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Original Article

Fuzzy Analysis of Knowledge Management

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ABSTRACT

Background & Aim: Knowledge Management (KM) is widely known as a critical issue in offices, factories and organizations. The present study intends to predict the success or failure of KM implementation in the automotive industry.

Methods & Materials: we have tried to analyze and predict the degree to which how successfully we can implement KM in the automotive industry using fuzzy inference method (FIS). In this regard, after data collection, and employed FIS software to analyze our results.

Results: As our results show, the projected level for the implementation of KM in Iran Khodro was about 58%. Given that this study was conducted in five different, but related parts in Iran Khodro as well as these five sectors were less similar in terms of structure, individual and usage of technology, we should not expect similar results about the rate of implementing knowledge management.

Conclusion: Our results would be important and interesting, because they will provide the basis for how successfully establish KM in the automotive industry and similar organizations in order to improve the efficiency and productivity in organizations.

Introduction:

KM systems can help organizations to achieve their competitive advantage in the long term. But organizations also should consider an important component, i.e., the customer. By using customer km system, it is more likely that organizations identify emerging opportunities in markets and thereby increase their competitive advantage (1). Knowledge is strongly accepted as the key to success in knowledge-based economies, so as to it is one of the most important factors facilitating production and considered as the most competitive advantage in organizations. For the same reason, KM is increasingly accepted as one of the main actions of organizations to enter competitive markets and also to cope with new challenges in today's business landscape (2). Today, managers are well aware of the importance of KM in their organizations, and many of them are seeking ways to how successfully implement KM in their organizations. But at the same time they are too concerned about this issue that they should be able to successfully implement knowledge management, otherwise they would be failing about KM implementation. Therefore, given that the success of KM is a competitive necessity for organizations, it is important to know whether or not organizations are ready to accept knowledge management? In fact, leaders are asking themselves the question "Where to begin?", "Whether the organization is ready or not?" (3). Obviously, as long as the required fields are not suitable to use the knowledge, it cannot be expected the efficiency and effectiveness, resulting from knowledge and take advantage of its countless benefits. So, before any action to implement a KM system, the question arises in the mind of the researcher is that whether the current infrastructures of

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KM are suitable for implementing KM system? Because the automotive industry has been categorized in knowledge-based industries, they are then expected to apply KM perspective. Therefore, automotive companies in Iran country would be expected to properly utilize their knowledge resources and increase their productivity by giving more priority to the issue of KM. As noted earlier, in this study, we aimed to predict the success or failure of KM implementation using the Fuzzy Inference System in the automotive industry. In what continues, we will explain the necessity and importance of our research and will present our research objectives. To implement knowledge management, organizations should be capable in different contexts, such as technical, scientific or cultural. Recent improvements in information technology have considerably decreased the costs related to data management. These changes opened the way to enter the concepts of the learning organization, knowledge organizations and KM into the management literature. In traditional economies, companies are treated as a black box, in which sources of input and output factors and their related markets are investigated. But now most researchers are well aware of the major dynamics lies inside the black box that converts the implicit knowledge into goods and valuable services. By applying KM strategies, organizations not only would be able to facilitate innovation in their processes, activities, products, and services, but also improve their competitive position. In dynamic, challenging and competitive nature of today's business landscape, organizations should be able to be learning entities to succeed in such an environment. Today, organizations should increase their capabilities to acquire knowledge needed for innovation in products and processes. Also, organizations should diffuse this knowledge among their personnel to apply it in all of their daily activities. Only in this way is that organizations can respond to the requirements of such a competitive environment and highly changing customer needs (4). KM is a useful and systematic approach to identify, organize and share knowledge that could eventually lead to the more production of knowledge in the organizations. Today, senior managers in organizations realize that knowledge assets are of great importance, and there should be a great effort about managing knowledge and multiple processes laying in tacit knowledge (5). KM as a job and business strategy acts simultaneously on multiple boundaries and, in turn, provides a means for the overall progress of the plan in the organization. Organizations with KM can try to remove them in external challenges with relying more upon their internal strength. This process could be accomplished by using available knowledge and information resources, ICTs and their applications, and also by improving the relationship with clients and providers. The implementation of KM in automotive industry is one of the basic requirements and the necessary factors and infrastructures to implement KM are, in fact, the management considerations to ensure that knowledge resources are profitably used. Given the importance of the automotive industry in Iran as one of the most important industries in socioeconomic development, and also due to its significant revenue, it is important that KM should be seriously considered and identifies barriers to its establishment. In addition, with considering the current state of the automotive industry in the structural transition process (from semi-public to private), it is particularly important that managers should be aware of the role of knowledge resources in this process to apply these resources in an efficient and integrated manner. In literature knowledge management, so far a wide range of factors affecting successful knowledge management was identified. The first category of key factors to success knowledge management was determined. To be knowledge management success, 7 key factors were identified. These factors include: strong relation to business, perspective and mandatory architecture, knowledge leadership, the culture of creating and sharing knowledge, continuous learning, developed technology infrastructure, systematic organizational knowledge process. Literature showed that all factors are not important for small-scale projects (18,19). Knowledge Management is a term applied to techniques used for the systematic collection, transfer, security and management of information within organizations. Knowledge management is an organization way to manage knowledge, create values and improve competitive advantage or firm performance (20). Knowledge management have activities and we can call it knowledge management processes, i.e. knowledge creation, knowledge sharing, knowledge acquisition, knowledge

documentation, knowledge application, knowledge transfer, responsiveness to knowledge, and knowledge dissemination (21). The knowledge embedded within the organization is undoubtedly recognized as a key success factor for the competitiveness; but it is very difficult to take advantage of the available knowledge without technologies, knowledge processes and a well defined knowledge strategy (22).

Companies adopt a knowledge strategy to achieve the maximum advantage from the knowledge assets. Besides, through the utilization of the right technological tools and techniques companies are able to carry out their business goals more easily, implementing the most appropriate knowledge management processes. Technological applications play a fundamental role in facilitating the processes of knowledge generation, storage, sharing and application. Through these processes, it is possible to exploit the opportunities deriving from environmental changes (23). Technological tools are very useful in sustaining a knowledge management program. However, a technological infrastructure by itself does not guarantee the efficiency of a knowledge management system. The solution is based on the strategic integration among human and knowledge resources, technologies, organizational culture and processes. Through the suggested framework, once having recognized their strategic and organizational situation, companies are supported during the implementation of the entire knowledge management system (23).

The main objectives of this research are identified and classify factors contributing to success or failure in the path of implementing KM, and Predict how successful is implementing KM using the Fuzzy Inference System (Iran Khodro as a case study).

Method

According to Figure 1, the dimensions or hidden variables have been identified and the patterns of relationships between variables appear in the conceptual model.

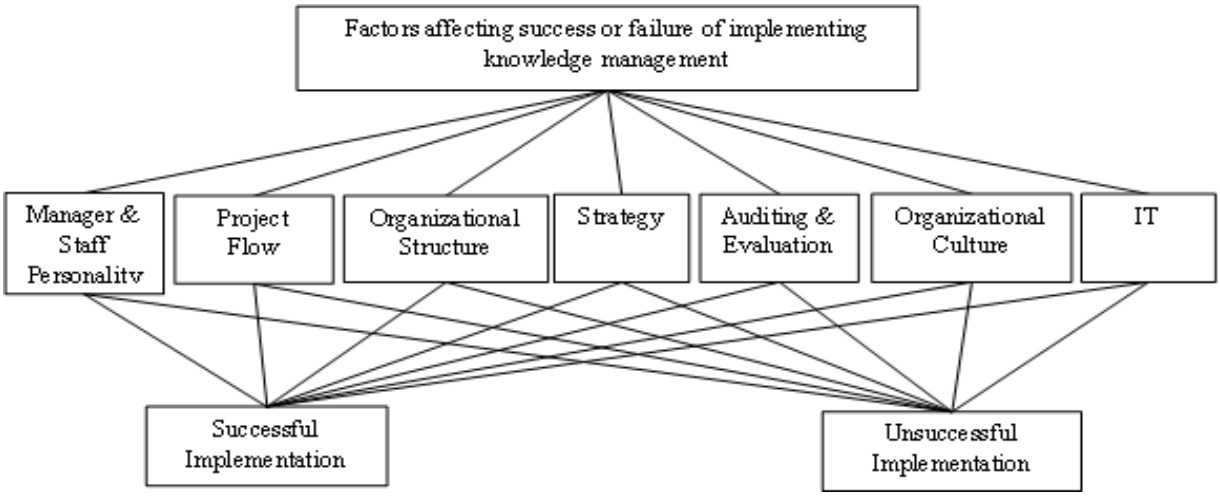

Figure 1: *Conceptual model of the study*

Research background examined the environmental effects of knowledge and information technology management on library culture and found that knowledge and information technology management injects new blood into the library culture, which, in turn, will lead to mutual trust, open communication, research, sharing ideas and improving the mechanism on knowledge performance in the libraries. The rapid evolution of computing technologies has changed the automotive product development process to a “digital business” where many digital information formats, internet, pervasive computing and wireless communication are shaping the business landscape. The automotive companies are also stating that they need to re-evaluate their value propositions and how they differentiate themselves from competitors. They are focusing resources on their core capabilities to realize their competitive advantage, and leveraging business partners to do the rest. Areas in which automotive companies are striving to

differentiate themselves include product development, innovation and cycle time. This involves the processes associated with the research and design of products and services that are sold to the customer. Innovation, fast-time-to-market and development of desirable products are key business goals. This entails the integration and collaboration of business partners to respond to an emerging opportunity, customer need or competitive threat. Goals include developing collaborative working relationships across the value net, integrated processes and systems, dynamic linkages to engage and disengage members of the value net, and to formalize the knowledge.Results also showed that IT has most effect on knowledge acquisition, information exchange and transfer within and outside the organization, and effective use of information (6). Drawing on theories of social and economic, in a study about "stimulate knowledge sharing through a KM system" sought to compare the effects of manager's supervision and organizational supports on number and rate of individual efforts about distribution of their valuable knowledge in a KM system (7). Results indicated that manager's supervision positively affected the number of efforts of individuals about their knowledge sharing in their organizations. However, unlike expectations, this supervision had a negative effect on rate of efforts that individuals directed to sharing their knowledge. When the system variables, i.e., the usefulness and ease of use, are strictly controlled, organizational support will have less effect on organizational outcomes. These results support the important role of economic incentives related to sharing knowledge and contrary to what was thought, these incentives showed less support than other organizational support incentives. Since this study was conducted in a military government agency, the influence that the type of organizations has on the research results cannot be ignored. Above mentioned researchers also believe that despite the oppositional results indicating the importance of culture related to knowledge sharing, their study indicates that the nature of organization may play an important role about the relationship between motivational attitudes and outcomes in organizational level. In a study about "The effect of organizational learning and social capital on knowledge transfer and organizational performance", they tried to examine the relationship between organizational learning and social capital and their effects on knowledge transfer and organizational performance (8). Using Nahapiet and Ghoshal's model of social capital, their study showed that both social capital and organizational learning have a positive effect on the effective transfer of organizational knowledge. They also reported that among components measuring social capital, structural dimension was significantly correlated more with financial performance than that of other dimensions. Moreover, findings indicate that organizational learning is more important than network communications about knowledge transfer. It investigated the critical success factors for the adoption of KM in small and medium-sized institutions (9). They developed a questionnaire consisting of 11 factors and 66 items and collect data from small and medium institutions in the UK and a team of instructors, consultants, and experts in the field of KM to develop a more general view of the key factors affecting knowledge management. These authors, then, used a series of statistical analyzes on data collected from these two groups and, in turn, a list of factors that are important for the implementation of KM were created. These factors include: strategy and goal, education, support and management leadership, culture, information technology, resources, human resource management, assessment, organizational infrastructure, and motivational supports (9). In another study about identifying the key success factors for implementing KM in small and medium-sized institutions, it was found that these factors do not cover the needs of smaller businesses. In this study, 11 factors were identified as key success factors for implementing knowledge management. These factors were: strategy and goal, education, support and management leadership, culture, information technology, resources, human resource management, assessment, organizational infrastructure, motivational supports, and processes and activities (10). After interviews with key personnel in the aerospace industry in Malaysia, it found four key concepts about knowledge management. The first concept, i.e., "consciousness sense" referred to understanding about the areas of KM and its application as a tool for organization and how

individuals perceive of KM in their organization. As the second concept, the advantage, reflects the competitive advantage resulting from applying KM. Internal factors as the third concept mean that how to get things done by the organization. Finally, the fourth concept, i.e., strategy represents the notion of adopting strategies that seek to transfer, collection, production, application and saving knowledge (11). It analyzed the key factors involved in the successful implementation of KM systems in order to achieve competitive targets. These authors introduced 10 factors to determine how successful the implementation of KM system is. These factors were: personnel training, leadership and top management commitment, trust and organizational culture, information system infrastructure, benchmarking, good teamwork, performance measurement, knowledge structure, personnel involvement, and personnel empowerment (12). It used factors developed by Chang and Choi (13) and investigated the implementation of eleven key factors related to KM and their differences in ICT companies who were working in Malaysia (14). He then identifies and evaluates the significance of several key factors to analyze the amount of implementing KM in Malaysian ICT companies. Factors used in this study were: personnel training, personnel involvement, team working, personnel empowerment, leadership and top management commitment, information systems infrastructure, performance evaluation, knowledge-supportive culture, benchmarking, knowledge structure, and tackling organizational constraints. He concluded that all 11 factors are important for successful implementation of knowledge management, but there is significant difference between the perceived importance of these factors and their level of implementation (15, 16). Library and field methods were used to collect data. Library methods were used to gather information about the literature and research background; Field methods were applied to collect primary data and information to confirm or reject the hypotheses of the study. To collect primary data, the instrument of questionnaire was used. The two main methods of data analysis were as follows: 1. Fuzzy Inference System: to predict the success or failure of KM implementation using FIS software; 2.To analyze data obtained from the questionnaires, descriptive and inferential statistics were used. In this regard, Spearman, chi-square and Pearson tests were applied to examine the hypotheses of the study using SPSS software.

The questionnaire included two questions: general and specialized. General questions consisted of questions about demographic characteristics of respondents: gender, age, marital status, educational level. Responses to each specialized question were rated on the five-level Likert scale

Table 1: Rating questions on the five-level Likert scale

Very low	Low	Moderate	High	Very high	Selected item
1	2	3	4	5	score

Content validity was used to check the validity of the questionnaire. In this regard, the questionnaire was sent to a number of scholars and faculty advisors to see how desirable the questions and hypotheses, resulted in the unanimously confirmed questionnaire were.

Reliability: One method of calculating reliability is the Cronbach's alpha coefficient. Cronbach's alpha coefficient for the scales more than 0.7 is considered as the optimal scale reliability.

Results

FIS software was used to analyze data. This method is based on Sugeno Inference System Approach that includes the following essential steps: 1. Fuzzification of input variables: receives inputs and determine the degree of their membership for each of fuzzy sets; 2. Rule evaluation: Create a fuzzy system with a set of rules of if-then fuzzy using an expert knowledge in the field of study; 3. Aggregation of the rule outputs: Calculate the final output using a weighted average. Normality test: We first used Kolmogorov-Smirnov Test to check the normality of our data (Table 2). In examining the normality of the data, the null hypothesis is based on the normal distribution at 5% error level.

Table 2: Test of normality of the data using Kolmogorov-Smirnov Test

	IT	OC	AE	ST	OS	PF	MSP
N	440	440	440	440	440	440	440
Kolmogorov–Smirnov	1.319	1.765	1.200	1.193	1.552	1.534	1.345
Significance level	0.062	0.393	0.112	0.116	0.162	0.181	0.054

Results of Kolmogorov-Smirnov Test in all cases was significantly more than the error level of 0.05. Thus, the data distribution is normal.

One-sample T-test: Using one-sample T-test and respondents' views, we analyzed the importance of each factor influencing the success or failure of KM implementation in the automotive industry. Because the data is collected with 5-point Likert scale, the average of 3 (the middle point of Likert scale) was used. Also, because this study used the confidence level of 95% as the reference point, the test will be confirmed if the calculation of the average about each component the test statistic (Significant level) is smaller than the critical value (Error level = %5). Results of one-sample T-test are shown in Table 3.

Table 3*: Results of one-sample T-test about personal factors*

Research hypotheses	T-value	Mean	Significance level	Confidence level 0.95	
IT	24.447	4.000	0.001	0.920	1.080
OC	26.582	3.982	0.000	0.909	1.056
AE	24.629	4.135	0.000	1.043	1.227
ST	23.406	3.983	0.000	0.899	1.066
OS	20.379	3.972	0.011	0.877	1.067
PF	28.759	3.940	0.000	0.875	1.005
MSP	33.070	4.119	0.000	1.051	1.186

As can be seen from Table 3, results of one-sample T-test for all variables based on the average of respondents view was higher than 3.000, which exceeds the median of Likert scale. The significant level was smaller than the error level of 0.05. Also, the lower and upper confidence interval values are greater than zero (positive). Values of T-statistic for all variables were higher than the critical value t0.05 (1.96) as well. Taken together, according to each of these statistical results with 95% confidence we can say that all variables of the study have a significant role in the success or failure of implementing KM in Iran Khodro industry. In general, two types of Fuzzy Inference System are proposed: 1. Mamdani Inference System, 2. Sugeno Inference System. In Sugeno method, we do not need to use defuzzification. Here, we applied Sugeno Inference System as main our fuzzy inference system to analyze our variables. As noted earlier, the steps required to implement fuzzy logic are as follows:

Fuzzification of input variables, Rule evaluation, Aggregation of Rule Outputs, Fuzzification of input variables. Receiving inputs and determine the degree of their membership to each of fuzzy sets is a first step in the fuzzy inference system. As mentioned, seven input parameters (IT: Information Technology (Figure 2), OC: Organizational Culture (Figure 3), AE: Auditing & Evaluation (Figure 4), ST: Strategy, OS: Organizational Structure (Figure 5), PF: Project Flow (Figure 6), MSP: Managers & Staff Personality (Figure 7)) and one output parameter (SE: Success Expectancy (Figure 8)) are used for fuzzy modeling. Membership functions for each variable were examined separately. Also, for each variable five trapezoidal function were used at the beginning, end, and medium

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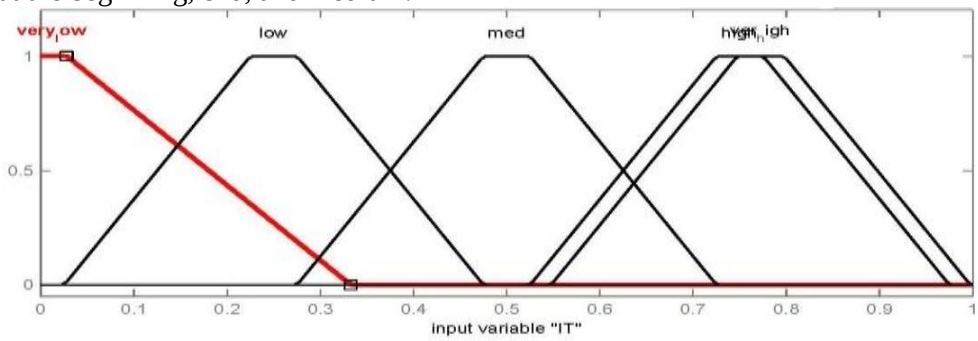

Figure 4: IT membership function

Fuzzification of input variables, Rule evaluation, Aggregation of Rule Outputs, Fuzzification of input variables. Receiving inputs and determine the degree of their membership to each of fuzzy sets is a first step in the fuzzy inference system. As mentioned, seven input parameters OC: Organizational Culture (Figure 3are used for fuzzy modeling. Membership functions for each variable were examined separately. Also, for each variable five trapezoidal function were used at the beginning, end, and medium.

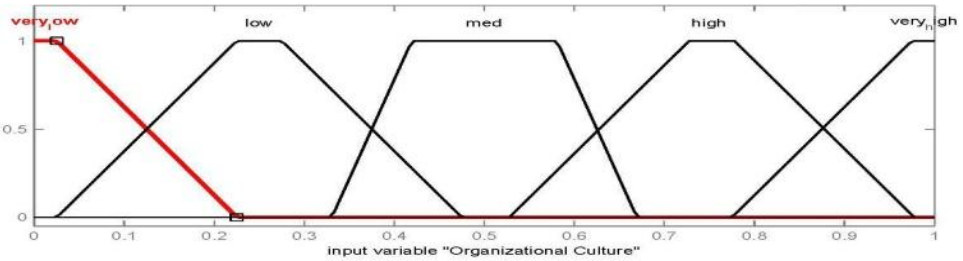

Figure 5: OC membership function

Fuzzification of input variables, Rule evaluation, Aggregation of Rule Outputs, Fuzzification of input variables. Receiving inputs and determine the degree of their membership to each of fuzzy sets is a first step in the fuzzy inference system. As mentioned, seven input parameters AE: Auditing & Evaluation (Figure 4) are used for fuzzy modeling. Membership functions for each variable were examined separately. Also, for each variable five trapezoidal function were used at the beginning, end, and medium.

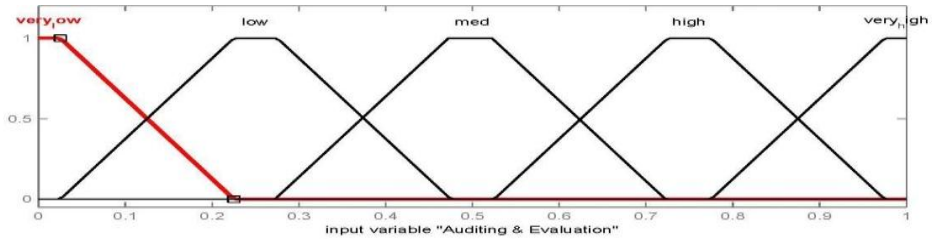

Figure 6: AE function

Fuzzification of input variables, Rule evaluation, Aggregation of Rule Outputs, Fuzzification of input variables. Receiving inputs and determine the degree of their membership to each of fuzzy sets is a first step in the fuzzy inference system. As mentioned, seven input parameters ST: Strategy, OS: Organizational Structure (Figure 5) are used for fuzzy modeling. Membership functions for each variable were examined separately. Also, for each variable five trapezoidal function were used at the beginning, end, and medium.

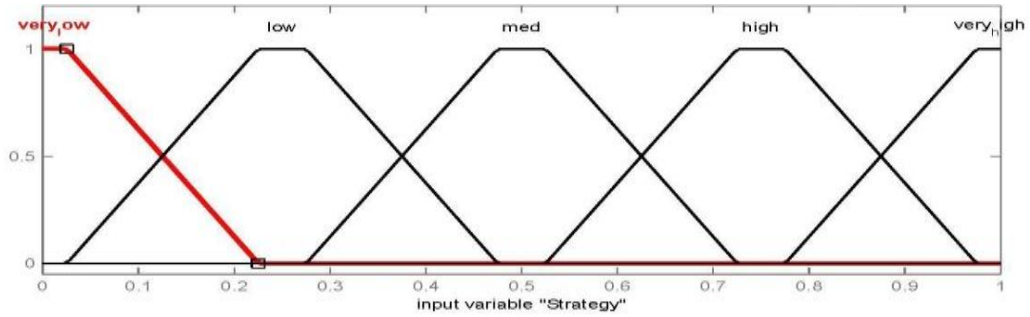

Figure 7: ST membership function

Fuzzification of input variables, Rule evaluation, Aggregation of Rule Outputs, Fuzzification of input variables. Receiving inputs and determine the degree of their membership to each of fuzzy sets is a first step in the fuzzy inference system. As mentioned, seven input parameters OS: Organizational Structure (Figure 6), are used for fuzzy modeling. Membership functions for each variable were examined separately. Also, for each variable five trapezoidal function were used at the beginning, end, and medium.

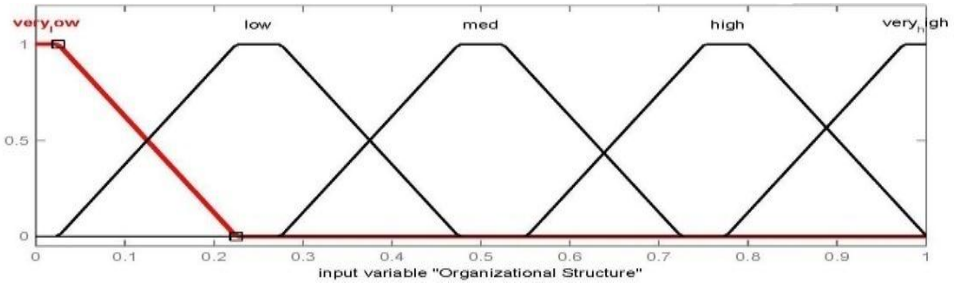

Figure 8: OS membership function

Fuzzification of input variables, Rule evaluation, Aggregation of Rule Outputs, Fuzzification of input variables. Receiving inputs and determine the degree of their membership to each of fuzzy sets is a first step in the fuzzy inference system. As mentioned, seven input PF: Project Flow (Figure 7) are used for fuzzy modeling. Membership functions for each variable were examined separately. Also, for each variable five trapezoidal function were used at the beginning, end, and medium.

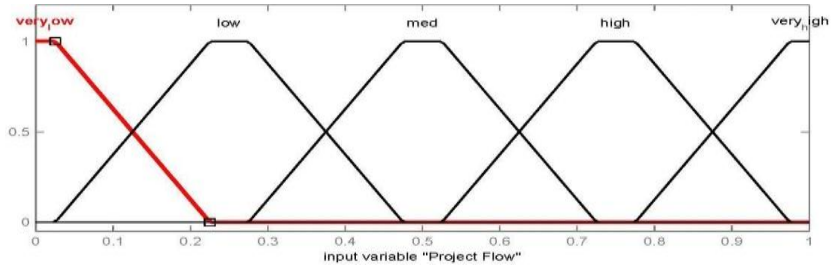

Figure 9: PF membership function

Fuzzification of input variables, Rule evaluation, Aggregation of Rule Outputs, Fuzzification of input variables. Receiving inputs and determine the degree of their membership to each of fuzzy sets is a first step in the fuzzy inference system. As mentioned, seven input parameters MSP: Managers & Staff Personality (Figure 8) are used for fuzzy modeling. Membership functions for each variable were examined separately. Also, for each variable five trapezoidal function were used at the beginning, end, and medium.

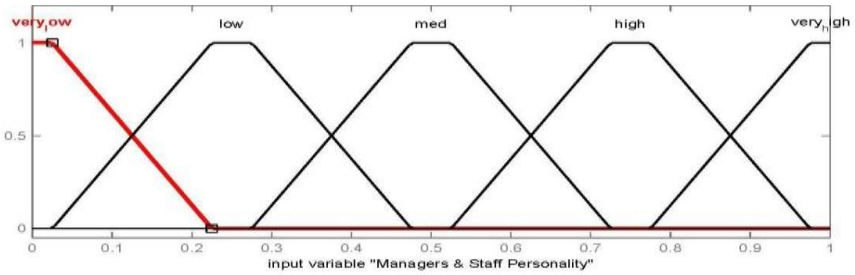

Figure 10: MSP membership function

Rule evaluation: The Heart of a fuzzy system is its knowledge base of rules (if-then fuzzy rules). In this paper, according to the number of input variables and their membership functions, we used 440 rules. An example of these rules is shown in Table 4. A rule in a Sugeno fuzzy model has the following general form: If X is A AND Y is B THEN Z is f f(x, y).Where: A and B are fuzzy sets and f (x, y) is a function in the part of rule output. Usually, f(x, y) is a polynomial with variables x, y.

Table 4: an example of fuzzy system rules

	IF							**THEN**
	Input variables							Output variable
S/N	IT	OC	AE	ST	OS	PF	MSP	SE
1	4.50	4.60	4.25	4.00	3.80	3.71	3.40	4.02
2	3.83	4.40	3.75	3.80	3.60	3.43	4.40	3.87
3	4.17	4.20	3.75	4.00	3.70	3.51	4.10	3.85
4	4.17	3.80	3.75	4.10	4.00	3.86	4.50	3.92
5	4.00	4.40	3.75	4.00	3.80	3.57	4.40	3.98

Aggregation of Rule Outputs: At this stage, the final output is calculated by using a weighted average. As noted before, this procedure avoids the defuzzification process

that mainly used in the Mamdani fuzzy method. Therefore, the weighted average was used, where the weight of each rule selected as 1.In turn, a fuzzy system was implemented. The following figure 9 shows an example of fuzzy system implementation.

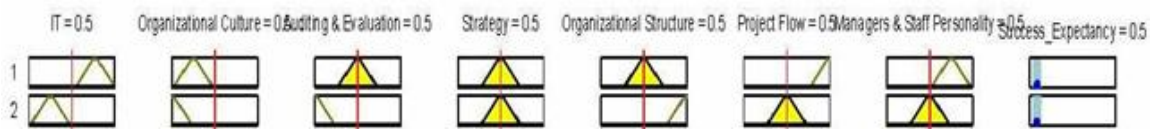

Figure 11: an example of fuzzy system output

Fuzzy modeling results: As mentioned previously, in the implementation phase of fuzzy system, 7 variables information technology, organizational culture, auditing and evaluation, strategy, organizational structure, project flow and the manager and staff personality were selected as input variables, whereas the output variable was success expectancy. In what continues, we presented a number of examples contrasting two input variables with output variable. Effects of IT on success expectancy are more than that of organizational structure, it is shown in Figure 10. Effect of organizational culture on output variable was far greater than that of AE (Figure 11). According to Figure 12, Effect of auditing and evaluation of output variable was far less than that of managers and staff personality. It can be said that strategy had much effect on success expectancy than that of project flow (Figure 13).

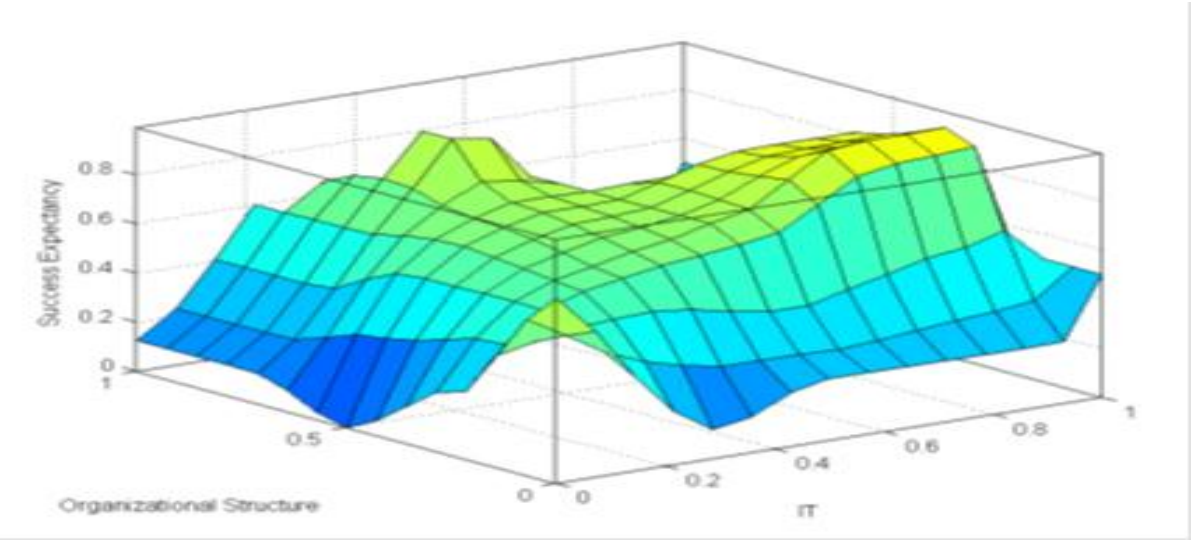

Figure 12: Effect of "IT" and "organizational structure"

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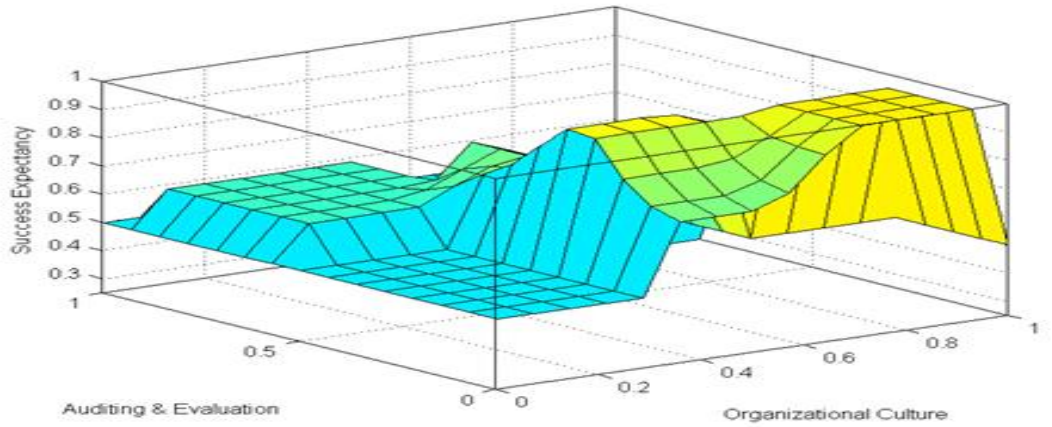

Figure 13: Effect of "organizational culture" and "auditing and evaluation"

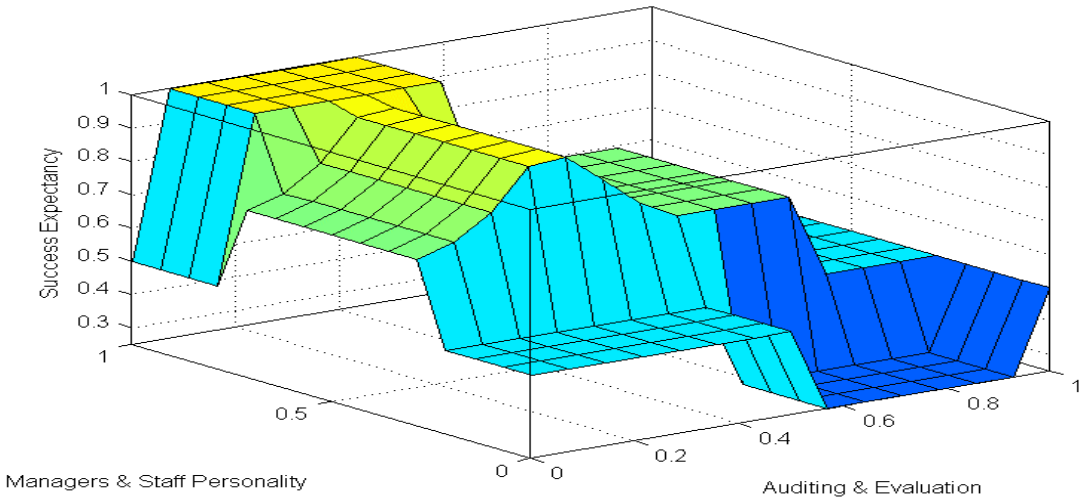

Figure 14: Effect of "auditing and evaluation" and "manager and staff personality"

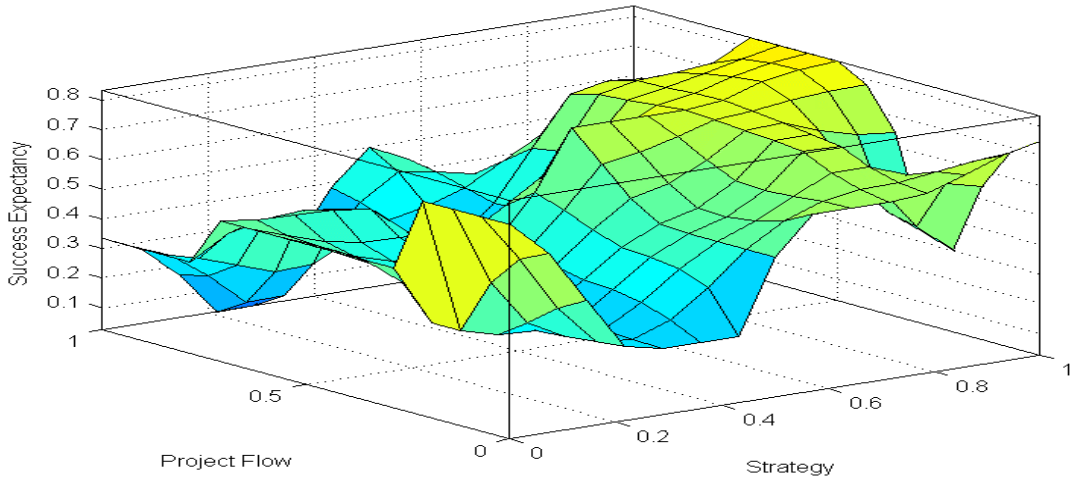

Figure 15: Effect of "strategy" and" project trend"

Our findings are shown that the success rate for implementing KM is about 58% in Iran Khodro. After analyzing results of fuzzy inference system as well as validating these results by conducting interviews with experts, the effect of each variable is obtained approximately as follows: Human factors (Organizational culture: %28; Manager and

staff personality: %18; Auditing and evaluation:%12); Technology factor (IT: %17); Structural factors (Strategy: %11; Organizational structure: %8; Project flow: %6).

Discussion

Philip Batt after a lot of research came to the conclusion that human factors are accounted for 70 percent of changes in explaining project implementation, whereas technological and structural factors each have 15% contribution to project implementation (17). Also, based on study by Peter Drucker about implementation and monitoring of projects like knowledge management, human factors did at least about 50% role, whereas the effects of technological and structural factors each were 25% (18). Taken together, our findings comparatively dovetail with these two studies confirming the accuracy of our results because the results obtained in the present study are amid these studies in terms of factors influencing implementation of knowledge management. We recommend as stressed before, due to the maximum effect of organizational culture and manager and staff personality of implementing knowledge management, these two categories may be particularly important when leadership intends to increase the probability of succeeding in the path of knowledge management.

Conclusions

As mentioned earlier, the implementation of KM in the automotive industry (Iran Khodro) has been faced with many challenges; therefore, we tried to identify and analyze the key factors affecting successful implementation of knowledge management. Despite considerable improvements in technology and human resources have been seen in the automotive industry and especially Iran Khodro Company over the past years, but the research did not show a high success rate. As our results show, the projected level for the implementation of KM in Iran Khodro was about 58%. Given that this study was conducted in five different, but related parts in Iran Khodro as well as these five sectors were less similar in terms of structure, individual and usage of technology, we should not expect similar results about the rate of implementing knowledge management. For example, this rate was about 72% in R & D sector and 67% in financial deputy. In production and inventory parts this rate was 37% and 42%, respectively. Also, department of Vehicle Engineering showed the rate of 62% about implementing knowledge management. In all parts, the greatest effect on the implementation of KM as human factor was exerted by first organizational culture, and then manager and staff personality. Another important indicator to successfully implement KM was information technology. Overall, to implement KM successfully, our results indicate that human, technology and structure factors are critically important, respectively. The researcher experienced various limitations in this research; financial constraints, one of the major problems that the researcher encountered is inadequate financial support which consequently slowed down the process of data collection and production of the final report of the study in time. Time constraints was a limitation as the research involved distributing questionnaires to different organizations most of whom were busy to spare enough time to respond. The duration within which the research was undertaken was also short leading to so much strain in time management and that's why the research focus on Iranian automotive industries only. Lack of corporation, the researcher experienced a lot of unwillingness to cooperate among most of the respondent organization, some never even responded and others even delayed in responding to the questionnaires. It was difficult to have face to face communication as most of the respondents preferred use of emails and this was the main challenge during the whole research period. The likert scale that was used might have produced some bias as it is possible that the respondents provided non-committal answers by responding to neutral range of scale. Some respondents were biased while giving information due to reasons such as privacy and busy Schedules at their work place. More research studies should be conducted to understand the implementation of KM management. Also, future research should seek to establish the relationship between the stablished of knowledge management and organizational performance and organizational learning in other industries.

Conflict of Interests

There is no confilict of research.

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