Designing Fuzzy Expert System to select managers based upon competency. Case Study: Middle Managers of Automobile manufacturing company (Iran Khodro)

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Abstract

An essential and inevitable component of the efficiency of an organization is efficient managers. This study aims to design a fuzzy expert system in order to select Automobile manufacturing company middle managers based upon their competency. In contrast to conventional methods, which restrict assessment and measurement to specific criteria and supervisor's opinion, this research provides a comprehensive study to measure and compare managers' abilities. Thus, it has an applicable aspect. In terms of data collections and variables construct, this study is a descriptive research aims to modeling. The method of collecting data is field work and documentary research uses databases and experts' opinions. In order to construct a model, it used a mathematical framework (fuzzy Inference system). After designing a conceptual framework and verifying its validity, a MATLAB fuzzy toolbox has been used to design a fuzzy Inference system. In order to measure competency of a manager, a fuzzy deductive system has been designed at three levels. Sensivity analysis and limit analysis were used to measure the validity of the model. Finally, the designed model has been implemented in the area of research.

Keywords: Selecting Managers, Managers' Competency, Designing Fuzzy Expert System, Assessment of Managers

Introduction

In global economic, human resources have been acknowledged as a source of competitive advantage (Nagadevara, 2008). Talent management, which is defined as "absorption, development, and maintenance of key and highly potential employees", is one of the key objectives of human resource strategic economics (Chien, 2008). Talent management, which starts by finding right individuals and right selection of employees, leads to organizational success (Risavy, 2011). Considering this fact, an essential and inevitable component of the efficiency of an organization is efficient managers. Qualitative aspects of managers are a determining factor in continuity of an organization's prosperity (Ghasemi, 2011). Therefore, managers' selection necessarily is one of the most important and crucial practices which is conducted in the entire process of management (Niromand, 2012). Selection is defined as selecting the most competent individual for a current or future position among internal or external applicants. Cognitive skill in high level requires managers who have enjoyed good training and education possessing high skills. Inability to employ such managers can prevent an organization from required growth. (Tosi, 2008)

Some scholars argue that absence of competent managers from the scene of Iran's administrative system is one of contributing factors to the failure in fulfilling function key objectives. (Sheikh, 2010) Managers' selection can be considered as a kind of management succession planning which refers to a regular process of identifying the best and the most competent internal people to fill key and crucial positions as the need arises (vacancy of management positions, and promotion) (Momeni, 2007)

In recent decades, competency management or competence-based management has been turned to be the axis of organizations' abilities to attract, maintain, train and promote their most important resources, namely human resources including both managers and employees (Fazl Abadi, 2010). Contrary to traditional approaches, which put emphasis on conventional tasks and roles of a manager, in a competence-base approach the focus of attention, are not only managers' roles but also capabilities necessary to efficiently conduct such a role (Mahmodi, 2012). Regarding assessment, selection and promotion of managers, management scholars seek to observe how successful managers behave and then, using social sciences, explore and identify underlying characteristics of such behavior. By doing this, they can assess and also equip applicants of management positions based upon these underlying characteristics. This approach is known today as competence-based approach (Dargahi, 2010). The main reason for popularity of this approach is that organizations involve in tense competition and are under pressure to reduce their expenses and continuously improve their performance. Therefore, they require initiating new and efficient efforts to build, maintain and enhance their capacities and, thus, their competitive advantages (Fazl & Abadi, 2010).

One of the basic steps in the employee selection process, and one of the most complicated and obscure issues confronting this proves is to define characteristics and indicators necessary to select the best available candidate, determine the most appropriate criteria and prioritize them (Jessop , 2004 and Lin, 2010).

Among different tasks of human resource management, selecting the most appropriate candidate in an objective and accurate way is one of the key factors contributing considerably to the quality of management (Golec, 2010). Therefore, it can have a positive and statistically significant effect on organization, its competitive power and future performance (Dursun, 2007). Employee selection is a process of selecting individuals who best conforms conditions necessary to conduct a required task. This process determines the quality of input staff and plays a fundamental role in human resource management.

Since managers are considered as strategic assets of an organization, placement as one of sub-systems of human resource management and selection, which is one of its components, requires more attention and sensitivity. In a dynamic environment, placement can be achieved only through a vivid human resource system aimed to enhance skills of human capital. (Yazdani , Tanaomi & Bahrami , 2012)

Generally speaking, factors for assessing and selecting an employee include characteristics of those current employees who successfully perform their tasks. Without access to a list of fundamental criteria, selection would be done inappropriately. In addition, if the list of required characteristics is too long, selection of employee would be impossible. (Golec, 2007)

Therefore, there are many factors and indicators to select employees. Here one can propose this question how and with the means of which tools the most appropriate criteria can be chose among the mass of existing factors and criteria. On the other hand, diversity of occupations requires setting characteristics appropriate to each position and taking into consideration the most influential factors necessary for the success and efficient performance of work force. This question, that for different positions which criterion and factor are the most important and influential one to select employees remains unanswered. Moreover, considering the type and nature of an organization, criteria and factors being set to select an employee for a given position may vary from an organization to organization. All this unexplored areas and unanswered questions indicate the significant importance of employee selection criteria and thus, the necessity of contribution to this area.

Therefore, using a developed model, a model that is commensurate with needs of organizations and determines appropriate criteria for each of different positions, particularly at

management levels, would equip organization and managers to a powerful means in order to overcome mistakes resulting from subjective judgments and restricted rationality. This aim, selecting competent and efficient work force has always been highly crucial and important at management levels. Thus, this study was designed to determine contributing criteria and factors in selecting middle managers in universities. Defining competence and skill, this study seeks to provide variables and criteria to measure managers' capabilities and competence using existing literature. This helps to systematize the manager selection process, particularly Automobile manufacturing company managers, and avoid personal opinions and tastes as far as possible.

In this regard, particular objectives are considered which are automating the selection and appointment of directors and evaluation of the current directors for the screw. Accordingly, in order to achieve the objectives of the research questions was developed as follows.

1. What are the components of the competencies that are fundamental to the design concept?

2. How can relations with regard to components, evaluation of competency management?

3. How can the use of experts and fuzzy inference system, the appropriate expert system be designed?

Background Research

Given the importance of human resources in the field of organization studies has been done. Gülek and Khya of a fuzzy model for the measurement and selection of employees based on merit have used. In this paper, a hierarchical structure based on merit and selection of staff is provided for measuring the correct (Gülek and Khya, 2007). Poli Cheroniu made of paired comparisons and TOPSIS technique to select the staff in Greek private banks was used. The result shows that according to the criteria, weighting of criteria, and the distance between the ideal and non-ideal solutions is essential to select (Chrvnyv, 2009). Dursan and crack fuzzy multi-criteria decision approach for selecting staff have used. This study aims to provide insights for decision making problems with fuzzy information source and with any kind of data and numerical simulation (Dursan and Krzak, 2009). Guan Li Chen in the study as competence development among middle managers in Taiwan health department investigated techniques using AHP core competencies for middle managers' health. And concludes that using competency models designed to assess the core competencies for each person can be a weighted score based on merit for any post specified. And the right person for the job selected (Guan Li Chen, 2010). Jablonsky study fuzzy logic for measuring the competence of employees in the organization's learning. In this study, the fuzzy inference method used to obtain the level of staff competence. This study shows that the proposed model is useful for the detection of staff competence in learning organizations (Jablonsky, 2010). Hong also process network analysis and fuzzy DEA's staff selection. The researcher said that the current process of selection to separate the two-step method, which adds management practices indicate that the separation between the first and second stages, the quality is lower management decisions in causing senior managers of unhappiness (Madlers 2010). Blizzard and colleagues fuzzy TOPSIS intuitive method for selecting staff has used. According to them, a set of intuitive fuzzy (IFS), based on the performance of members and non-members and taking into account a margin function described is certainly a good way to deal with ambiguity in dealing with a fuzzy set (Blizzard et al., 2011). Luis and Carlos Otero fuzzy architect to design a system for evaluating usability in environments that are skill-based pay. This research provides a layer of architectural connoisseurs as far as the sub-display can be specified for each industrial complex, specialized and tailored, where a model of fuzzy logic modeling capabilities vague and imprecise parameters described personnel. When measuring levels of skills and expertise in the full range of skills to assess the resource is well done (Luis and Carlos, 2012).). Another study entitled competency-based

selection and recruitment of human resources in construction projects carried out by King Hussein and the Sabbath in this study using fuzzy inference to design a model for the workers in construction projects has been (King Hussein Sabbath, 2011).

In this study, a model that has been developed for the selection of directors, based on a set of concepts that are derived from the literature was built. To determine the parameters and criteria of business studies and expert opinions have been used in this context. Site selection considering it is a measure of competence to measure merit an indicator of the skills and personal characteristics are used. To assess the skills of a manager four components of cognitive skills, design skills, technical skills and human skills and communication was evaluated and to measure individual characteristics according to literature and review models of three components: the internal competence, knowledge and Management and leadership characteristics that each of the criteria listed in Table 1 were used. In this study, after extraction of the 20 criteria of the theoretical framework and competency models have been proposed, attempted Classification criteria in the relevant components of consultation with experts, and the criteria that they overlap in the form of a standard expression of In all models that were less frequent criteria were excluded. The 15 indicators of competence in the form of 7 components according to Figure 1 are intended to be used for the survey of experts.
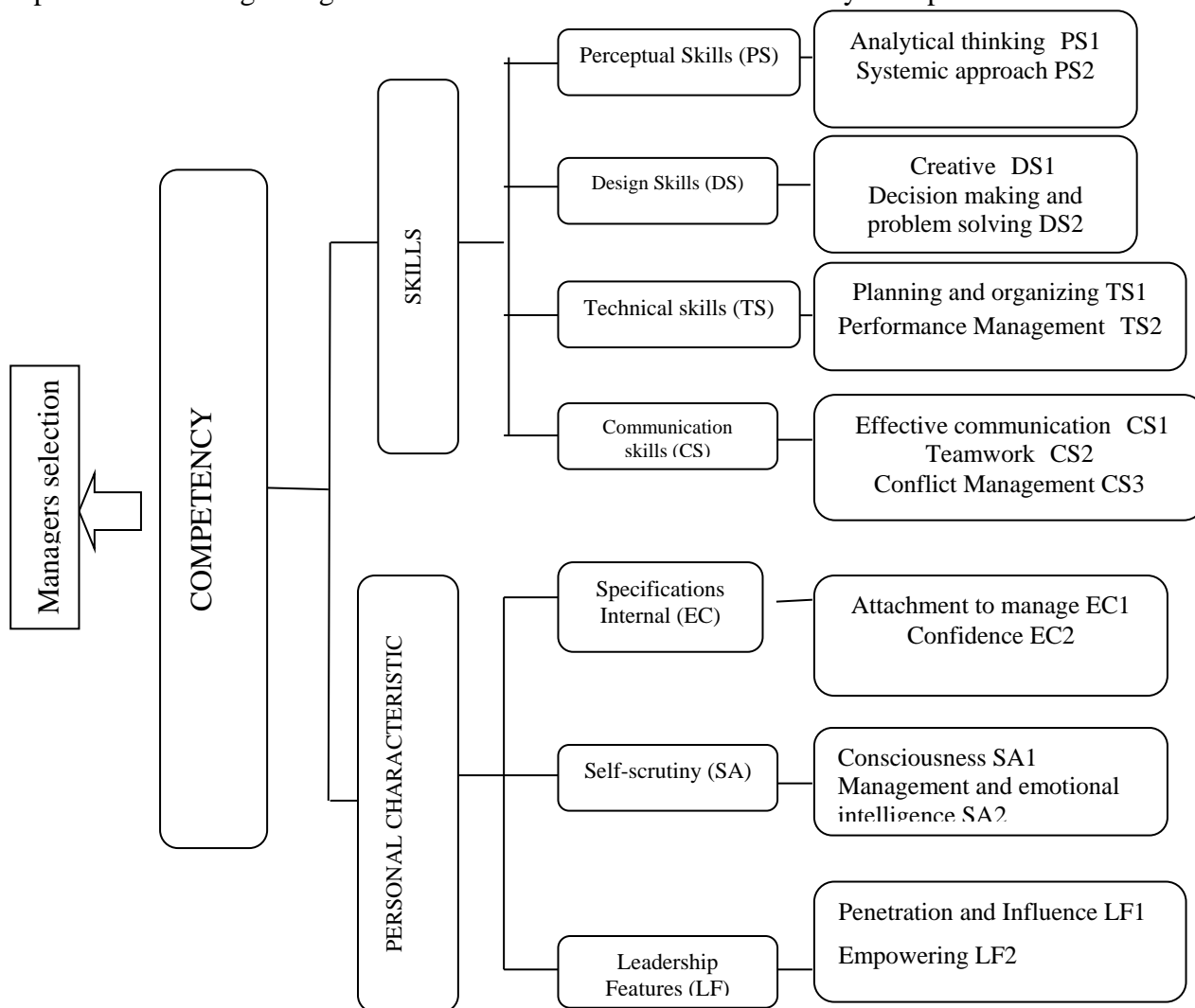

Figure 1: Conceptual Model

Table 1: The relationship between the standard model and theoretical foundations

Dimension	Components	Criteria	Theories and metrics associated with the component
Skills	Perceptual skills	Analytical thinking	Stone 2001, Dalviks 1989, Boyatzis 1982, Spencer and Spencer, canvas, 2001, creep and Mansfild 2003, Frydnbrg 2004, Yang and Dalvikz 2009
		System approach	
	Design Skills	Creativity	Spencer and Spencer, Goleman 2001, creep and Mnsfild 2003, Brukman 2007, Yang and Dalviks 2009, the company group in 2010
		Decision making, problem solving and dealing with crises	Canvas 2001, Stone 2001, Kuntz, Mintzberg, Schroeder, Sherman, 2001, creep and Mansfild 2003, Company Group 2010
	Technical skills	Planning and organization	Conger, 1999, Stone 2001, Sherman 2001, canvas, 2001, Kuntz, creep and Mansfild 2003, Mantell 2004, Frydnbrg 2004
		People and performance management units	Conger, 1999, Stone 2001, Sherman 2001, canvas, 2001, Kuntz, creep and Mnsfld 2003, Mantell 2004, Frydnbrg 2004
	communication skill	Listening and effective communication	Kuntz, Mintzberg, Mantel 2004, Spencer and Spencer, Schroeder, Conger 1999, Stone 2001, Goleman 2001, creep and Mnsfld 2003, Frydnbrg 2004, Aspndlav 2007, Yang and Dalvykz 2009
		Develop relationships and teamwork	Bvyatzys 1982, Conger 1999, Spencer and Spencer, Sherman, 2001, Stone 2001, Goleman 2001, creep and Mnsfld 2003, Frydnbrg 2004, Brykmn 2007, Aspndlav 2007, Yang and Dalvykz 2009, the company group in 2010
		Conflict Management	Mintzberg, Schroeder, Stone 2001, Goleman 2001
Individual characteristics	The internal	Attachment and having the motivation and energy management	Goleman 2001, creep and Mnsfld 2003, Aspndlav 2007, Yang and Dalvykz 2009
		Self-esteem and self-efficacy	Bvyatzys 1982, Spencer and Spencer, Schroeder, Goleman 2001, creep and Mnsfld 2003, Company Group 2010
	Self-knowledge and self-management	Consciousness	Mintzberg, Conger 1999, Goleman 2001, Aspndlav 2007, Brykmn 2007, Yang and Dalvykz 2009
		Self-management and having emotional and social intelligence	Bvyatzys 1982, Spencer and Spencer, Stone 2001, Goleman 2001, creep and Mnsfld 2003, Yang and Dalvykz 2009, the company group in 2010
	Leadership Characteristics	Influence others	Spencer and Spencer, Schroeder, Goleman 2001, creep and Mnsfld 2003, Company Group 2010
		Empowering others and seeking partnerships	Boyatzis 1982, Spencer and Spencer, Schroeder, Sherman, 2001, Conger 1999, Goleman, 2001, Stone 2001, creep and Mnsfld 2003, Yang and Daloykz 2009, the company group in 2010

Methodology

This study is an applied research. Since it provides a new model for characteristics of managers' competence using logical analysis and reasoning, its methodology can be considered as development methodology and in terms of data collection and variables construct is a descriptive research in the form of modeling. The method of collecting data is field work and documentary research uses databases and experts' opinions. In terms of implementation, this research is a practical one.

In order to construct a model, a mathematical model (fuzzy deductive system) was used. Fuzzy deductive system is a knowledge-based system, which includes fuzzy calculations based upon specific rules. Rules of coding in this system of knowledge are derived from human experiences and experts' opinions, and indicate the relation between inputs and outputs of system.

Fundamental steps in this research

In short, it can be said that this research includes three main steps:

The first step

• Determining components and criteria of measurement through exploring models and existing literature, and acquiring experts' opinions

• Designing conceptual model of the research

The second step: Designing fuzzy deductive system

The third step: Measuring managers' competence as a part of selection process based upon competence criteria, by using the designed fuzzy system

Reasons to use this mathematical model can be explained as follows:

• This model is flexible enough to accumulate variety of factors for measurement

• This model reduces complicated problems of managers' selection to simple and objectively judicable factors

• This model provides decision makers with a useful tools to measure and select in their respected organizations

Data collection methods

The method of data collection was experts' survey, which comprises two phases. In order to confirm the initial conceptual model and indexes of competence measurement, in the first phase a questionnaire was designed which includes each individual component of model and its related indexes. Then, experts express the extent of their agreement with each component by giving scores between zero and hundred. In the second phase, the questionnaire was designed and experts give score between zero and hundred to each manager regarding every single indexes of the model. Thus, the average score of each manager can be obtained based on indicators of competence.

Population

In order to verify factors and measure competency of middle managers, statistical population of this research includes experts who have been senior managers as well as Automobile manufacturing company professors in related majors.

The process of implementing fuzzy expert system

In order to design fuzzy system, MATLAB fuzzy logic toolbox was used. After designing the required fuzzy system, methods of limit analysis and sensitivity analysis were used to ensure the effective performance of this system in employees' selection. Finally, this system was used among middle managers of Automobile manufacturing company of Tehran. The designed expert system is a fuzzy expert system, which based upon linguistic variables as inputs produces outputs and after defuzzification offers them. In order to design such a system MATLAB software was used. At first input and output variables were determined for each component. To components of skills and

personal characteristics were determined as inputs to design the third level of fuzzy deduction system. In the second level a fuzzy deduction system was designed through four inputs of perceptual skill, technical skill, designing skill, and communicative skill to represent component of skill and three inputs of internal characteristics, self-awareness and self-management, and leadership to represent the component of personal characteristics. And in the first level, a deductive system with related input variables was designed for seven-folded components (perceptual skill, leadership). In short, it can be said that outputs of the first phase of deduction are inputs of the second phase and outputs of the second phase are inputs of the third phase of deduction.

Table 2: Some of the different levels of inference rules

The third base to derive competence A-25					
Individual characteristics	too much	High	Average	Low	very little
Skills					
too much	VH	VH	H	S	L
Great	VH	H	H	S	L
Average	H	H	S	L	L
Low	S	S	L	L	VL
very little	L	L	L	L	VL
Act 81 of second base to derive cognitive skills and design skills by taking high B-9					
communication skill	High	Average	Low		
Technical skills					
Great	VH	VH	H		
Average	VH	H	M		
Low	H	M	M		
9 of the 27 of second base to derive individual characteristics necessary in view of the high internal specification					
Having leadership characteristics	High	Average	Low		
Self Knowledge					
Great	VH	VH	H		
Average	VH	H	M		
Low	H	M	L		

And second base has been developed so other laws.

9 of the 81 law first base to derive cognitive skills			
Systematic approach PS2 Analytical thinking PS1	High	Average	Low
Great	H	H	M
Average	H	M	L
Low	M	L	L

For each input and output variables, fuzzy sets and membership functions were determined. Considering the implemented membership functions and experts' opinions, triangle membership function was used. This function was used for both input and output variables of all components in the first and second phases of deduction. For inputs of the third phase (skill and personal characteristics) a triangle membership function with five linguistic variables (very low, low, moderate, high, very high) was used and for its output (competency) a triangle membership function with five linguistic variables (very high, high, satisfying, low, very low) was used. Inputs

fuzzification is determining the input's degree of membership in different fuzzy sets via fuzzy deductive system. The input's degree of membership based upon triangle membership function was determined.

The next step is to set fuzzy rules in this system, which was done in the form of "if-then". Each rule comprises two parts: antecedent (if) and consequent (then). The consequent part is always a nominal phrase but the antecedent part includes several nominal phrases (several conditions) which are connected by logical "and" to each other.

For each level of fuzzy deduction, a separate rule set was constructed which operates on related fuzzy sets. For instance, nine rules were taken into consideration for the rule set at the third level. The number of entire rules depends on the number of inputs, number of different levels of components, and also type of defined fuzzy sets in database (number of linguistic values of each primary and secondary components and indexes). Table 2 indicates rule base related to different levels of deduction. That in order to understand the exact components of competency assessment in Figure 2, the main stages of fuzzy inference and model figure has been inserted.

For the first 6 Other Company News Rules similarly the output component has been developed.
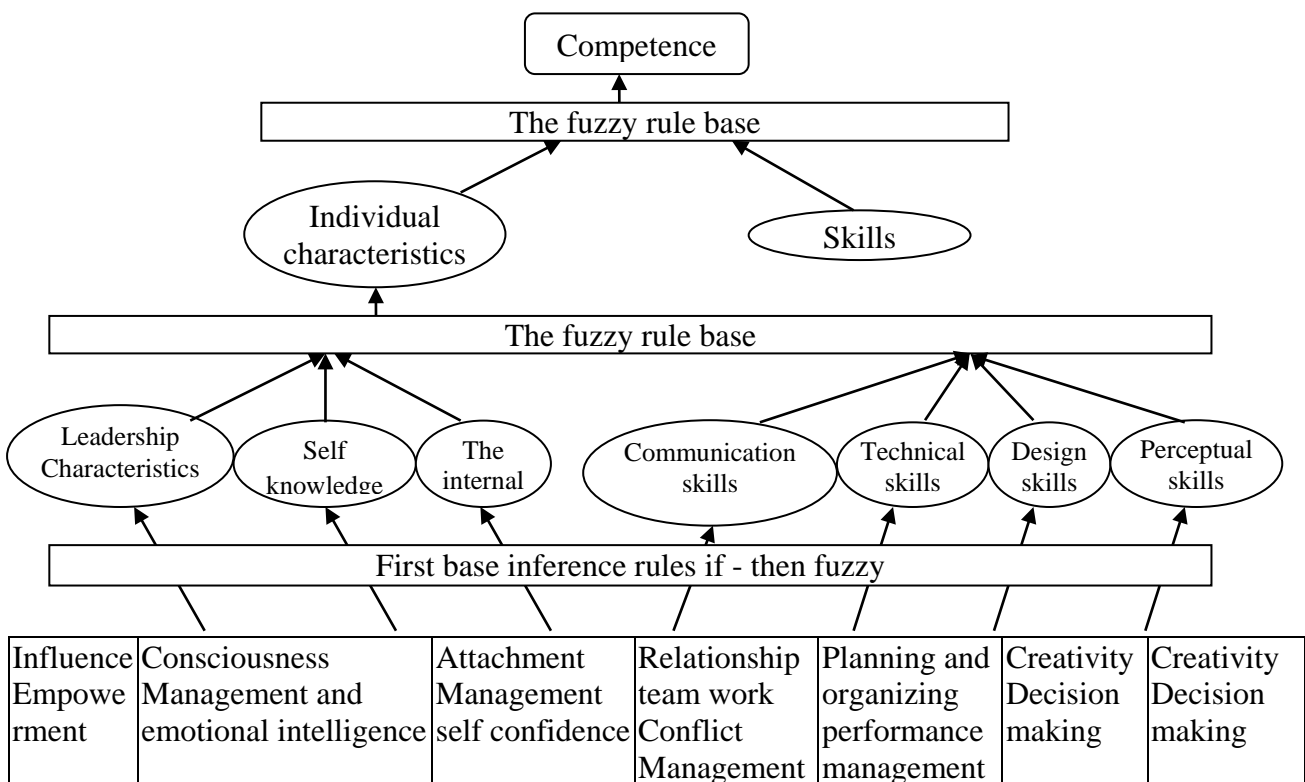
Figure 2: The components of competency assessment, the main stages of fuzzy inference model and configuration

Results of the study

The findings are presented in five parts

Validation of the conceptual model

In order to measure validity of the conceptual model, a questionnaire, which comprises three questions, was designed and distributed among 5 experts (university lecturers). The questionnaire includes questions to see how far experts agree statements in each level of fuzzy deduction.

Respondents express the extent of their agreement with the designed model in form of percentage. For instance, it was asked how far experts agree with determined components of skills. (Can indexes determined in the section of skills indicate skill of a manager regarding competency measurement?) Then, descriptive statistics was used to measure validity of the model. Regarding validation of models, generally 50% or more validation would be acceptable. However, in this research 70% or more validation was considered for entire questions of different levels. For each pattern, average and standard deviation of the data are as follows:

- Competence: average= 93.4, standard deviation= 8.6
- Kills: average = 89.40, standard deviation= 7.5
- Personal Characteristics: average= 90.40 standard deviation= 8.6

Considering the fact that all sections gained experts' approval, the designed conceptual model has enough validation to measure competency.

Designing fuzzy deductive system

This system comprises three levels. In the first level, each sub-component (perceptual skill, designing skill, technical skill, communicative skill, internal characteristics, self-awareness and self-management, leadership) is measured based upon determined indexes. The second level relates to measuring required skill and personal characteristics. In the third level, a manager competency is measured according to required skill and personal characteristics.

Input and output functions in different levels of deductive system

Inputs and outputs of the first level and inputs of the second level have been defined by three linguistic variables, low, moderate, high. However, outputs of the second level and, inputs and outputs of the third level have five-member set of membership including linguistic variables very high, high, moderate (acceptable), low, very low. Figures 3, 4 and 5 in each level shows the input and output functions.
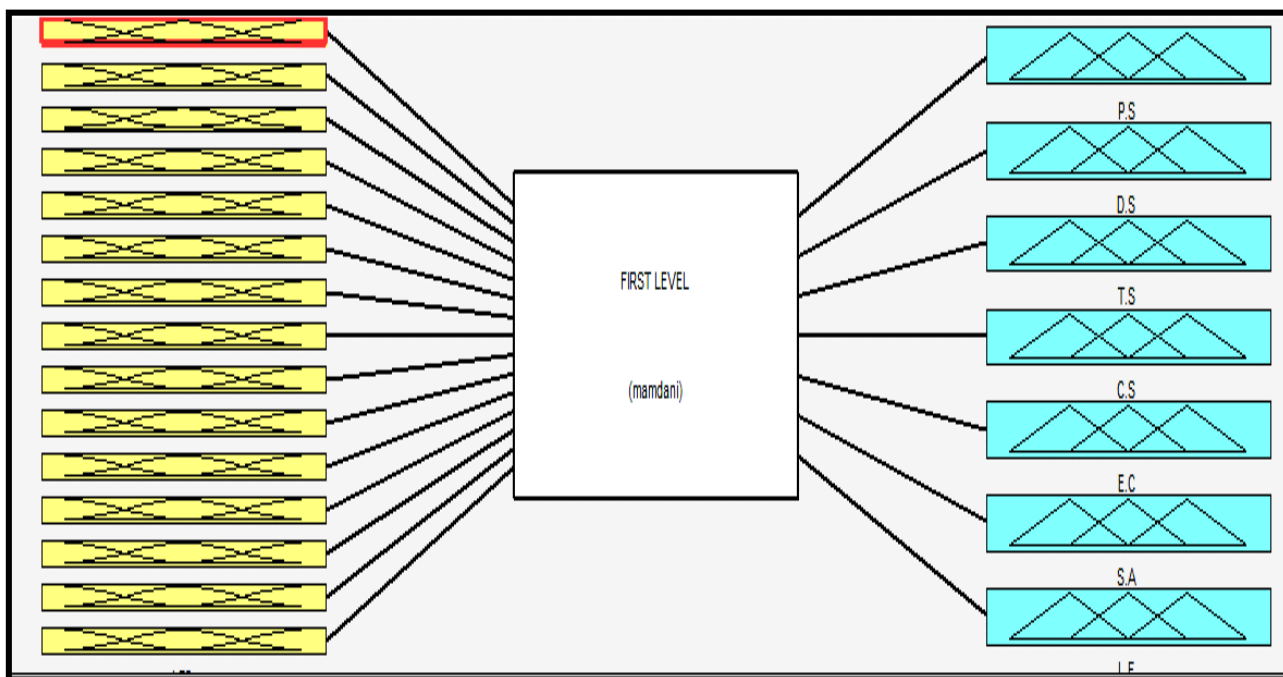

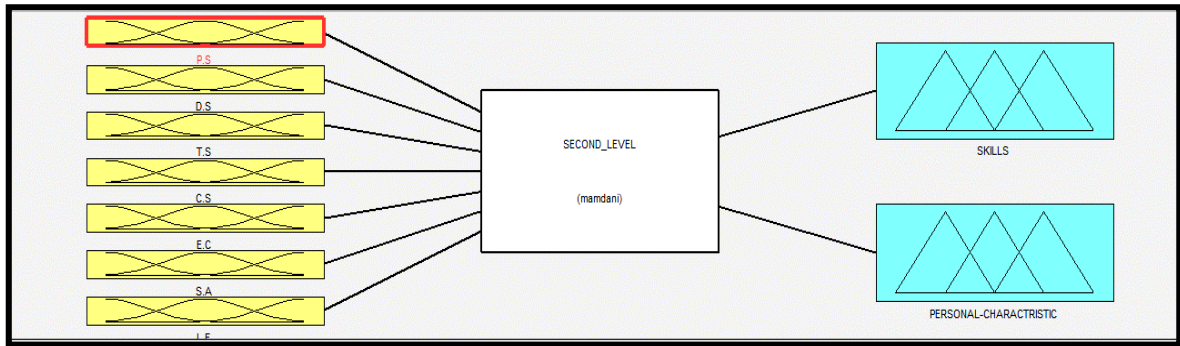**Figure 3: First level input and output functions**

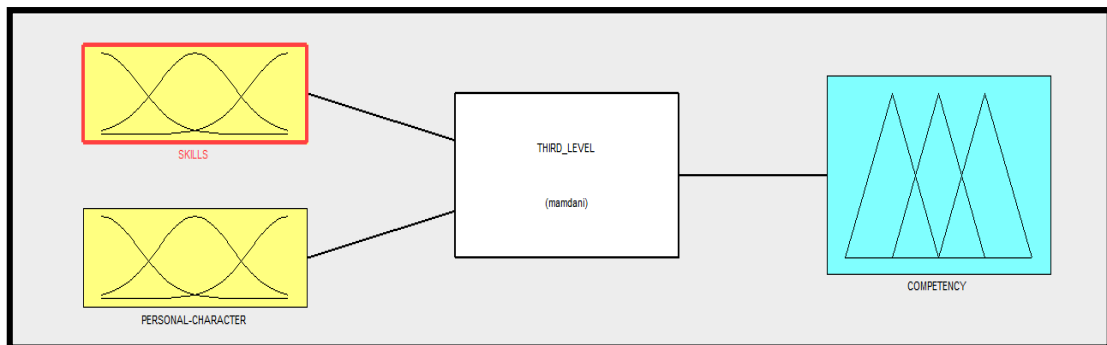**Figure 4: Second-level input and output functions**

Figure 5: Third-level input and output functions

Rules of deduction in each level

After defining output and input functions in three levels of deductive system, rules of deduction was implemented for each level (For example, refer to Figure 6). After this step, indexes of the first, second and third levels are illustrated as it shows in figures 7, 8, and 9.

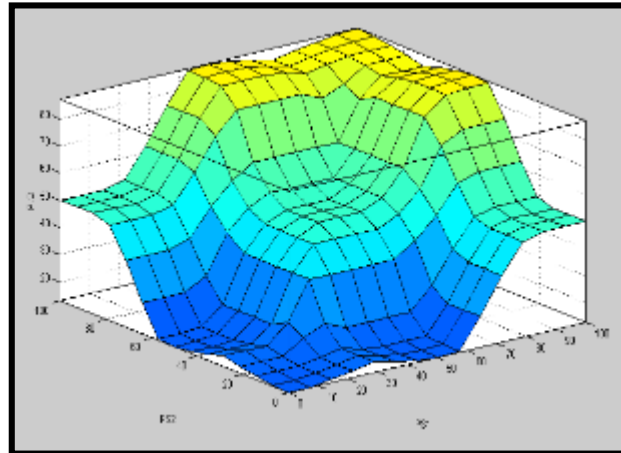**Figure 6: is an example of the first level rules**

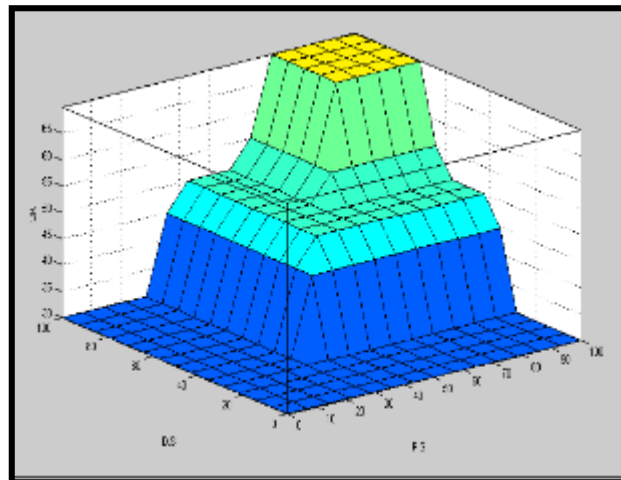**Figure 7: Indexes first – level**

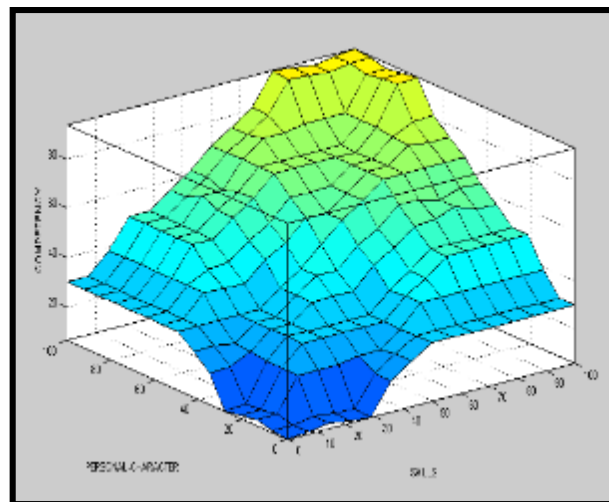**Figure 8: Indexes second -level**

Figure 9: Indexes third -level

After designing fuzzy deductive system, which was explained in the previous section and before implementing it in the case study, validity of the model was tested.

Validation and Limit Analysis

In this test, input variables of each deductive level in different modes of (very high, moderate, very low) were changed to examine the amount of sensitivity of model confronting these changes. For each of designed FIS, table 3 provides changes of the model in response to changes of input variables from very low (0) to very high (100). As it can be seen in table 3, the model behaves very logically in response to limit changes of inputs, which indicates validity of the model.

Table 3: Codes of evaluation indices 89347225

• Analytical thinking • The processing, evaluation, and analysis of information system • System approach	PS1
• Having a systematic approach • Creativity	PS2
• Creativity • A development-oriented spirit, inspire and the need for self-actualization	DS1
• Problem solving and decision making • Recognizing the actual situation and the desired situation and decision-making • The ability to resolve the crisis and help others in crisis	DS2
• Planning and organization • Planning and modify ongoing programs • Organize appropriate under the specific set of horizontal and vertical coordination structure	TS1
• performance management • Develop approval process for employees and managers about work force • Create an ongoing dialogue between managers and members • Create an atmosphere of dialogue to express the expectations of employees and awareness of the goals and values of the organization • Manage what employees are doing (farmers are), how to do it (behavior), and how to obtain it (the results of)	TS2
Relationship • Effective communication through the goals and wishes of the parties and the creation of relationship satisfaction for both parties • Having open and clear reaction to the statements and actions of others to express their feelings and thoughts to others • Empathy and common sense to others and put themselves in his place and sensitivity to the feelings of others • Make space-based communications draws • Avoid expressing definite and unmistakable confidence in dealing with Target • Ability to listen	CS1
Team work • Team building and foster a sense of trust in members • Select members with the appropriate abilities and skills of the team and flourish their talent	CS2
• Conflict Management • The ability to eliminate negative conflict when causing a split in the organization • Create conflict planned during the recession and adapting to employees with status quo	CS3
Attachment Management	EC1

• Interest in management, effort and time and energy to work • Having motivation and passion to carry out activities to achieve the goal	
Self-confidence • Having self-esteem • Having confidence in the ability of Guido belief about his chances in the successful implementation of an action	EC2
• Consciousness • Knowledge of the strengths and weaknesses and personal emotions and understand their impact on others	SA1
• Management and emotional intelligence • Emotional intelligence involves knowing the personal emotions, to apply the right emotions, motivating and recognizing the emotions of others and emotional control skills in others	SA2
• Influence • Ability to influence thoughts, feelings and attitudes of others and guided behavior on others	LF1
Empowerment • Empower subordinates and delegating to them and development capabilities and providing individual growth and development • Seeking partnerships and creating opportunity for employees to express their opinions on various matters	LF2
Perceptual skills	PS
Design Skills	DS
Technical skills	TS
communication skill	CS
The internal	EC
Self Knowledge	SA
Leadership Characteristics	LF

Table 4: Male Behavior against Expected Changes in Input Variables Third Level

FIS input		GIS output
Individual characteristics	Skills	Competence
0	0	6.99
50	50	49.90
100	100	93

Validation and Sensitivity Analysis

Sensitivity analysis deals with this question that when the amount of criteria increases or decreases by 5%, whether the same change occurs in outputs and consequently the ranking of options would change? To perform this analysis, by changing one factor at a time and keeping all other variables fixed to their central or baseline values, and observe what effect this produces on the output. Conducting this test on one of the respondents (Person A), it proved that changes in all variables of the model except self-confidence, self-awareness and self-management and emotional intelligence, has no effect on output. However, changes in three mentioned variables lead to increase in competency from 59.4 to 70, which clearly indicates the sensitivity of this model to change in mentioned variables. In other words, one can conclude that change in any of the above variables, at least 5% change, would lead to a considerable change in individual's competency.

Results of implementing mathematical model (case study)

Evaluation of managers' competency requires implementation of mathematical model in a scientific environment to enjoy results of model implementation. In order to achieve this objective, middle managers (head of departments) of Automobile manufacturing company, were chosen as statistical population. Automobile manufacturing company, comprises four faculties namely engineering, humanities, agriculture, and sciences. The head of each faculty who are lecturers in their respective faculties are selected for this research. Letters A, B, C, D represent each of these four managers. Survey form was filled by each expert and in order to accumulate their opinions, geometric mean of each criterion was calculated. Table 4 shows average score for each four manager per each indexes. Table 5 also provides results of implementing the model to measure individuals' competency. Considering defined membership function for the output of the model, competencies of all managers were measured medium and acceptable. C and D gained the highest and lowest rank of competency respectively. Scrutinizing into results, one can see that the weakest point of A, B, D is related to their technical skill. In other words, if the organization aims to plan for improvement of its managers, it seems that it should devote considerable effort to improve current managers' skills regarding planning, organizing and function management.

Table 5: Rating in every single test case manager's index

Stock assessment	Average Rating			
	A	B	C	D
Analytical thinking	67	61.60	71.72	56.92
System approach	68.17	72	63	61.92
Creativity	60.27	66.54	68.03	61.92
Decision-making and conflict resolutions	61.17	70.85	72.97	54.77
Planning and organization	57.91	59.58	64.02	61.17
performance management	65.93	74.15	68.36	61.17
Effective communication	77.07	72	69.64	67
team work	71.35	74.45	69.85	69.28
Conflict Management	52.64	64.21	68.52	60.19
Attachment to manage and keep motivation	66.83	73.26	76.37	64.02
Self-esteem and self-efficacy	72.08	64.81	69.28	61.92
Consciousness	72.74	64.47	64.02	59.58
Management and emotional intelligence	72.97	70.85	63.44	69.64
Influence	63	67.69	66.54	54.39
Empowering Others	63.44	68.79	58.56	64.02

Table 6: The Results of the Test to Assess Merit

The test subjects	FIS inputs			FIS outputs	FIS inputs				FIS outputs	Score Competence
	Leadership Characteristics	Self Knowledge	The internal	Individual characteristics	commu nication skill	Technical skills	Design Skills	Perceptual skills	Skills	
A	52.09	64.9	63.4	59.2	62.2	50	50.9	57.8	50	59.4
B	58.6	61.5	65.6	58.9	63.3	50	61.5	85.1	53.3	59.1
C	55.9	53.4	71.5	69.9	59.8	54.2	65	62.8	54	69.8
D	53.4	59.7	53.4	49.9	57.3	50.9	51.6	51.6	50	49.9

Conclusion

The results of this study showed that using 15 criteria can be based on theoretical principles, to determine merit pay executives. According to some analysis done in this regard has been shown that the model is fitted perfectly. The results showed Among the 15 measures components such as self-confidence, self-awareness and self-management and emotional intelligence are of the utmost importance and by increasing the amount of each of these criteria can be seen a significant increase in the level of management competence.

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