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# THE METHOD OF SELECTING CRITICAL SUCCESSFUL FACTORS TO KNOWLEDGE MANAGEMENT AND ITS AUTOMATION

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**ABSTRACT**

How to implement knowledge management is crucial to the enterprises, and different enterprise has different critical factors which also have different weight for different enterprise. The paper deeply analyzes all the important factors for the knowledge management implementation first. Then the paper proposes the invariance method to choose the critical factors and establishes the knowledge database of enterprise type to critical factors' weights. Finally, according to knowledge database, an automated factor choosing mechanism is established based on the fuzzy theory and neural network.

**Keywords:** *Knowledge Management, Key Factors, Factor Choosing, Automation*

## 1. INTRODUCTION

Experts and managers of enterprises all agree with that the knowledge is a most important strategic resource to enterprises, and managing the resource of knowledge effectively and efficiently can maintain the enterprise's competence, thus knowledge management get more and more attraction and interest [1]. In order to assure the success of the implementation of knowledge management, experts and scholars conclude some critical success factors to knowledge management implementation mainly by empirical studies, for example, Skyrme, Amidon (1997) purports that there are mainly 7 critical factors: intensively related with company strategy, good vision and structure, knowledge leadership, knowledge creation and knowledge share culture, continuing learning, information technology environment, and the knowledge management process in the organization [2]. Liebowitz (1999) put forwards 6 key factors: knowledge management strategy supported by high management level, chief knowledge officer or the same function, knowledge management fundamentals, knowledge ontology and knowledge database, knowledge management system and related tools, knowledge share impetus, and knowledge share culture. Their opinions get high appraisal from enterprises which take knowledge management into practice in the very early time [3]. Davenport (1998) analyses that there are mainly 8 important factors: involving knowledge management into economic performance and industry value, clear goal and description language, standardized knowledge structure, diversified knowledge diffusion channel, technology and organization fundamentals, motivation, and support from high level management [4].

However, different enterprises have different features, different attributions, and different scale. Obviously, different factors have different weight under different enterprise situation. In order to help enterprises to better implement knowledge management, and help them to find the actual critical success factors, the paper introduces the ANOVA method to analyze and assess the factors according to the enterprise situation, and by taking use of Neural network to realize the automated evaluation and analysis.

## 2. RELATED LITERATURES

Kuan Yew Wong, Elaine Aspinwall (2005) [5][6] points out that the factors put forward by Davenport (1998) , Liebowitz (1999) are just the general factors, different enterprises have different scales, so different enterprises need to have different critical factors, so the two authors all focus on the knowledge management in small and medium size enterprises, by a great number of surveys and investigations, the two author conclude that there are mainly 11 important factors influencing the knowledge management implementation in small and medium size enterprises, they are leadership and support from

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managers, culture, information technology, strategy and the goal, enterprise structure, process and activities, motivation measures, enterprise resource, training and education, human resource management. By empirical study, Yu-Chung Hung ，Shi-Ming Huang (2005) [7] gets that the critical factors in the chemical industry are organization culture, leadership commitment, employee participation, training, team cooperation, empowerment, information technology, performance measurement, benchmark, and knowledge structure. Sandra Moffett, Rodney McAdam (2009) [8] makes a deep analysis on engineering department, high technology department and finance department respectively and gets the conclusion that the key factors have different weights in these three departemetns. Mian Ajmal, Petri Helo, Tauno Kekäle (2010) [9] recognizes that the main influential factors of knowledge management implementation in project enterprises are familiarity, cooperation, motivation, empowerment, system and culture. According to the investigation into the medical industry, Yu-Hui Chen (2011) [10] pinpoints that the critical factors are culture, resource support, related medical legislation, technical support, leadership, employee attitude, participation. Frank Lindner, Andreas Wald (2011) [11] puts forward that for the temporary organizations which is built for the requirement of project and is dismissed after the completion of the project, the critical success factors are mature organization structure and process, culture, accountability, information system. We can see that the factors put forward by different authors are similar, but the weight of the factors are different [13][14]. So Wei-Wen Wu (2012) [12] introduces the decision method of DEMATEL to judge and assess the importance of different factors.

The critical factors from the literatures are summarized in table 1.

*Table 1. The Key Factors Summarization [1-18]*

| Key factor | Resource |
|---|---|
| Leadership and support from management level | Skyrme and Amidon, 1997; Davenport et al. 1998；Van Buren 1998； Greco ，1999； Dess and Pickens，2000；Ryan and Prybutok,2001; Moffett et al. ，2003；Celia zarraga, Juan manuel Garcia-Falcon 2003; Holsapple and Joshi, 2000; Davenport et al., 1998; Liebowitz, 1999; Hasanali, 2002; American Productivity & Quality Center (APQC), 1999; Ribiere and Sitar, 2003; Sandra Moffett，Rodney Mcadam，Stephen Parkinson 2003; Greve & Albers, 2006; Li, 2001; Sin et al., 2005; Kuan Yew Wong, Elaine Aspinwall 2005; Kuan Yew Wong 2005;Song, Xie, & Dyer, 2000; Mostafa Jafari, 2007; Rémy Magnier-Watanabe, Dai Senoo, 2008; Aurora Garrido-Moreno*，Antonio Padilla-Meléndez 2011; Peter A.C. et al 2010; Yu-Hui Chen ,2011; Yu-Hui Chen 2011; Frank Lindner, Andreas Wald 2011; Mario Javier Donate, Fátima Guadamillas, 2011 |
| Culture | Skyrme and Amidon, 1997; Davenport et al., 1998; Liebowitz, 1999; Buckman 1999;Greco,1999; Ryan and Prybutok ,2001; Wild et al. ,2002; Sandra Moffett，Rodney Mcadam，Stephen Parkinson 2003; Simons，2002；Leindner，2006Celia zarraga, Juan manuel Garcia-Falcon 2003; Moffett et al. ,2003;Hasanali, 2002; APQC, 1999; McDermott and O'Dell, 2001; Greve & Albers, 2006; Li, 2001; Mostafa Jafari, 2007; Victor oltra 2005; Sin et al., 2005; Song, Xie, & Dyer, 2000; Kuan Yew Wong, Elaine Aspinwall 2005; Rémy Magnier-Watanabe, Dai Senoo, 2008; Sandra Moffett, Rodney McAdam，2009; Mong-Yuan Chang 2009; Aurora Garrido-Moreno*，Antonio Padilla-Meléndez 2011; Peter A.C. et al 2010; Subramanian Sivaramakrishnan 2010; Yu-Hui Chen ,2011; Frank Lindner, Andreas Wald 2011; Mario Javier Donate, Fátima Guadamillas, 2011 |
| IT | Skyrme and Amidon, 1997; Davenport et al., 1998; Liebowitz, 1999; Hasanali, 2002; APQC, 1999; King ,1996; Davenport et al.,1998; Greco,1999; Bourdreau and Couillard,1999; Savary,1999; Ryan and Prybutok, 2001; Lee and Hong,2002; Paiva et al.,2002; Wang, 2002; Moffett et al.,2003; Sandra Moffett，Rodney Mcadam，Stephen Parkinson 2003; Alavi and Leidner, 2001; Chang et al., 2005; Chen & Ching, 2004; Li, 2001; Sin et al., 2005; Kuan Yew Wong, Elaine Aspinwall 2005; Mong-Yuan Chang 2009; Mostafa Jafari, 2007; Rémy Magnier-Watanabe, Dai Senoo, 2008; Aurora Garrido-Moreno*，Antonio Padilla-Meléndez 2011; Subramanian Sivaramakrishnan 2010; Peter A.C. et al 2010; Pang-Lo Liu 2011; Yu-Hui Chen ,2011; Yu-Hui Chen 2011; Frank Lindner, Andreas Wald 2011 |

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| | |
|---|---|
| Strategy | Skyrme and Amidon, 1997; Davenport et al., 1998; Liebowitz, 1999; APQC, 1999; Zack, 1999; Hasanali,2002; Kuan Yew Wong, Elaine Aspinwall 2005; |
| Measurement | Martinez,1998; Bassi and Ven Buren,1999; Pearson,1999; Barsky,2000; Moffett et al. (2003); Holsapple and Joshi, 2000; Davenport et al., 1998; Hasanali, 2002; APQC, 1999; Ahmed et al., 1999; Kuan Yew Wong, Elaine Aspinwall 2005; |
| Benchmark | Davis,1996; Drew ,1997; Day and Wendler ,1998; O'Dell and Grayson,1998; Moffett et al.,2003; |
| Employee participation | O'Brien and Crauise,1995; McCune,1999; Wilson and Asay ,1999;Ryan and Prybutok,2001; Moffett et al.,2003 |
| Organization structure | Davenport et al., 1998; Liebowitz, 1999; Hasanali, 2002; Herschel and Nemati, 2000; Kuan Yew Wong, Elaine Aspinwall 2005; |
| Teamwork | Geraint ,1998; Greengard ,1998; Ryan and Prybutok,2001; Moffett et al,2003; |
| Empowerment | Ward,1997; Martinez ,1998; Ulrich,1998; Duval ,1999; Verespej,1999; Moffett et al. ,2003; |
| Process implementation | Skyrme and Amidon, 1997; Holsapple and Joshi, 2000; Davenport et al., 1998; Bhatt, 2000; Kuan Yew Wong, Elaine Aspinwall 2005; Mong-Yuan Chang 2009; Frank Lindner, Andreas Wald 2011 |
| Motivation | Davenport et al., 1998; Liebowitz, 1999; Yahya and Goh, 2002; Hauschild et al., 2001 |
| Resource | Holsapple and Joshi, 2000; Davenport and Volpel, 2001; Wong and Aspinwall, 2004; Kuan Yew Wong, Elaine Aspinwall 2005; Yu-Hui Chen ,2011 |
| Knowledge structure | Davenport and Klahr ,1998; Buckman ,1999; Greco ,1999; Hickins,1999; Tynan ,1999; Hsieh et al.,2002; Moffett et al. 2003; |
| Training | Greengard ,1998; Cohen and Backer ,1999; Horak, 2001; Yahya and Goh, 2002; Mentzas, 2001; Moffett et al. ,2003; Currie and Kerrin, 2003; Cabrera and Cabrera, 2005; Chen and Huang, 2009; Kuan Yew Wong, Elaine Aspinwall 2005; Yu-Hui Chen 2011 |
| Human resource management | Yahya and Goh, 2002; Sandra Moffett，Rodney Mcadam，Stephen Parkinson 2003; Celia zarraga, Juan manuel Garcia-Falcon 2003;Wong and Aspinwall, 2004; Brelade and Harman, 2000; Greve & Albers, 2006; Li, 2001; Sin et al., 2005; Kuan Yew Wong, Elaine Aspinwall 2005; Mostafa Jafari, 2007; Victor oltra 2005; Song, Xie, & Dyer, 2000; Rémy Magnier-Watanabe, Dai Senoo, 2008; Sandra Moffett, Rodney McAdam, 2009; Mong-Yuan Chang 2009; Aurora Garrido-Moreno*，Antonio Padilla-Meléndez 2011; Peter A.C. et al 2010; Subramanian Sivaramakrishnan 2010; Pang-Lo Liu 2011; Yu-Hui Chen ,2011; Yu-Hui Chen 2011; Frank Lindner, Andreas Wald 2011; Mario Javier Donate, Fátima Guadamillas, 2011 |

## 3. THE METHOD OF SELECTING CRITICAL FACTORS

The paper assesses the importance of the factors by the following steps: first, get all the factors according to the literature review and establishes the factor database; second, ask the managers, experts, and scholars to assess the importance of each factor and assign weights to all the factors; third, select the most important factors by taking use of ANOVA.

### 3.1. The Establishment of Factor Database

According to table 1, we can get there are 17 factors affecting the implementation of knowledge management : Leadership and support from management level, Culture, IT, Strategy, Measurement, Benchmark, Employee participation, Organization structure, Teamwork, Empowerment, Process implementation, Motivation, Resource, Knowledge structure, Training, Human resource management

### 3.2. Selection by the Method of ANOVA

In ANOVA, SSB is sum of the between-groups square, SSE is sum of the within groups square, MSE is mean square error, MSB is mean square error between groups [19]. The steps of selection by ANOVA are as follows:

(1) Invite the experience employees and experts to assign weights to all the 17 factors and standardize the scores, then array the scores in a descending order, so the standardized score $SS_1$ is the highest score which means the corresponding factor of $SS_1$ is of the most important, the $SS_{17}$ is the lowest score, and $0 \le SS_i \le 1$;

(2) Keeping the descending order, Separate the factors into *A* and *B* two groups, *A* group is comprised of the first *m* factors, and *B* group is comprise of the remaining *(17-m)* factors, assume that at first each group has at least one factors then *A* group has the possibility of having any factor of the 16 factors;

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(3) Calculate *MSE(m), m=1, 2, …, 16,* by the following equation

$$MSE(m) = \{\sum_{i=1}^{m}(ss_i - \overline{ss}_A)^2 + \sum_{i=m+1}^{17}(ss_j - \overline{ss}_B)^2\} \quad (1)$$

$\overline{ss}_A$, $\overline{ss}_B$ are the mean value of group *A* and group *B*.

(4) Find the minimum,

$$MSE(m^*) = \min_{1\le m\le 16}[MSE(m)] \quad (2)$$

Get *m* by equation (2), and can conclude that the firs m factors are the main influential factors to the success of knowledge management implementation for the enterprise

### 3.3. An Example

Suppose that the experienced employees and experts score the importance of the factors as follows in the descending order: leadership, 0.572; enterprise culture, 0.513; management support, 0.507; Human resource management, 0.479; IT support, 0.465; training, 0.457; motivation, 0.401; participation, 0.398; teamwork, 0.387; strategy, 0.345; measurement, 0.332; organization structure, 0.321; benchmark, 0.317; empowerment, 0.296; process implementation, 0.284; knowledge structure 0.261; resources, 0.232.

The detailed step of the calculation of MSE is shown in table 2, according to table 2, we can see that the minimum value of MSE is 0.002 when m is equal to 6, and so there are 6 main factors for this company, which are the first 6 factors: leadership, culture, management support, human resource management, IT support, and training.

*Table 2. The Calculation Process of MSE*

| M | The standardized score | MSE |
|---|---|---|
| 1 | 0.572 | 0.008 |
| 2 | 0.572 , 0.513 | 0.007 |
| 3 | 0.572 , 0.513 , 0.507 | 0.004 |
| 4 | 0.572 , 0.513 , 0.507 , 0.479 | 0.005 |
| 5 | 0.572 , 0.513 , 0.507 , 0.479 , 0.465 | 0.003 |
| 6 | 0.572 , 0.513 , 0.507 , 0.479 , 0.465 , 0.457 | 0.002 |
| 7 | 0.572 , 0.513 , 0.507 , 0.479 , 0.465 , 0.457 , 0.401 | 0.005 |
| 8 | 0.572 , 0.513 , 0.507 , 0.479 , 0.465 , 0.457 , 0.401 , 0.398 | 0.007 |
| 9 | 0.572 , 0.513 , 0.507 , 0.479 , 0.465 , 0.457 , 0.401 , 0.398 , 0.387 | 0.008 |
| 10 | 0.572 , 0.513 , 0.507 , 0.479 , 0.465 , 0.457 , 0.401 , 0.398 , 0.387 , 0.345 | 0.009 |
| 11 | 0.572 , 0.513 , 0.507 , 0.479 , 0.465 , 0.457 , 0.401 , 0.398 , 0.387 , 0.345 , 0.332 | 0.011 |
| 12 | 0.572 , 0.513 , 0.507 , 0.479 , 0.465 , 0.457 , 0.401 , 0.398 , 0.387 , 0.345 , 0.332 , 0.321 | 0.013 |
| 13 | 0.572 , 0.513 , 0.507 , 0.479 , 0.465 , 0.457 , 0.401 , 0.398 , 0.387 , 0.345 , 0.332 , 0.321 , 0.317 | 0.014 |
| 14 | 0.572 , 0.513 , 0.507 , 0.479 , 0.465 , 0.457 , 0.401 , 0.398 , 0.387 , 0.345 , 0.332 , 0.321 , 0.317 , 0.296 | 0.016 |
| 15 | 0.572 , 0.513 , 0.507 , 0.479 , 0.465 , 0.457 , 0.401 , 0.398 , 0.387 , 0.345 , 0.332 , 0.321 , 0.317 , 0.296 , 0.284 | 0.019 |
| 16 | 0.572 , 0.513 , 0.507 , 0.479 , 0.465 , 0.457 , 0.401 , 0.398 , 0.387 , 0.345 , 0.332 , 0.321 , 0.317 , 0.296 , 0.284 , 0.261 | 0.021 |
| 17 | 0.572 , 0.513 , 0.507 , 0.479 , 0.465 , 0.457 , 0.401 , 0.398 , 0.387 , 0.345 , 0.332 , 0.321 , 0.317 , 0.296 , 0.284 , 0.261 , 0.232 | 0.024 |

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## 4. THE REALIZATION OF AUTOMATED SELECTION

The paper first establishes the rule database after expert investigation, and then uses neural network to train the rules, so that to realize the automation of key factors selection

### 4.1. Inputs and Outputs

For the paper want to get the critical factors from the enterprise type, so the inputs should be the attributes of the enterprise type, the outputs should be the factors and their weights. And the inputs are fuzzy variables, and outputs are the weights of the factors.

(1) Enterprise type

Kuan Yew Wong, Elaine Aspinwall (2005) [5], and Kuan Yew Wong (2005) [6] all focus on the small and medium enterprises. For the knowledge management practice is the management of the knowledge resources, so the more the emprise rely on knowledge, the more important of the knowledge management, and with the stronger cooperation between enterprises, more and more enterprises need to cooperate with other enterprises to complete projects. Frank Lindner, Andreas Wald (2011) [11] pay special attention to the temporary organizations which is built for the project needs. So the paper regards that there are 3 attributes for the enterprise type: the enterprise scale (ES), the enterprise knowledge intensity (EK), and the number of inter-enterprise projects (EN).

(2) The attributes to the key factors.

According to the prior literature review, we can get that there are 17 attributes for the key factors: Leadership (LD), support from management level (MS), Culture (CT), IT, Strategy (ST), Measurement (ME), Benchmark (SD), Employee participation (WP), Organization structure (SC), Teamwork (TC), Empowerment (EM), Process implementation (PE), Motivation (MO), Resource (RE), Knowledge structure (KS), Training (TR), Human resource management(HR).

### 4.2. Language Variables and the Membership

(1) Language variables

The paper sets the domain of the 3 input variables as {-3，-2，-1，0，1，2，3}, and the fuzzy sets on the domain are ESi, EKCi, ETPNi (i=1,2,3,4,5), and the corresponding language value are {Negative Big (NB), Negative Small (NS), Zero (ZO), Positive Small (PS), Positive Big (PB)}, which represent very small, small, medium, large, very large for enterprise scale (ES), very low, low, common, high, very high for enterprise knowledge intensity (EK), and seldom, few, common, relatively more, a lot of for the number of inter-enterprise projects (EN).

(2) The membership function of the fuzzy sets

The paper uses triangular fuzzy function. By asking for the experts' suggestions and taking use of the statistical method, the paper gets the membership function of the fuzzy sets the enterprise scale (ES), the enterprise knowledge intensity (EK), and the number of inter-enterprise projects (EN), as shown in Figure 1, 2 and 3.

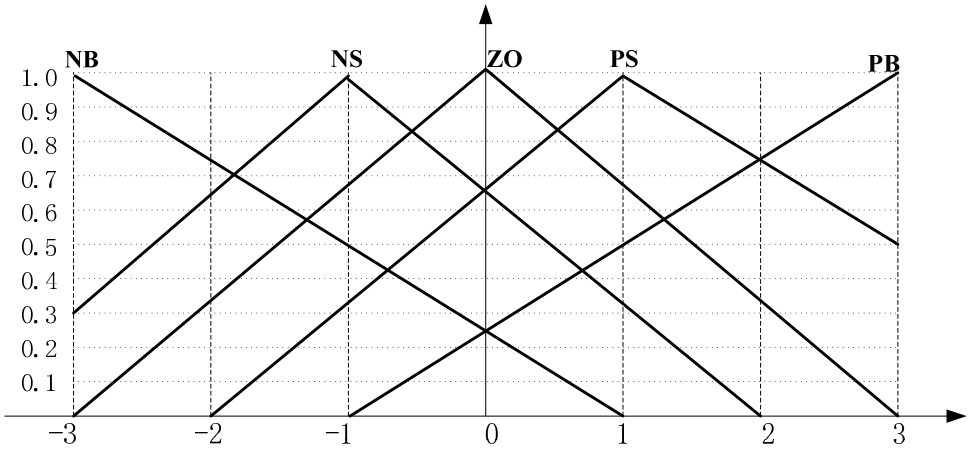


*Figure 1. The Membership Function of ES*

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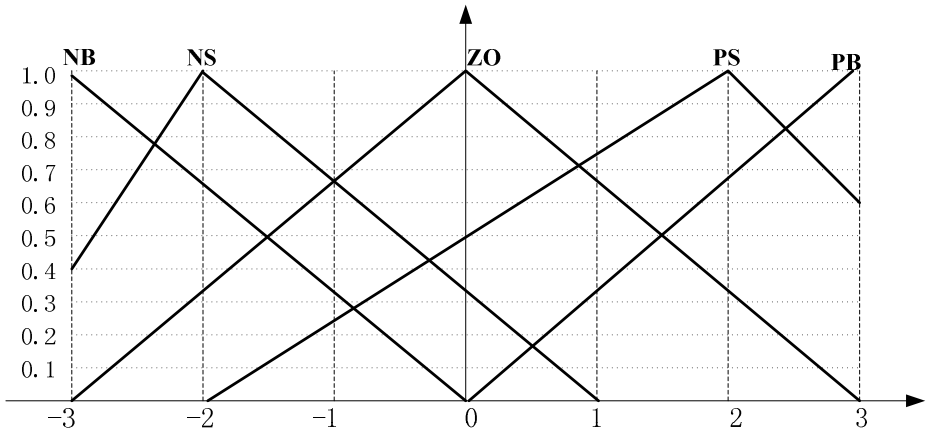


*Figure 2. The Membership Function of EK*

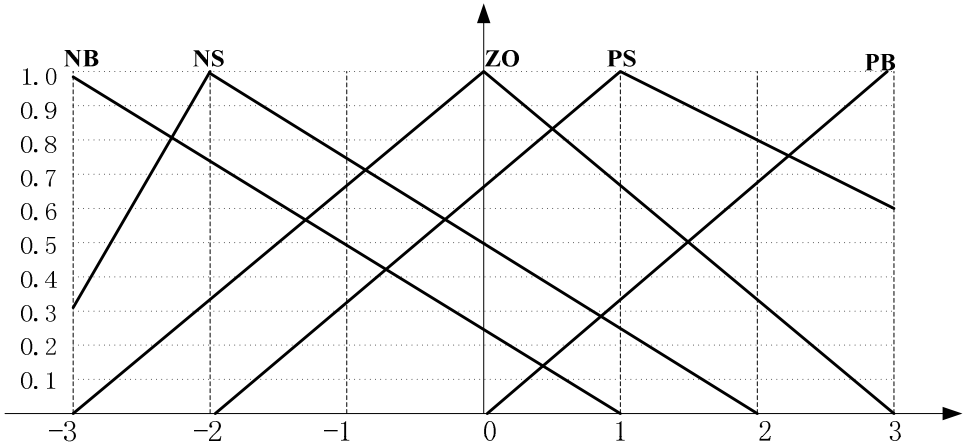


*Figure 3. The Membership Function of EN*

### 4.3. Fuzzy Knowledge Database

By the investigation and survey on experts which includes the consultants in the knowledge management departments and researchers in the field of knowledge management and deep analysis on the literatures, the paper the knowledge database of inference rules as shown in table 3. The numbers in the columns under critical factors are the weights of each factors calculated by the method proposed in section 3.2, and for the factors that are not recognized as the important factors according to the calculation result, the corresponding weights are 0. From table 3, we can see that the left 3 columns are the inputs, and the rest are the outputs. And we should enrich and update the contents continuously according to the practice.

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*Table 3. The Fuzzy Knowledge Database of Inference Rules*

| Enterprise type | | | | | | | | | | Critical factors selection and their weights | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ES | EK | EN | LD | MS | CT | IT | ST | ME | SD | WP | SC | TC | EM | PE | MO | RE | KS | TR | HR |
| NB | NS | NS | .512 | .601 | 0 | .395 | 0 | 0 | 0 | .379 | 0 | .411 | 0 | 0 | 0 | 0 | 0 | 0 | .421 |
| NS | NB | NB | .523 | .578 | 0 | .321 | 0 | 0 | 0 | .368 | 0 | .323 | .479 | 0 | .501 | 0 | 0 | 0 | 0 |
| ZO | ZO | ZO | .572 | .507 | .513 | .465 | 0 | 0 | .365 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | .457 | .479 |
| ZO | NB | NS | .632 | .656 | .516 | .427 | 0 | .501 | 0 | 0 | 0 | 0 | 0 | .397 | 0 | 0 | 0 | .489 | 0 |
| ZO | PS | NS | .510 | .523 | .612 | .379 | .368 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | .398 | .323 | .467 | .413 | 0 |
| ZO | PB | NS | .497 | .543 | .465 | .357 | 0 | .412 | 0 | 0 | .323 | 0 | 0 | 0 | 0 | .375 | 0 | 0 | .425 |
| ZO | PS | NB | .489 | .565 | .452 | .413 | 0 | 0 | .323 | 0 | 0 | 0 | .337 | 0 | 0 | 0 | 0 | 0 | .454 |
| PS | NS | NB | .413 | .525 | .423 | .409 | 0 | .312 | 0 | 0 | 0 | 0 | .371 | 0 | 0 | .315 | 0 | 0 | 0 |
| PS | NS | NS | .479 | .587 | .389 | .404 | 0 | 0 | 0 | 0 | .312 | 0 | 0 | 0 | 0 | .365 | 0 | 0 | 0 |
| PS | ZO | ZO | .465 | .529 | .386 | .412 | 0 | .318 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | .367 | 0 | 0 | 0 |
| PS | PB | NS | .502 | .617 | .523 | .454 | 0 | .402 | 0 | 0 | 0 | .387 | 0 | 0 | 0 | 0 | .423 | .398 | .489 |
| PS | PB | NB | .513 | .656 | .565 | .470 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | .458 | .405 | .523 |
| PB | PB | PS | .557 | .689 | .523 | .535 | .465 | 0 | 0 | 0 | 0 | 0 | .438 | 0 | 0 | 0 | 0 | .412 | .547 |
| PB | PS | PS | .565 | .691 | .533 | .521 | .476 | 0 | 0 | 0 | 0 | 0 | .444 | 0 | 0 | 0 | 0 | .432 | .536 |

### 4.4 Training the Neural Network

The paper uses BP network to realize the automation and train it by taking use of the inference rules in table 3. The network structure which composes of inputs layer of 21 cells, the hidden layer, and the outputs layer of 17 cells is shown figure 4.

According to the membership function shown in figure 1~3 and the inference rule in table 3, we can get the training vector shown in table 4.

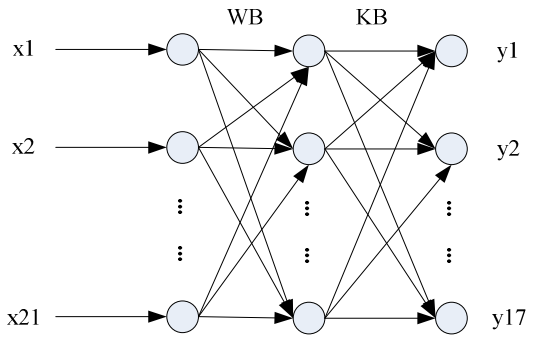


*Figure 4. The Network Structure*

*Table 4. Training Data Vectors*

| Input parameters | | Data vector |
|---|---|---|
| Enterprise type: the enterprise scale (ES) x1~x7 | Negative Big (NB) | (1, 0.75, 0.5, 0.25, 0, 0, 0) |
| | Negative Small (NS) | (0.3 0.65, 1, 2/3, 1/3, 0, 0) |
| | Zero (ZO) | (0, 1/3, 2/3, 1, 2/3, 1/3, 0 ) |
| | Positive Small (PS) | (0, 0, 1/3, 2/3, 1, 0.75. 0.5) |
| | Positive Big (PB) | (0, 0, 0, 0.25, 0.5, 0.75, 1) |
| The enterprise knowledge intensity (EK) x8~x14 | Negative Big (NB) | (1, 2/3, 1/3, 0, 0, 0, 0) |
| | Negative Small (NS) | (0.4, 1, 2/3, 1/3, 0, 0, 0) |
| | Zero (ZO) | (0, 1/3, 2/3, 1, 2/3, 1/3, 0 ) |
| | Positive Small (PS) | (0, 0, 0.25, 0.5, 0.75, 1, 0.6) |
| | Positive Big (PB) | (0, 0, 0, 0, 1/3, 2/3, 1) |
| The number of inter-enterprise projects (EN) x15~x21 | Negative Big (NB) | (1, 0.75, 0.5, 0.25, 0, 0, 0) |
| | Negative Small (NS) | (0.3, 1, 0.75, 0.5, 0.25, 0, 0) |
| | Zero (ZO) | (0, 1/3, 2/3, 1, 2/3, 1/3, 0 ) |
| | Positive Small (PS) | (0, 0, 1/3, 2/3, 1, 0.8, 0.6) |
| | Positive Big (PB) | (0, 0, 0, 0, 1/3, 2/3, 1) |
| The weights of the factors y1~y17 | | As shown in table 3 |

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## 5. CONCLUSION

It is of great significance for enterprises to manage knowledge effectively and efficiently. In order to implement knowledge management effectively, first of all, the enterprises should clearly understand what are the critical factors that have influence on the success of knowledge management. Thus, the paper employs the ANOVA method to select the most important factors, and by taking use of fuzzy mathematics and neural network, the paper realizes the automated selection which can offer assistance for enterprises to implement knowledge management.

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