yi and Gwo-Hshiung, 2007).

Table 2.1.The correspondence of linguistic terms and linguistic values (example)

Linguistic terms	***Linguistic values***
No influence (No)	(0, 0, 0.25)
Low influence(L)	(0, 0.25, 0.5)
High influence(H)	(0.25, 0.5, 0.75)
Stronglyinfluence(VH)	(0.5, 0.75, 1.0)

Different degrees of "influence" are expressed with five linguistic terms as "Strong", "High", "Low", "No" and their corresponding positive triangular fuzzy numbers are shown in Table 2.1 (Shieh et al., 2010).

STEP 2: Organizing the directed-relation matrix

Acquire the assessments of decisionmakers to measure the relationships between the critical success factorswhich are demonstrated by C = $\{C_i|$i =1, 2 . . .n$\}$. Thegroups of the chosen experts were asked to make sets of pair wise comparisons in terms oflinguistic terms.Hence fuzzy matrices $\tilde{N}^1, \tilde{N}^2, \ldots, \tilde{N}^p$,each corresponding to an expert and with triangular fuzzynumbers are obtained.Fuzzy matrix Ñis called the initialdirect relation fuzzy matrix of expert.DenoteÑas:

$$\tilde{N} = \begin{bmatrix} 0 & \tilde{n}_{12} & \cdots & \tilde{n}_{1n} \\ \tilde{n}_{21} & 0 & \cdots & \tilde{n}_{2n} \\ \vdots & \vdots & \ddots & \vdots \\ \tilde{n}_{n1} & \tilde{n}_{n2} & \cdots & 0 \end{bmatrix}; \quad k=1, \quad 2,\ldots, \quad p.$$

(1)

$$\tilde{N}_{ij} = (l_{ij}, m_{ij}, u_{ij}).$$

Without loss of generality, the $\tilde{N}_{ii}$(i =1, 2, . . . , n)number z=(0, 0, 0) whenit is necessary **(** Lee et al., 2008; Coussement and Poel, 2008b).

STEP 3:Establishingthe structural model

The linear scale transformation is used here as a normalization formula to transform the criteria scales into comparable scales. Let

$\tilde{a}_{ij} = \sum_{j=1}^{n} \tilde{N}_{ij} = \left(\sum_{j=1}^{n} l_{ij}, \sum_{j=1}^{n} m_{ij}, \sum_{j=1}^{n} r_{ij}\right)$And $r = \max_{1\le i\le n}\left(\sum_{j=1}^{n} r_{ij}\right)$ (2)

Then, the normalized direct-relation fuzzy matrix, denoted by$\tilde{E}$:

$$\tilde{E} = r^{-1} \otimes \tilde{N} \text{then} \quad \tilde{E} = \begin{bmatrix} \tilde{e}_{11} & \tilde{e}_{12} & \cdots & \tilde{e}_{1n} \\ \tilde{e}_{21} & \tilde{e}_{22} & \cdots & \tilde{e}_{2n} \\ \vdots & \vdots & \ddots & \vdots \\ \tilde{e}_{m1} & \tilde{e}_{m2} & \cdots & \tilde{e}_{mn} \end{bmatrix},$$

where $\tilde{e}_{ij} = \frac{\tilde{n}_{ij}}{r} = \left(\frac{l_{ij}}{r}, \frac{m_{ij}}{r}, \frac{r_{ij}}{r}\right)$ (3)

As that in crisp DEMATEL method, we assume at least one i suchthat $\sum_{j=1}^{n} \tilde{N}_{ij} < r$ and

$\lim_{k\to\infty} \tilde{E}^k = [0]_{n\times n}$. This assumption is well satisfied in practical cases (Lee et al., 2008; Wu and Lee, 2007).

STEP 4:The total-relation matrix

The total-relation matrix T can be acquired by using the following equation, in which the **I** is denoted as the identity matrix (Hu et al,. 2009).

$$T = \tilde{E} + \tilde{E}^2 + \cdots + \tilde{E}^k = \tilde{E}\left(I + \tilde{E} + \tilde{E}^2 + \cdots + \tilde{E}^{k-1}\right)$$

$$= \tilde{E}\left(I + \tilde{E} + \tilde{E}^2 + \cdots + \tilde{E}^{k-1}\right)(I - \tilde{E})(I - \tilde{E})^{-1} = \tilde{E}(I - \tilde{E})^{-1} \quad ,$$

when $\lim_{k\to\infty} \tilde{E}^k = [0]_{n\times n}$

$$T = \begin{bmatrix} t_{11} t_{12} & \cdots & t_{1n} \\ t_{21} t_{22} & \cdots & t_{2n} \\ \vdots \quad \vdots & \ddots & \vdots \\ t_{m1} t_{m2} & \cdots & t_{mn} \end{bmatrix} \quad ; \quad \text{where } t_{ij} = \left(l'_{ij}, m'_{ij}, r'_{ij}\right) \qquad (4)$$

$$\left[l'_{ij}\right] = \tilde{E}_l \times (I - \tilde{E}_l)^{-1}$$

$$\left[m'_{ij}\right] = \tilde{E}_m \times (I - \tilde{E}_m)^{-1}$$

$$\left[r'_{ij}\right] = \tilde{E}_r \times (I - \tilde{E}_r)^{-1}$$

STEP 5:The sum of rows and columns

Produce a causal diagram. The sum of rows and the sum of columns are separately denoted as vector $d''$and vector r''through formulas 5. In these equations, vector $d''$and vector r'' denote the sum of rows and the sum of columns from the total-relation matrix T respectively. (Chen and Chen, 2010; Tseng, 2009b).

$$T = \left[t_{ij}\right]_{n\times n}, I.J \in \{1,2,3,..,n\}$$

$$d'' = (d''_1)_{n\times 1} = \left[\sum_{j=1}^{n} t_{ij}\right]_{n\times 1}, r'' = (r''_1)_{1\times n}{}' = \left[\sum_{j=1}^{n} t_{ij}\right]_{1\times n}' \qquad (5)$$

STEP 6: As that of most fuzzy model, we had to covert the final fuzzy data into a crisp value. Here, we suggest the CFCS (Converting Fuzzy data into Crisp Scores) method proposed by Opricovic and Tzeng (2003)for defuzzification. This method has the advantages of giving a greater crisp value with greater membership function and distinguishing two symmetrical triangular fuzzy numbers with the same mean (Lin,2010). Let Ñ= (l_{ij}, m_{ij}, u_{ij}) ; k=1,2,…,n be the positive triangular fuzzy number, and $\tilde{N}_k^{jdef}$ denote its respresenting crisp value. Computing L=min(l_k); R=max(u_k); k=1,2,…,n, and $\Delta = R - L$, then

$$\tilde{N}_k^{jdef} = L + \Delta \times \frac{(m-L)(\Delta+u-m)^2(R-l)+(u-L)^2(\Delta+m-l)^2}{(\Delta+m-l)(\Delta+u-m)^2(R-l)+(u-L)(\Delta+m-l)^2(\Delta+u-m)} \qquad (6)$$

Step7: We draw the causal diagram based on the calculations in step 6

STEP 8:Analyzing the results

Assumethat d''_i denotes the row sum of *i-th* row of matrix *T*; then, d''_i shows the sum of influence dispatched from factor *i* to the other factors both directly and indirectly .Supposed r''_j denotes the column sum of *j-th* column of matrix *T* .Then, r''_j shows the sum of influence that factor *j* is receiving from the other factors (Chen-Yi and Gwo-Hshiung, 2007; Tseng, 2009b; Wu and Lee, 2007).

The order of elements from column d''_i indicates hierarchy from influencing elements and the order of elements from column r''_j indicates hierarchy from influenced elements. The actual place of each element in the final hierarchy is determined by columns ($d''_i + r''_j$) and ($d''_i - r''_j$). If ($d''_i - r''_j$)is a positive number, it is influencing and if it is negative, certainly, it is an influenced element. ($d''_i + r''_j$) indicates the sum of density of an element along (longitude axis) regarding being either influencing or influenced. Final hierarchy is gained from the direct and indirect relations of $(d''_i + r''_j)$ and $(d''_i - r''_j)$ in the diagram.

3. Fuzzy AHP

The AHP was first proposed by Thomas L. Saaty in 1980. The AHP weighting is mainly determined by the decision makers who conduct the pair wise comparisons, so as to reveal the comparative importance between two criteria. If there are evaluation criteria, then to decide the decision making, the decision makers have to conduces C(n,2)=n(n-1)/2 pair wise comparisons (Li and Huang, 2009; Lin, 2010; Lee et al., 2008).

The goal of MCDM method is to aid decision makers in integrating objective measurements with value judgments that are based not on individual opinions but on collective group ideas. Further, there are situations in which information is incomplete or imprecise or views that are subjective or endowed with linguistic characteristics creating a ‘‘fuzzy’’ decision making environment. The FMCDM approach is designed to minimize such adverse conditions and strengthen the partnership selection process (Chou, 2007; Ding and Liang, 2005; Vaidya and Kumar, 2006).

Traditional evaluation methods usually take the minimum cost or the maximum benefit as their single index of measurement criteria, although these approaches may not be sufficient for the increasingly complex and diversified decision making environment. Thus, we utilize a FAHP to assess the sustainable development strategies for industry (Chiou et al., 2005). Fuzzy method weighs levels of criteria importance and the determination of weights is the key point in comprehensive evaluation. The propriety of weights subsets will influence the results of the comprehensive evaluation (Hung et al,. 2010).

AHP is a powerful method to solve complex decision problems. Any complex problem can be decomposed into several sub-problems using AHP in terms of hierarchical levels where each level represents a set of criteria or attributes relative to each sub-problem (Cheng et al., 2005; Sun et al., 2009). The AHP method is a multi-criteria method of analysis based on an additive weighting process, in which several relevant attributes are represented through the relative importance **(** Sun et al., 2009**;** Hung et al., 2010)**.**

In fuzzy MCDM problems, criteria or attribute values and the relative weights are usually characterized by fuzzy numbers. A fuzzy number is a convex fuzzy set, characterized by a given interval of real numbers, each with a grade of membership between 0 and 1.The most commonly used fuzzy numbers are triangular and trapezoidal fuzzy numbers, whose membership functions are respectively defined as For brevity, triangular and trapezoidal fuzzy numbers are often denoted as (a, b, d) and (a, b, c, d) (Wang and Elhag, 2006; Zammori et al., 2009). Human judgment of events may be significantly different based on individuals’ subjective perceptivity or personality, even when using the same words (Chiou et al., 2005). Fuzzy linguistic variables are extensions of numerical variables in the sense that they are able to represent the condition of an attribute at a given interval byTaking fuzzy sets as their values (Emre and Ugur, 2009). Triangular fuzzy numbers have been developed to appropriately express linguistic variables (Chiou et al., 2005).

AHP is widely used for multi-criteria decision making and has successfully been applied to many practical problems (Tiryaki and Ahlatcioglu, 2009; Wang et al., 2008). If uncertainty (fuzziness) of human decision making is not taken into account, the results can be misleading. A commonality among terms of expression,such as ‘‘very likely’’, ‘‘probably so’’, ‘‘not very clear’’, ‘‘rather dangerous’’ that are often heard in daily life, is that they all contain some degree of uncertainty (Lee et al., 2008). The concept of fuzziness in traditional AHP directly and without using fuzzy series has been taken into account. In fact, in this method, by using linguistic terms in table 3.1, the concept of fuzziness is applied to determine pair comparison matrices. In this regard, we can refer to models offered by Buckley (1985), Laarhoven & Pedrych (1983), Chang (1992), Lin, 2010, Kahraman et al., 2006).

Table 3.1. Numerical sum for preferences in pair comparisons

Linguistic Terms	Numerical Sum
Preference with full & Absolute Importance	9
Preference with very strong importance	7
preference with strong importance	5
Preference with little importance	3
Preference with equal importance	1
For preferences between above linguistic terms	2,4,6,8

A wide study in regard to these techniques can be observed in works of Kahraman (2004).

Some papers published used the fuzzy AHP procedure based on extent analysis method and showed how it can be applied to selection problems (Önüt et al, 2010). In this study, fuzzy AHP is described based on extent analysis method by Chang because this method has been simpler than other fuzzy AHP and similar to the methodof classicAHP method.

3.1. Extent Analysis Method of Chang

If $X = \{x_1, x_2, \dots, x_n\}$ is the set of objects and $U = \{u_1, u_2, \dots, u_m\}$ is Wishes, then based on the extent analysis method by Chang, by considering one object, the extent analysis can be considered for every Wish (g_i). Therefore, there is the sum of "m" extent analysis for each object:

$M_{g_i}^1, M_{g_i}^2, \dots, M_{g_i}^m$ where i=1,2,…,n

$$\begin{array}{c c} & \begin{array}{cccc} W_1 & W_2 & \cdots & W_m \end{array} \\ \begin{array}{c} O_1 \\ O_2 \\ \vdots \\ O_n \end{array} & \begin{bmatrix} M_{g_1}^1 & M_{g_1}^2 & \dots & M_{g_1}^m \\ M_{g_2}^1 & M_{g_2}^1 & \dots & M_{g_2}^m \\ \vdots & \vdots & \vdots & \vdots \\ M_{g_n}^1 & M_{g_n}^2 & \dots & M_{g_n}^m \end{bmatrix} \end{array}$$

Figure 3.1.shows matrices of (Wish(W)) and (object(O).

Where$g_i$is the goal set (i =1, 2, 3, 4, 5, ..., n) and all the $M_{g_i}^j$ (j =1, 2, 3, 4, 5,.…., m)are Triangular Fuzzy Numbers (TFNs).

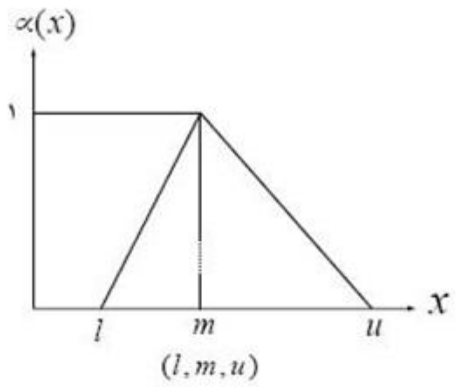

Figure 3.2.shows a triangular fuzzy number (Yu and Hu, 2010; Celik et al., 2009).

The steps of Chang's analysis can be given as in the following:

Step 1: To obtain a fuzzy compound equation for each object.

If$M_{g_i}^1, M_{g_i}^2, \dots, M_{g_i}^m$is the sums of *i^th^* object with respect to *m* Wishes, then the fuzzy compound equation of *m* Wishes for *i^th^*Objects is defined as below:

$$S_i = \sum_{j=1}^{m} M_{g_i}^j \otimes \left[\sum_{i=1}^{n}\sum_{j=1}^{m} M_{g_i}^j\right]^{-1} \qquad (1)$$

If$M_{g_i}^j = (l_{ij}, m_{ij}, u_{ij})$, then $\sum_{j=1}^{m} M_{g_i}^j$ is defined by the fuzzy addition operation of *m* extent analysis as below:

$$\sum_{j=1}^{m} M_{g_i}^j = (l_{i1}, m_{i1}, u_{i1}) \oplus (l_{i2}, m_{i2}, u_{i2}) \oplus \dots \oplus (l_{im}, m_{im}, u_{im}) = \left(\sum_{j=1}^{m} l_{ij}, \sum_{j=1}^{m} m_{ij}, \sum_{j=1}^{m} u_{ij}\right) = (l_i', m_i', u_i') \quad (2)$$

Also to obtain $\left[\sum_{i=1}^{n}\sum_{j=1}^{m} M_{g_i}^{j}\right]^{-1}$ by the fuzzy addition operation, we will have:

$$\sum\sum M_{g_i}^{j} = \sum_{i=1}^{n}\left(\sum_{j=1}^{m} l_{ij}, \sum_{j=1}^{m} m_{ij}, \sum_{j=1}^{m} u_{ij}\right) = \left(\sum_{i=1}^{n} l_i', \sum_{i=1}^{n} m_i', \sum_{i=1}^{n} u_i'\right) \quad (3)$$

And then compute the inverse of the vector in the equation (3)is then obtained equation 4:

$$\left(\sum_{i=1}^{n}\sum_{j=1}^{m} M_{g_i}^{j}\right)^{-1} = \left(\frac{1}{\sum_{i=1}^{n} u_i'}, \frac{1}{\sum_{i=1}^{n} m_i'}, \frac{1}{\sum_{i=1}^{n} l_i'}\right) \quad (4)$$

There for:

Step 2: Assessment of degree of priority:

The degree of priority S_i to S_k is$S_i = (l_i, m_i, u_i)$and $S_k = (l_k, m_k, u_k)$then the priority of S_i to S_k which is indicated by $V(S_i \geq S_k$ is described as equation 6:

$$V(S_i \geq S_k) = \sup_{x \geq y}\left(\min\{\alpha_{S_i}(x), \alpha_{S_k}(y)\}\right) \quad (6)$$

And the below equation is true for triangular fuzzy number:

$$V(S_i \geq S_k) = \alpha_{S_i}(d) = \begin{cases} 1 & if (m_i \geq m_k) \\ 1 & if (l_k \geq u_i) \\ \dfrac{l_k - u_i}{(m_i - u_i) - (m_k - l_k)} & otherwise \end{cases} \quad (7)$$

Where$d$ is the highest intersection point$\alpha_{S_i}$and sees Figure 3.3)

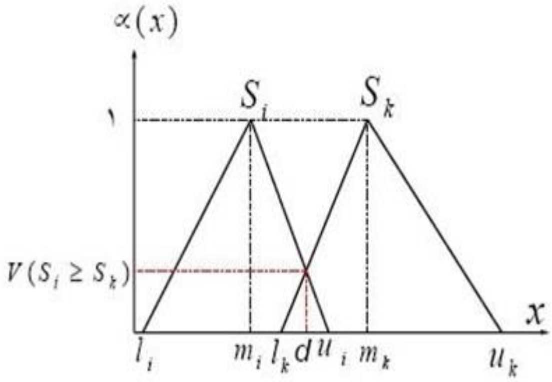

Figure 3.3. Intersection point of α_{S_k} andα_{S_i}

To compare andS_k; we need both the values of $V(S_i \geq S_k)$and.

Step 3: The degree possibility for a convex fuzzy number to be greater than *k* convex fuzzy numbers S_i (*i =1, 2, 3, 4, 5, ..., k*)can be defined by (Wang et al., 2008)

$$V(S \geq S_i, S_2, \ldots, S_k) = V\big((S \geq S_1), (S \geq S_2), \ldots, (S \geq S_k)\big)$$

$$= \min\big(V(S \geq S_1), V(S \geq S_2), \ldots, V(S \geq S_k)\big) = \min V(S \geq S_i) (8)$$

$$i = 1,2, \ldots, k$$

If $d'(A_1) = \min V(S_i \geq S_k)$ for$(k = 1,2,\ldots,n \quad k \neq i)$ then the weight vector is given in equation 9 (It is note worthy that the obtained weights are fuzzy):

$$W' = \left(d'(A_1), d'(A_2), \ldots, d'(A_n)\right) \quad (9)$$

Where A_i *(i =1, 2, 3, 4, 5, 6, …., n)*are *n* elements.

Step 4:Normalization of vector Ŵ and obtaining weight vector of normalized weight of W.

$$W = \left(d(A_1), d(A_2), \ldots, d(A_n)\right) \quad (10)$$

3.2. Algorithm of Fuzzy AHP in the method of Extent Analysis of Chang

The general process of algorithm of fuzzy AHP in the method of extent analysis of Change is as below:

Step 1. Building up a hierarchy for the problem

Step 2. Determining pair comparison matrices and judgment operations, in traditional state (absolute), table 3.1 is used for judgment operations; that is, the corresponding number is entered the pair comparison matrices by linguistic preferences.

But in the fuzzy state, we enter the sum of corresponding number with linguistic preferences in pair comparison matricesby triangular fuzzy numbers (Anagnostopoulos et al., 2007). Table 3.2 can be used in this regard. The fuzzy numbers given here are not equal to regular linguistic comparisons 1 to 9 but they are suitable for Fuzzy AHP and are used.

Table 3.2.corresponding fuzzy numbers with pair comparisons preferences

Linguistic Terms to Determine Preferences	Triangular Fuzzy Number
Preference or full & absolute importance	$(\frac{5}{2}, 3, \frac{7}{2})$
Preference or very stronger importance	$\left(2, \frac{5}{2}, 3\right)$
Preference or stronger importance	$\left(\frac{3}{2}, 2, \frac{5}{2}\right)$
Preference or little importance	$\left(1, \frac{3}{2}, 2\right)$
Preference or nearly equal importance	$\left(\frac{1}{2}, 1, \frac{3}{2}\right)$
Preference or equal importance	(1,1,1)

It is to be mentioned that all elements on the main diameter of pair comparison matrices are equal to (1, 1, 1) and if the element of row *i* and column *j* of pair comparison matrix is equal to $M_{g_i}^{j} = (l_{ij}, m_{ij}, u_{ij})$, then element of row *j* and column *i* of this matrix is equal to:

$$M_{g_i}^{j} = (M_{g_i}^{j})^{-1} = (l_{ij}, m_{ij}, u_{ij})^{-1} = (\frac{1}{u_{ij}}, \frac{1}{m_{ij}}, \frac{1}{l_{ij}})$$

Step 3. Computing relative weights of criteria and options

To compute the relative weight of the options with respect to each criterion and the relative weight of criteria with respect to object, we use the extent analysis method of Chang for each of pair comparison matrices. Therefore, a relative weight vector corresponding to that matrix is obtained for each matrix.

Step 4. Computing the final weight of the options

The final weight of the options is obtained by modulation of relative weights. The key criteria as mentioned before areC_1 (price), C_2 (C olprossesor), C_3 (capacity of customers (quantity)), C_4 (special features of telecommunications), C_5 (flexibility of the equipment in future), C_6 (the number of customers supported by each rack).

Table 3.3. Computing the final weight

Object	C1	C2	C3	C4	C5	C6
C1	(1,1,1)	$\left(1,\frac{3}{2},2\right)$	$\left(\frac{1}{3},\frac{2}{5},\frac{1}{2}\right)$	$\left(2,\frac{5}{2},3\right)$	$\left(\frac{2}{7},\frac{1}{3},\frac{2}{5}\right)$	$\left(\frac{5}{2},3,\frac{7}{2}\right)$
C2	$\left(\frac{1}{2},\frac{2}{3},1\right)$	(1,1,1)	$\left(\frac{2}{7},\frac{1}{3},\frac{2}{5}\right)$	$\left(\frac{5}{2},\frac{1}{2},\frac{2}{3}\right)$	$\left(\frac{5}{2},\frac{1}{2},\frac{2}{3}\right)$	$\left(\frac{1}{2},\frac{2}{3},1\right)$
C3	$\left(2,\frac{5}{2},3\right)$	$\left(\frac{5}{2},3,\frac{7}{2}\right)$	(1,1,1)	$\left(1,\frac{3}{2},2\right)$	$\left(1,\frac{3}{2},2\right)$	$\left(\frac{3}{2},2,\frac{5}{2}\right)$
C4	$\left(\frac{1}{3},\frac{2}{5},\frac{1}{2}\right)$	$\left(\frac{3}{2},2,\frac{5}{2}\right)$	$\left(\frac{1}{2},\frac{2}{3},1\right)$	(1,1,1)	$\left(\frac{3}{2},2,\frac{5}{2}\right)$	$\left(1,\frac{3}{2},2\right)$
C5	$\left(\frac{5}{2},3,\frac{7}{2}\right)$	$\left(\frac{3}{2},2,\frac{5}{2}\right)$	$\left(\frac{1}{2},\frac{2}{3},1\right)$	$\left(\frac{2}{5},\frac{1}{2},\frac{2}{3}\right)$	(1,1,1)	$\left(\frac{1}{2},\frac{2}{3},1\right)$
C6	$\left(\frac{2}{7},\frac{1}{3},\frac{2}{5}\right)$	$\left(1,\frac{3}{2},2\right)$	$\left(\frac{2}{5},\frac{1}{2},\frac{2}{3}\right)$	$\left(\frac{1}{2},\frac{2}{3},1\right)$	$\left(1,\frac{3}{2},2\right)$	(1,1,1)

$$\sum_{j=1}^{6} M_{g_1}^{j} = (1,1,1)\oplus\left(1,\frac{3}{2},2\right)\oplus\left(\frac{1}{3},\frac{2}{5},\frac{1}{2}\right)\oplus\left(2,\frac{5}{2},3\right)\oplus\left(\frac{2}{7},\frac{1}{3},\frac{2}{5}\right)\oplus\left(\frac{5}{2},3,\frac{7}{2}\right)$$
$$= (7/116,8/733,10/4)$$

$$\sum_{j=1}^{6} M_{g_2}^{j} = (3/086,3/667,4/733);\ \sum_{j=1}^{6} M_{g_3}^{j} = (9,11/5,14)$$

$$\sum_{j=1}^{6} M_{g_4}^{j} = (5/883,7/567,9/5);\ \sum_{j=1}^{6} M_{g_5}^{j} = (6/4,7/883,9/667)$$

$$\sum_{j=1}^{6} M_{g_6}^{j} = (4/286,5/5,7/067);\ \sum_{i=1}^{6}\sum_{j=1}^{6} M_{g_i}^{j} = (35/721,44/8,55/367)$$

$$(\sum_{i=1}^{6}\sum_{j=1}^{6} M_{g_i}^{j})^{-1} = (\frac{1}{55/367},\frac{1}{44/8},\frac{1}{35/721}) = (0/018,0/022,0/028)$$

$$S_1 = (7/116,8/773,10/4)\otimes(0/018,0/022,0/028) = (0/128,0/192,0/291)$$

$$S_2 = (0/055,0/081,0/133);\ \ S_3 = (\ 0/162,0/253,0/392)$$

$$S_4 = (0/105,0/166,0/266)\ ;\ \ S_5 = (0/115,0/172,0/271)$$

$$S_6 = (0/077,0/121,0/198)$$

$$V(S_i \geq S_k)\ = \begin{cases} 1 & m_i \geq m_k \\ 1 & l_k \geq u_i \\ \dfrac{l_k - u_i}{(m_i - u_i) - (m_k - l_k)} & \end{cases}$$

$$V(S_1 \geq S_2) = 1, V(S_1 \geq S_3) = \frac{(0/162 - 0/291)}{(0/192 - 0/291) - (0/253 - 0/162)} = 0/153$$

$$V(S_1 \geq S_4) = 1, V(S_1 \geq S_5) = 1\ , V(S_2 \geq S_6) = 1$$

$$V(S_2 \geq S_1) = 0/043, V(S_2 \geq S_3) = 1, V(S_2 \geq S_4) = 0/248; V(S_2 \geq S_5) = 0/165$$

$$V(S_2 \geq S_6) = 0/583, V(S_3 \geq S_1) = 1, V(S_3 \geq S_1, S_2, S_4, S_5, S_6) = 1$$

$$V(S_4 \geq S_1) = 0/841, V(S_4 \geq S_3) = 0/545, V(S_4 \geq S_2) = 1, \qquad V(S_4 \geq S_6) = 1$$

$$V(S_4 \geq S_5) = 0/962, V(S_5 \geq S_1) = 0/485, V(S_5 \geq S_2) = 1, \qquad V(S_5 \geq S_6) = 1$$

$$V(S_5 \geq S_4) = 1, V(S_5 \geq S_3) = 0/574, V(S_6 \geq S_1) = 0/496, \qquad V(S_6 \geq S_2) = 1$$

$$V(S_6 \geq S_3) = 0/214, V(S_6 \geq S_4) = 0/674, V(S_6 \geq S_5) = 0/619$$

Now we obtain preferences of S_i:

$$\begin{aligned} V(S_1 \geq S_2, S_3, S_4, S_5, S_6) &= min(V(S_1 \geq S_2), V(S_1 \geq S_3), V(S_1 \geq S_4), V(S_1 \geq S_5), V(S_1 \geq S_6) \\ &= min(1,0/153,1,1,1) = 0/153 \end{aligned}$$

$$V(S_2 \geq S_1, S_3, S_4, S_5, S_6) = min(0/043,0/248,0/145,0/583) = 0/043$$

$$V(S_3 \geq S_1, S_2, S_4, S_5, S_6) = 1$$

$$V(S_4 \geq S_1, S_2, S_3, S_5, S_6) = \min(0/841,1,0/545,0/962,1) = 0/545$$

$$\mathrm{V}(\mathrm{S}_5 \geq \mathrm{S}_1, \mathrm{S}_2, \mathrm{S}_3, \mathrm{S}_4, \mathrm{S}_6) = \min(0/485,1,0/574,1,1) = 0/485$$

$$\mathrm{V}(\mathrm{S}_6 \geq \mathrm{S}_1, \mathrm{S}_2, \mathrm{S}_3, \mathrm{S}_4, \mathrm{S}_5) = \min(0/496,1,0/214,0/674,0/619) = 0/214$$

$$\mathrm{W}' = (0/153,0/043,1,0/545,0/214)$$

We calculate normalization of fuzzy numbers:

$$\mathrm{W} = (0/0627,0/0176,0/4098,0/223,0/1988,0/0877)$$

4. Applications of proposed method

Now we use the steps of the procedure to identify and rank functional factor of generating Corporate Entrepreneurship process as follows:

Step 1: Selecting a committee of experts including12 managers of Iranian Institutes.

Step 2: Developing the evaluation criteria and designing the fuzzy linguistic scale.

In our case the criteria are the critical success factors of **Corporate Entrepreneurship**, which were extracted by explanatory factor analysis. In this step also the different degrees of influence of a factor on the other factor are expressed in five linguistic terms :"Very High, High, Low, Very Low, and No influence and the corresponding positive triangular fuzzy numbers as mentioned before are shown in Table 4.1.

Table 4.1.The correspondence between the linguistic terms and linguistic values

Linguistic terms	***Linguistic values***
No influence (No)	(0, 0, 0.25)
Low influence(L)	(0, 0.25, 0.5)
High influence(H)	(0.25, 0.5, 0.75)
Stronglyinfluence(VH)	(0.5, 0.75, 1.0)

Table 4.2.Linguistic evaluation of criteria of voice of customer (example)

Step 3: Acquiring the assessments of decision makers. To measure the relationships between the critical success factors; $C=\{C_i|i =1, 2. . .6\}$

	C_1	C_2	C_3	C_4	C_5	C_6
C_1	--	VL	H	L	H	VH
C_2	NO	--	H	VL	NO	NO
C_3	H	VH	--	NO	L	L
C_4	L	L	VL	--	L	VL
C_5	VH	VL	VL	VL	--	VL
C_6	H	NO	NO	VL	VL	--

the group of the chosen experts(*17*people mentioned in step *1*)was asked to make sets of pairwise comparisons in terms of linguistic terms .Hence *17*fuzzy matrices each is corresponding to an expert and with triangular fuzzy numbers as its elements are obtained. For example matrix $\tilde{N}$ is as follows:

$$\tilde{N} = \begin{bmatrix} (0,0,0)(0,.25,.5)(.5,.75,1)(.25,.5,.75)(.5,.75,1)(.75,1,1) \\ (0,0,.25)(0,0,0)(.5,.75,1)(0,.25,.5)(0,0,.25)(0,0,.25) \\ (.5,.75,1)(.75,1,1)(0,0,0)(0,0,.25)(.25,.5,.75)(.25,.5,.75) \\ (.25,.5,.75)(.25,.5,.75)(0,.25,.5)(0,0,0)(.25,.5,.75)(0,.25,.5) \\ (.75,1,1)(0,.25,.5)(0,.25,.5)(0,.25,.5)(0,0,0)(0,.25,.5) \\ (.5,.75,1) \quad (0,0,.25) \quad (0,0,.25) \quad (0,.25,.5) \quad (0,.25,.5) \quad (0,0,0) \end{bmatrix}$$

step 4: Acquiring the normalized direct-relation fuzzy matrix. Consider a triangular fuzzy number ($\tilde{a}_{ij}$) according to equations *2* and *3* to calculate each direct–relation fuzzy matrix $\tilde{E}$ for each matrix. For example for matrix $\tilde{N}$, the normalized direct relation fuzzy matrix $\tilde{E}$ can be calculated by equations*2* and 3 as follows:

$$\tilde{E} = \begin{bmatrix} (0,0,0)(0,.059,.118)(.118,.176,.235)(.059,.118,.176)(.118,.176,.235)(.176,.235,.235) \\ (0,0,.059)(0,0,0)(.118,.176,.235)(0,.059,.118)(0,0,.059)(0,0,.059) \\ (.118,.176,.235)(.176,.235,.235)(0,0,0)(0,0,.059)(.059,.118,.176)(.059,.118,.176) \\ (.059,.118,.176)(.059,.118,.176)(0,.059,.118)(0,0,0)(.059,.118,.176)(0,.059,.118) \\ (.176,.235,.235)(0,.059,.118)(0,.059,.118)(0,.059,.118)(0,0,0)(0,.059,.118) \\ (.118,.176,.235) \quad (0,0,.059) \quad (0,0,.059) \quad (0,.059,.118) \quad (0,.059,.118) \end{bmatrix}$$

Step 5: The procedure of calculation matrix *T* (The total-relationmatrix)according to the Equations 4 is as follows:

$Matrix[L_{IJ}] =$

$$\begin{bmatrix} .066 & .026 & .13 & .063 & .137 & 0.195 \\ .017 & .022 & .122 & .001 & .009 & .01 \\ .147 & .183 & .039 & .009 & .079 & .087 \\ .075 & .061 & .016 & .004 & .069 & .014 \\ .188 & .005 & .023 & .011 & .024 & .034 \\ .126 & .003 & .015 & .007 & .016 & .023 \end{bmatrix},$$

$Matrix[M_{IJ}] =$

$$\begin{bmatrix} .196 & .173 & .269 & .188 & .285 & .341 \\ .065 & .064 & .206 & .076 & .047 & .047 \\ .293 & .302 & .122 & .077 & .206 & .218 \\ .219 & .183 & .144 & .056 & .189 & .142 \\ .33 & .135 & .154 & .122 & .1 & .168 \\ .24 & .049 & .065 & .1 & .126 & .078 \end{bmatrix}$$

$Matrix[U_I$

$$]= \begin{bmatrix} .64 & .59 & .719 & .569 & .729 & .7 \\ .424 & .293 & .508 & .342 & .367 & .349 \\ .748 & .622 & .482 & .436 & .621 & .598 \\ .642 & .531 & .53 & .333 & .569 & .5 \\ .671 & .471 & .514 & .429 & .41 & .493 \\ .609 & .37 & .409 & .388 & .463 & .338 \end{bmatrix}$$

$[T_{IJ}]=$

$$\begin{bmatrix} (.066,.196,.64)(.026,.173,.59)(.129,.269,.719)(.063, \\ (.017,.065,.424)(.022,.064,.293)(.123,.206,.508)(.001, \\ (.147,.293,.748)(.183,.302,.622)(.039,.122,.482)(.009, \\ (.075,.219,.642)(.062,.183,.531)(.016,.144,.53)(.004, \\ (.188,.33,.671)(.005,.135,.471)(.023,.154,.514)(.011 \\ (.126,.243,.609)(.003,.049,.37)(.015,.065,.409)(.007,.1 \end{bmatrix}$$

Step 6: After computing the matrix *T*, the amounts of $d"+r"$and $d"-r"$are calculated by Equations 5. d"\ and r"are sum of the rows and the sum of the columns of matrix *T* respectively .Table 4.3 illustrates the amounts of d" , r",$d"+r"$ and d" −r".

Table 4.3. Computing sums of، ،and

	d"	$r"$	$d"+r"$	$d"-r"$
C1	*(0.6166, 1.4518, 3.9463)*	*(0.6193, 1.346, 3.7338)*	*(1.2359, 2.7978, 7.6801)*	*(-0.0027, 0.1058, 0.2125)*
C2	*(0.1822, 0.5045, 2.2814)*	*(0.3012, 0.9056, 2.8769)*	*(0.4834, 1.4101,5.1583)*	*(-0.119, -0.4011,-0.5955)*
C3	*(0.5449, 1.2184, 3.507)*	*(0.3446, 0.9592, 3.1613)*	*(0.8895, 2.1776, 6.6683)*	*(0.2003, 0.2592,0.3457)*
C4	*(0.241, 0.9329, 3.1037)*	*(0.0955, 0.6221, 2.4959)*	*(0.3365, 1.555, 5.5996)*	*(0.1455, 0.3108, 0.6078)*
C5	*(0.2845, 1.008, 2.9877)*	*(0.335, 0.9531, 3.1581)*	*(0.6195, 1.9611, 6.1458)*	*(-0.0505, 0.0549, -0.1704)*
C6	*(0.1907, 0.6639,2.5768)*	*(0.3643, 0.9935, 2.9769)*	*(0.555, 1.6574, 5.5537)*	*(-0.1736,-0.3296, -0.4001)*

Step 7: Now we use the equation 6 for diffuzification of the amount of ($d"$) and ($r"$), ($d"+r"$)and ($d"-r"$) and convert to$d"^{def}$, $r"^{def}$, $(d"+r")^{def}$ and $(d"-r")^{def}$ respectively .These amounts are illustrated in the Table 4.4

Table 4.4. Computing sums of $d"^{def}$، ،and and *Fuzzy AHP*

	$d"$	$r"$	$d"+r"$	$d"-r"$	Fuzzy AHP
C1	1.777	1.667	3.446	0.108	0.063
C2	0.808	1.212	2.036	-0.329	0.018
C3	1.557	1.299	2.859	0.265	0.41
C4	1.27	0.93	2.204	0.326	0.223
C5	1.304	1.294	2.601	0.026	0.199

C6	0.984	1.294	2.287	-0.35	0.088

STEP 8: Then we draw the causal 4.1 Analysis of results diagram based on these calculations . Figure 4.1 illustrates the causal diagram of the criteria.

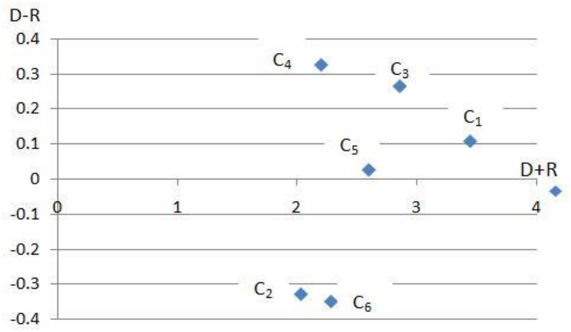

Figure 4.1. Diagram $d"_i + r"_j$ on axis x and $d"_i - r"_j$ on axis y.

Discussions and Conclusions

In column *d"*, elements C_1, C_2 and C_3accordingly indicate the most influence and in column *r"*, elements C_1 and C_3 are accordingly influenced more than other elements of this column. We know that every element in the hierarchy is determined b$(d"_i + r"_j)$y columns and $(d"_i - r"_j)$. In column $(d"_i + r"_j)$ where the total strength of an element either influencing or influenced are indicated, element C_1 has the highest priority and C_3,C_5,C_6,C_4 and $C_2$are accordingly placed from the second to the sixth rank. In column $(d"_i - r"_j)$, C_4‹C_3‹C_1andC_5 are influencing elements but C_6 and C_2 are influenced elements because they are negative. In table – the ranking of elements are calculated in the method of Fuzzy AHP where C_3, C_4, C_5, C_6,C_1 and C_2 are accordingly ranked from *1* to *6*. C_3 in $(d"_i + r"_j)$ ranking is the second but in $(d"_i - r"_j)$ ranking and the method of Fuzzy AHP, this element is placed the first rank. But C_2 is the last in both methods and elements C_5 and C_6 are the third and the forth in both ranking methods.

The findings of various tests regarding the ranking of organizational factors influencing corporate entrepreneurship (management support, available resources, corporate strategy, organizational structure, risk, reward systems, organizational culture) generally results in the following expression : The results of this study indicate that factors such as meritocracy, delegating tasks to be creative and innovative employees, employee participation in decision-making, which is an important component of management and entrepreneurship is essential for the Tehran government agencies, Paint is not very responsive to the needs of the organization. The findings of the study (1382), stating that an internal barriers to entrepreneurship, delegation is not consistent. Hystrych and Peters (1986), Kuratko (1993), Piers (1997); Vrslvt (2007); Haar D. (2008), Shaker et al (2009) in their study of the relationship between factors of delegation and supporting innovation and entrepreneurship have pointed out that confirms the results of this research.

Without a doubt, Leaders play a crucial role in the success of organizations and rudder are in the lead so entrepreneurial in them, an important factor in ensuring the success of the organization. The results of this study indicate that managers do not welcome challenges, lack of organizational skills among some managers, a shortage of creative people among managers, including barriers to entrepreneurship, organizational behavior is studied. Manager feature in addition to research Moghimi (1384), Research Markvska (2007), Hystrych and Peters (1986), Kuratko (1993), Piers (1997), Vrslvt (2007), Hart (2008), Shaker and et al (2009) study is approved.

Research study with Lewis (2001), Morris and Kuratko (2002), Kuratko and Gldzbay (2004) and Fox (2005) on organizational culture fit. Their own research and significant relationship between organizational culture and the role of entrepreneurship emphasis. Also grateful R et al (1386) as the main factors influencing corporate entrepreneurship has been done, that is consistent with the results of the present study.

Based on Burgelman & Sayles (1986) provide an organizational structure and administrative mechanisms for evaluation, selection, and implementation of ideas. The structure includes organizational boundaries. These boundaries may be real or mental, that can hinder or encourage employees to look at problems outside their own organizational tasks. So the results are inconsistent with the present results because the state institutions, organizational structure is only a means to achieve organizational goals posts is based on the organizational structure is considered as one of the factors affecting the CE.

Reward system for the study of organizational systems should develop their activities and granting it must be based on the realization of creative work. As contradictory, as long as payments based on performance incentives may be granted role-based behaviors, behaviors that may be related not to encourage creative activities and boundless empowering role. Thus, reward systems can have a significant impact on entrepreneurial activity. There may be a means to increase the activity and can be paid for and appreciation of other activities impeding entrepreneurial activity.

The third factor, resources (including , Time) and the access Query whether it is for entrepreneurial activity (Sliven and Quinn, 1997; Neal, 2002; Jan, 2002; Nvbva, 2003, Robert, 2009).The fourth factor, there is a supportive organizational structure (Zahra, 1991; Hvrnsby, 1993; J. and Sullivan, 2006; Sorensen, 2007; Kirchhoff and White, 2008; Chadrvn and Galantvn, 2008; Vanessa, 2010). The fifth factor, risk is Risk-taking refers to the willingness of organization members and the failure tolerance implies (Sadlr, 2001, Andrew, 2003; Roper and Cheney, 2005; Alter, 2006; Prague Vrslvt, 2007, Hart, 2008; Lee Pitts, 2009). Fuzzy DEMATEL method as a very useful group decision making tool has been used to transform the complex interactions between the criteria of the problems of practical life into a visible structured model. In this paper this method is proposed and applied to find the cause and effect critical success factors of voice of customer, which have been extracted by the explanatory factor analysis method.

Hence, the DEMATEL method can convert the relationship between the causes and effects of criteria into an intelligible structural model of the system. The DEMATEL method has been successfully applied in many fields.

Using multiple fuzzy decision making in ranking success factors of corporate entrepreneurship is also effective in Iranian Institute. Fuzzy AHP is one of the fuzzy ranking methods pairwise comparison criteria but Fuzzy DEMATEL was developed to solve very complicated issues of the world and it is used to structuralize the hypothetical information. With this method, it is possible to estimate the quantity of the effects of direct and indirect relations of elements with each other and promote the quality of relations and interrelations of the group. It is also used in group decision making. Fuzzy DEMATEL can be used together with models such as Fuzzy QFD. In this model, the calculation can be easily performed by software such as MATLAB, EXCEL, MINITAB and SPSS. In group decision making, this model is preferred to other fuzzy models such as Fuzzy AHP.

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