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THE STUDY OF RELATIVE IMPORTANCE FACTORS OF THE ISO 9001-2015 STANDARDS CLAUSE BASED ON CERTIFICATION BODIES' AUDITOR VIEWPOINT

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ABSTRACT

This study is evaluating the relative importance of factors of the ISO 9001-2015 standard clause based on certification body's auditor viewpoint. Specifically, this study applied the fuzzy analytic hierarchy process (FAHP) method to select the most appropriate factors on ISO 9001-2015 standard clause. The key research approaches involved the FAHP method and corresponding questionnaires distributed to experts on the certification bodies auditor.

In the evaluation process, the consistency index (C. I) and consistency ratio (C.R) values for both objects and criteria were lower than 0.1, indicating satisfactory consistency. According to the overall weights assigned to the objects and criteria, the following top three factors most strongly indicated the relative importance factors of the ISO 9001-2015 standard clause on the certification body's auditor viewpoint: Leadership (weight: 27.12%), Context of the organization (weight: 22.33%), and Planning (weight: 21.89%). According to the results, the FAHP method facilitates evaluating, determining, and ranking factors influencing the certification body's auditor viewpoint of the ISO 9001-2015 standard clause according to their weights.

This study provides practical findings regarding the provision of audit service by certification bodies. Furthermore, the current findings can serve as a reference for future research.

KEYWORDS: ISO9001, Quality Management system, Fuzzy Analytic Hierarchy Process (FAHP), Importance Factors, Certification Body

INTRODUCTION

The certification body is to provide professional quality services to certified companies. Therefore, this study explored the ISO 9001-2015 Quality Management System to ascertain the relative importance factors based on certification body's auditor viewpoint.

The ISO-9000 quality management system has been implemented for approximately 40 years. Organizations use this system to enhance the competitiveness of their management tools, ensuring compliance with customer requirements and expectations. We can see this officially from ISO9001-2015 Quality Management System related to the seven principles and Quality Management system, such as: Customer focus, Leadership, Engagement of people, Process approach, Improvement, Evidence-based Decision Making., Relationship management (ISO 9001-2015).

The Quality management systems involve compliance auditing conducted by independent third-party certification bodies in accordance with the requirements of the ISO-9000 quality management system. Such requirements include the objectivity and impartiality of the certification services. Therefore, regard of the certification bodies auditor viewpoints of the ISO 9001-2015 new version standard, improving service quality is the kind of means of enhancing certified companies respect and competitiveness. Huang *et al.* (2017) study show, enhancing the CRM (Customer Relationship Management) is a kind of important factor for certification bodies proves certification service.

LITERATURE REVIEW

ISO 9001-2015 Quality Management System

The ISO9001-2015 states that adoption of a quality management system is a strategic decision for an organization that can help to improve its overall performance and provide a sound basis for sustainable development initiatives. The potential benefits to an organization of implementing a quality management system based on this International Standard are: a) the ability to consistently provide products and services that meet customer and applicable statutory and regulatory requirements; b) facilitating opportunities to enhance customer satisfaction; c) addressing risks and opportunities associated with its context and objectives; d) the ability to demonstrate conformity to specified quality management system requirements. (ISO9001-2015 Clause 0.1)

The ISO 9001-2015 international standard employs the process approach, which incorporates the Plan-Do-Check-Act (PDCA) cycle (show on Figure 1) and risk-based thinking.The process approach enables an organization to plan its processes and their interactions. The PDCA cycle enables an organization to ensure that its processes are adequately resourced and managed, and that opportunities for improvement are determined and acted on. Risk-based thinking enables an organization to determine the factors that could cause its processes and its quality management system to deviate from the planned results, to put in place preventive controls to minimize negative effects and to make maximum use of opportunities as they arise. (ISO 9001-2015 Clause A.4)

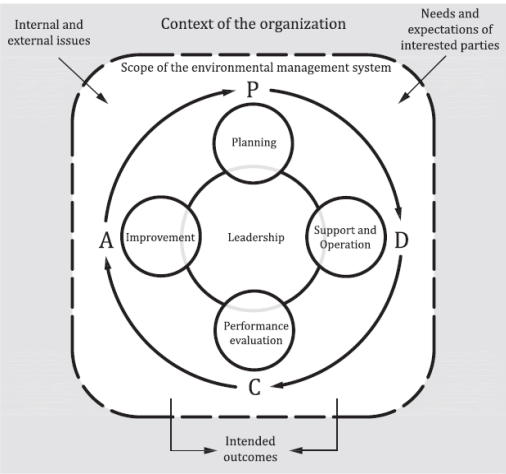

Figure 1: ISO 9001-2015 Plan-Do-Check-Act (PDCA) Cycle (ISO 9001-2015)

These standards are consistently meeting requirements and addressing future needs and expectations that poses a challenge for organizations, in an increasingly dynamic and complex environment.

To achieve this objective, the organization might find it necessary to adopt various forms of improvement in addition to correction and continual improvement, such as breakthrough change, innovation and re-organization. (ISO9001-2015 Clause 0.1)

Fonseca (2015) study show that the will have major benefits for Quality Management Systems with less emphasis on documentation and new/reinforced approaches like consideration of organizational Context and (relevant) Stakeholders, Risk Based thinking and Knowledge Management and should be a step towards TQM (Totally Quality Management).

ISO 9001-2015 Risk-Based Thinking

The Risk-based thinking is essential for achieving an effective quality management system. The concept of risk-based thinking has been implicit in previous editions of this ISO 9001-2008 International Standard including, for example, carrying out preventive action to eliminate potential nonconformities, analysing any nonconformities that do occur, and taking action to prevent recurrence, that is appropriate for the effects of the nonconformity. To conform to the requirements of this ISO 9001-2015 International Standard, an organization needs to plan and implement actions to address risks and opportunities. Addressing both risks and opportunities establishes a basis for increasing the effectiveness of the quality management system, achieving improved results and preventing negative effects. (ISO 9001-2015 Clause 0.3.3)

An opportunity can arise as a result of a situation favourable to achieving an intended result, for example, a set of circumstances that allow the organization to attract customers, develop new products and services, reduce waste or improve productivity. Actions to address opportunities can also include consideration of associated risks. Risk is the effect of uncertainty and any such uncertainty can have positive or negative effects. A positive deviation arising from a risk can provide an opportunity, but not all positive effects of risk result in opportunities. (ISO 9001-2015 Clause 0.3.3)

(Chiarini et., 2017) research also shows that the most taken into account categories of risk sources were the internal production of nonconforming products followed by poorly trained workers with a lack of skills and awareness, supplier nonconforming products and lack of risk-based assessment. The least taken into account category was nonconforming technical results in the design process. The quality managers' qualitative comments also brought to light interesting issues which represented avenues for new research.

ISO 9001-2015 Main Change

One of the goals of the ISO 9001:2015 revision is to enhance the requirements for addressing changes at system and operational levels. The ISO 9001:2015 requirements provide a strong basis for a management system for business that supports the strategic direction of the organization. Once the organization has identified its context and interested parties and then identified the processes that support this linkage, addressing changes becomes an increasingly important component of continued success. (ISO TC/176/SC2)

As this standards change concept that has: 1. Structural changes (show on table 1), 2. Management principles change (show on table 2). 3.The introduction management concepts of risk management, knowledge management, innovation management et., 4. Not emphased the documented procedure, that emphasizing the documented information by process control. 5.Integrated development process management and change management. 6. No longer emphasize the managerial representatives, documented control, monitoring and measurement equipment, and prevention actions.

Table 1: ISO 9001:2008 to ISO 9001:2015 Correlation Matrix

ISO 9001-2008	ISO 9001-2015
1. Scope	1. Scope
2. Normative references	2. Normative references
3. Terms and definitions	3. Terms and definitions
4. Quality management system	4. Context of the organization
5. Management responsibility 6. Resource management	5. Leadership
	6. Planning
	7. Support
7. Product realization	8. Operation
8. Measurement, analysis and improvement	9. Performance evaluation
	10. Improvement

Source: ISO TC/176/SC2

Table 2: ISO 9001:2008 to ISO 9001:2015 Management Principles Change Matrix

ISO 9001-2008	ISO 9001-2015
1.Customer focus;	1.Customer focus;
2.Leadership;	2. Leadership;
3.Involvmnet of people	3. Engagement of people
4.Process approach	4. Process approach
5.System approach and management	
6.Continual improvement	5. Improvement
7.Factual approach tpo decision making	6. Evidence-based decision making
8.Mutuallty beneficial supplier relationships	7. Relationship management

Source: ISO TC/176/SC2

METHODOLOGY

Methodology Choice

The Fuzzy analytic hierarchy process (FAHP), which was first introduced by Saaty (1980, 1996), is a method used for addressing complex systems with several alternatives and then comparing the corresponding results. The main objective of this study was to use a fuzzy AHP (FAHP) as an effective approach to determine the relative importance factor of the ISO 9001-2015 stnadards clause based on certification bodies auditor viewpoint.

In the FAHP, expert opinions are compared and represented as fuzzy variables that are used to determine the final weights of indices. Various researchers have proposed many FAHP methods and applications in the literature. The FAHP has been increasingly used in multicriteria decision-making because of its simplicity and similarity to human reasoning. Hence, considering the success of this method thus far, it has been deduced to be suitable for evaluating proposed policies (as well as in assessing tangible and intangible information) (Wu *et al.* 2013)

In recent years, numerous researchers have applied consistent fuzzy preference relations to many different fields. For example, Fu *et al.* (2006) conducted an FAHP analysis to investigate the relative weightings assigned to various factors by two industries to determine the influence of such factors on entry to an electronic marketplace (EM). They compared the weightings of each factor in the respective industries and the different factor routes involved in adopting EMs.

FAHP Calculation Formula

This study employed the FAHP method to conduct a fuzzy hierarchical analysis through fuzzy numbers in order to achieve pairwise comparisons and determine fuzzy preference weights. In this section, we briefly review the concepts of fuzzy hierarchical evaluation. The subsequent sections detail the computational processes of the FAHP.

The FAHP is based on fuzzy interval arithmetic with triangular fuzzy number (TFNs) (Figure 2 and Table 3) and a confidence index with an interval mean approach to determine the weights for evaluative elements; therefore, this method is suitable for analyzing small samples of questionnaire feedback provided by certification dodies auditors.

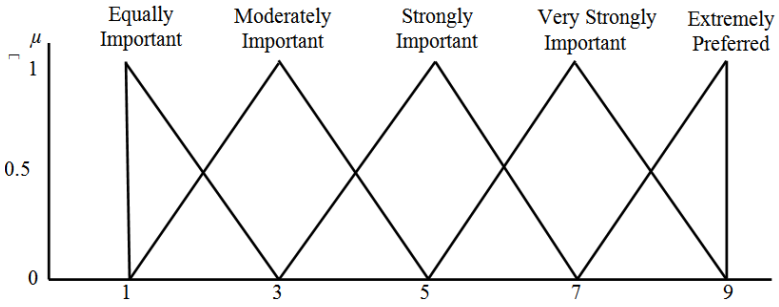

Figure 2: Linguistic Variables for the Importance Weight of Each Criterion (Chang, 1996)

Table 3: Fuzzy Linguistic Scale of Fuzzy Numbers (Example) (Gumus, 2009)

Fuzzy Number	Linguistic	Scale of Fuzzy Number
9	Perfect	(8, 9,10)
8	Absolute	(7, 8, 9)
7	Very good	(6, 7, 8)
6	Fairly good	(5, 6, 7)
5	Good	(4, 5, 6)
4	Preferable	(3, 4, 5)
3	Not bad	(2, 3, 4)
2	Weak advantage	(1, 2, 3)
1	Equal	(1, 1, 1)

The procedures involved in executing the FAHP method are outlined as follows.

Step 1: Construct pairwise comparison matrices among all the criteria in the dimensions of the hierarchical system. Assign linguistic terms to the pair wise comparisons by determining which is the more important of every two dimensions, as indicated in the following matrix $\tilde{A}$ (shown in equation (1)):

$$\tilde{A} = \begin{bmatrix} 1 & \tilde{a}_{12} & \cdots & \tilde{a}_{1n} \\ \tilde{a}_{21} & 1 & \cdots & \tilde{a}_{2n} \\ \vdots & \vdots & \ddots & \vdots \\ \tilde{a}_{n1} & \tilde{a}_{n2} & \cdots & 1 \end{bmatrix} = \begin{bmatrix} 1 & \tilde{a}_{12} & \cdots & \tilde{a}_{1n} \\ 1/\tilde{a}_{12} & 1 & \cdots & \tilde{a}_{2n} \\ \vdots & \vdots & \ddots & \vdots \\ 1/\tilde{a}_{1n} & 1/\tilde{a}_{1n} & \cdots & 1 \end{bmatrix} \quad \textbf{(1)}$$

Where

$$\tilde{a}_{ij} = \begin{cases} \tilde{9}^{-1}, \tilde{8}^{-1}, \tilde{7}^{-1}, \tilde{6}^{-1}, \tilde{5}^{-1}, \tilde{4}^{-1}, \tilde{3}^{-1}, \tilde{2}^{-1} \tilde{1}^{-1}, \tilde{1}, \tilde{2}, \tilde{3}, \tilde{4}, \tilde{5}, \tilde{6}, \tilde{7}, \tilde{8}, \tilde{9}, & 1, i \neq j \\ 1 & i = j \end{cases}$$

Step 2: Apply the geometric mean technique to define the fuzzy geometric mean and fuzzy weights of each criterion, as demonstrated by Hsieh *et al.* (2004) (shown in equation (2)):

$$\tilde{\gamma}_i = \left(\tilde{\alpha}_{i1} \otimes \cdots \otimes \tilde{\alpha}_{ij} \otimes \cdots \otimes \tilde{\alpha}_{in}\right)^{1/n}$$

$$\tilde{w}_i = \tilde{\gamma}_i \otimes \left[\tilde{\gamma}_1 \otimes \cdots \otimes \tilde{\gamma}_i \otimes \cdots \otimes \tilde{\gamma}_n\right]^{-1} \quad \textbf{(2)}$$

In this equation, $\tilde{\alpha}_{ij}$ is the fuzzy comparison value of 0dimension i with criterion j; thus, $\tilde{\gamma}_i$ is the geometric mean of the fuzzy comparison values of criterion i with each other criterion. In addition, w_i is the fuzzy weight of the *i*th criterion, and it can be indicated by a TFN; $w_i = (lw_i, mw_i, uw_i)$, where lw_i, mw_i, and uw_i represent the lower, middle, and upper values of the fuzzy weight of the *i*th dimension, respectively (Sun, 2010).

The FAHP framework is constructed in the form of a matrix, and a local priority vector can be derived as an estimate of relative importance associated with the components being compared by solving the equation (3):

$$A\overline{w} = \lambda_{max}\overline{w} \ldots \quad \textbf{(3)}$$

where *A* is the matrix of the pair-wise comparison, $\overline{w}$ is the eigenvector, and λ_{max} is the maximum eigenvalue. Saaty (1996) suggested the use of a consistency index (C.I) for executing test procedures (C.I $<$ 0.1, permissible errors range). A consistency ratio (C.R) can also be used for consistency determination; if C.R $<$ 0.1, then the consistency level of the matrix already exceeds the allowed error range and decision-makers should reconsider their decision-making relationship. The C.I and C.R are calculated using equations (4) and (5):

$$\text{C.I} = \frac{\lambda_{max} - n}{n-1} \quad \textbf{(4)}$$

$$\text{C.R} = \frac{\text{C.I}}{\text{R.I}} \quad \textbf{(5)}$$

where R.I represents the average C.I obtained from numerous simulation runs, and it varies according to the matrix order (Table 4).

Table 4: Reference Values of the R.I. for Different n Values

n	1	2	3	4	5	6	7	8	9	10
R.I.	0	0	0.58	0.9	1.12	1.24	1.32	1.41	1.45	1.49

Source: Enyinda *et al.* (2010); Developed by Saaty

Research Objects

According to the literature review and ISO 9001-2015 standands stature, we created a hierarchy regarding the relative importance of the assessed factors (Figure 3). On the basis of the FAHP method, our objectives were to determine the relative importance factors of ISO9001-2015 standards under the certification bodies auditors viewpoint.

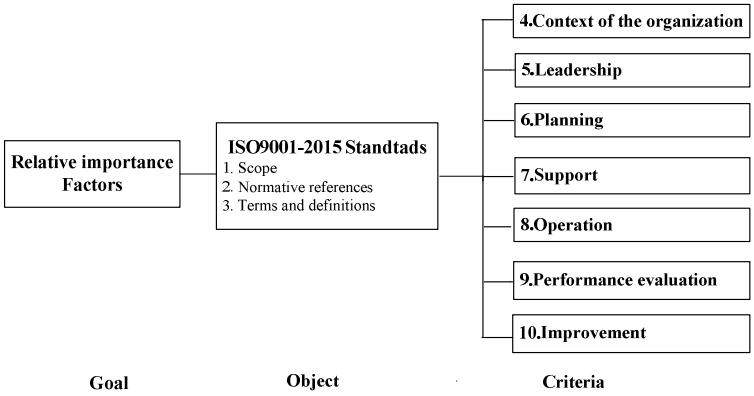

Figure 3: Hierarchy Model of the Relative Importance of Factors

Sampling

This study used an FAHP questionnaire to collect and analyze the opinions of Taiwan ceritfcatione bodies auditors.

In this study, we used quota sampling to select 50 ceritfication bodies auditors form SGS (Société Générale de Surveillance), BV (Bureau Veritas Group), DNV (DNV GL), TUV(TÜV Rheinland). That four certification bodies are coverage more than 70% marketing share by Taiwan ceritfication business.

RESULTS

In this study, of the distributed questionnaires, we collected a total of 36 questionnaires (1 questionnaires were invalid), thus yielding a recovery rate of 72 %. The fifteen questionnaires were collected from the SGS (42.86%), seven questionnaires from the BV (20.00%), seven questionnaires from the DNV (20.00%), and six questionnaires from the TUV (17.14%) that show on table 5, and table 6 show more than 62.86% auditor has audited experience more than 10 years. We used expert choice software to analyze the collected data.

Table 5: The Questionnaire Collection Distribution

Certifcation Body	N	%
SGS	15	42.86%
BV	7	20.00%
DNV	7	20.00%
TUV	6	17.14%

Table 6: The Years of Auditor Work Experience

Years	N	%
<5 Year	6	17.14%
6-10 Year	7	20.00%
11-15 Year	8	22.86%
16-20 Year	9	25.71%
>21 Year	5	14.29%

We found that C.R = 0.0107 (< 0.1), C.I = 0.0142 (< 0.1), and λ_{max} = 7.0851, which are acceptable (show on Annex). Regarding the derived weights show on the table 7.

Table 7: The Table of Weights and Ranking of Objective

Objective		Weights	Ranking
B:	5. Leadership	27.21%	1
A:	4. Context of the organization	22.33%	2
C:	6. Planning	21.89%	3
F:	9. Performance evaluation	15.65%	4
G:	10. Improvement	13.97%	5
E:	8. Operation	7.99%	6
D:	7. Support	4.17%	7

DISCUSSIONS

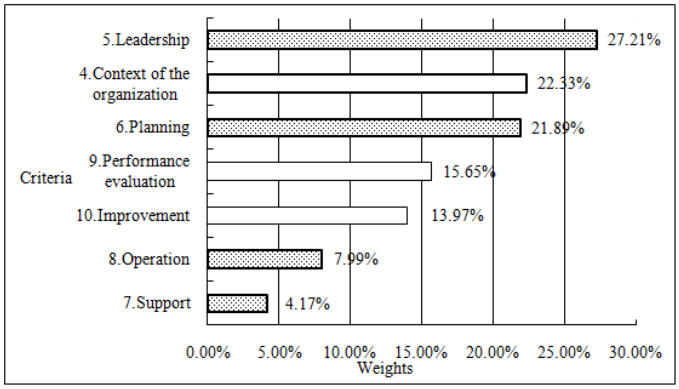

Figure 4: Overall Criteria Weights and Rankings

The second-ranked importance factor is 4. Context of the organization is 22.33%. Chen *et al.* (2016) said that there is need to understand the organization, from the context of the processes involved in manufacturing the product / delivering the service; a company would have to establish the processes used during product manufacture or service conduct, from beginning to end, as well as the procedure to be followed, once product manufacture or service are complete. Also, the company shall collect and analysis the information and risk of the business environment.

The third-ranked importance factor is 6, Planning (21.89%). "Planning" has always been a well-known element of ISO 9001, but now has an increased focus on ensuring that it is considered "part of the organization" and "stakeholders". Now, there is a requirement to identify risks and opportunities, the impact these can have on the conformity of products and services and how you plan to handle them (Shehabi, 2016).

The 7, Support (4.17%) is the lowest-ranked importance factor in this study. Therefore, provides that orgznation has the right resources, people and infrastructure necessary to meet the goals of the rganization. A key requirement is to ensure that knowledge and nphurit are held to ensure the conformity of products or services (Shehabi,2016).

Finally, we found that certification bodies should improve audit processes, invest in staff training, and enhance the awareness of auditors about ISO 9001-2015 standards.

Shehabi (2016) study show that main principles of quality management in version ISO 9001: 2015 include the whole enterprise and provide a better efficiency. Maintenance and implementation of the Quality Management System ISO 9001: 2015 gives each enterprise a new image in continuous growth and development of quality. The new provisions are intended to help prevent the devaluation of the management system standards through the adoption of surface low-level auditing and certification meaningless. The new requirements of ISO 9001: 2015 will help to increase the powers of the auditor, if certification is to be seen to be beneficial for business.

CONCLUSIONS

This study determined the relative importance factors of the ISO 9001-2015 standard clause, under the certification body's auditor viewpoint. The ISO 9001-2015 standards, certification holder can use the findings of this study as a reference to implement effective quality management systems for enhancing the competence, which can in turn enhance the ability of certification holder to improve their organizational performance and contribute toward the sustainable development.

REFERENCES

1. Chen, C. K., Anchecta, K., Lee, Y. D., & Dahlgaard, J. J. (2016). A Stepwise ISO-Based TQM Implementation Approach Using ISO 9001: 2015. *Management and Production Engineering Review*, *7* (4), 65-75.
2. Chiarini, A., & Chiarini, A. (2017). Risk-based thinking according to ISO 9001: 2015 standard and the risk sources European manufacturing SMEs intend to manage. *The TQM Journal*, *29* (2), 310-323.
3. ENISO9001: 2015 “Quality Management System“Geneva, Swiss, 201
4. Fonseca, L. M. (2015). From Quality Gurus and TQM to ISO 9001: 2015: a review of several quality paths. *International Journal for Quality Research (IJQR)*, *9* (1), 167-180.
5. International Organization Standard ISO, (www.iso.org/, 23.09.2015)
6. Manders, B., de Vries, H. J., & Blind, K. (2016). ISO 9001 and product innovation: A literature review and research framework. *Technovation*, *48*, 41-55.
7. Perdomo-Ortiz, J., Gonzalez-Benito, J., Galende, J., 2006.Totalqualitymanagement as a forerunner of business innovation capability. *Technovation* 26,1170–1185.
8. Huang, P. L., Lee, B. C., Wang, C. S., & Sun, C. T. (2017). Relative Importance of the Factors under the ISO-10015 Quality Management Guidelines that Influence the Service Quality of Certification Bodies. *Journal of Economics and Management*, *13* (1), 105-137.

9. Raimi, N. (2008) Menaxhimi I Biznesit the Vogel, Tetove.
10. Rybski, C., Jochem, R., & Homma, L. (2017). Empirical study on status of preparation for ISO 9001: 2015. *Total Quality Management & Business Excellence*, 1-14.
11. Saaty, T. L. (1980). The Analytic Hierarchy Process. New York: McGraw Hill Publications.
12. Saaty, T. L. (1996), *Decision Making with Dependence and Feedback: The Analytic Network Process*, Pittsburgh: RWS Publications.
13. Saaty, T. L., & Hu, G. (1998), "Ranking by eigenvector versus other methods in the analytic hierarchy process," *Applied Mathematics Letters*, 1, 121-125.
14. Saaty, T. L. (2008),"Decision making with the analytic hierarchy process," *International journal of services sciences*, 1, 83-98.
15. Saner-Yiu, L., Ronald, L. J., Bryan, W., & Chan, L. (2005), *Quality standard of training: Implication for research and practice of ISO 10015*, Switzerland: AdeQuaTE.
16. Salas, E., Tannenbaum, S. I., Kraiger, K., & Smith-Jentsch, K. A. (2012),"The science of training and development in organizations: What matters in practice," *Psychological science in the public interest*, *13*, 74-101.
17. Schlesinger, L. A., & Zornitsky, J. (1991),"Job satisfaction, service capability, and customer satisfaction: An examination of linkages and management implications," *People and Strategy*, 14, 141-150.
18. Siems, T. and R. Barr (1998), *Benchmarking the Productive Efficiency of U.S. Banks*, Federal Reserve Bank of Dallas, Financial Industry Studies.
19. Shehabi, E. (2016). The Application of the New Version of the Quality Management System, its Impact on Enterprise Development. *ANGLISTICUM. Journal of the Association for Anglo-American Studies*, *5* (5), 56-64.
20. Sun, C. C. (2010), "A performance evaluation model by integrating fuzzy AHP and fuzzy TOPSIS methods," *Expert systems with applications*, 37, 7745-7754.
21. Weber, A., Thomas, R., (2006). *Key Performance Indicators: Measuring & Managing Maintenance Function*, Ivara Corporation.
22. Wu, C., Zhang, X. Y., Yeh, I., Chen, F. Y., Bender, J., & Wang, T. N. (2013), "Evaluating competitiveness using fuzzy analytic hierarchy process—A case study of Chinese airlines," *Journal of Advanced Transportation*, 47, 619-634.

Annex: Object-Level Matrix Analysis Sheet

Definition

- 4. The context of the organization
- 5. Leadership
- 6. Planning

- 7. Support
- 8. Operation
- 9. Performance evaluation
- 10. Improvement

Table 8

	Synthetic Paire-Wise Comparison Matrices (Integrated Fuzzy Numbers) with Geometric Means																				Geometric Means of Rows			Fuzzy Weight of Each Dimension			Crisp weights	
	A			B			C			D			E			F			G			r			w			BNP	Ranking
A	1	1	1	1.6508	2.0143	2.3977	1.3252	1.6336	1.9690	1.9247	2.4109	2.9844	1.2699	1.6514	2.0946	0.5880	0.6121	0.7376	0.6808	0.8163	0.9733	1.2095	1.5995	2.1455	0.1131	0.1994	0.3573	0.2233	2
B	0.4171	0.4965	0.6058	1	1	1	0.7875	0.9828	1.2394	3.0553	3.8293	4.5592	1.8734	2.3440	2.8497	1.0473	1.2889	1.5806	2.0158	2.5794	3.1861	1.4114	1.9534	2.6474	0.1320	0.2435	0.4408	0.2721	1
C	0.5079	0.6121	0.7546	0.8069	1.0175	1.2699	1	1	1	2.0548	2.4662	2.8924	1.4869	1.8494	2.2441	0.9733	1.1911	1.4411	1.1487	1.3260	1.5092	1.0877	1.4554	1.9178	0.1017	0.1814	0.3737	0.2189	3
D	0.3351	0.4148	0.5196	0.2193	0.2611	0.3273	0.3457	0.4055	0.4867	1	1	1	0.5296	0.6444	0.8219	0.3876	0.4512	0.5338	0.5218	0.6020	0.7099	0.2284	0.2961	0.4007	0.0214	0.0369	0.0667	0.0417	7
E	0.4774	0.6056	0.7875	0.3509	0.4266	0.5338	0.4456	0.5407	0.6725	1.2167	1.5518	1.8882	1	1	1	0.5361	0.6624	0.8312	0.6041	0.7091	0.8540	0.4141	0.5649	0.7846	0.0387	0.0704	0.1306	0.0799	6
F	1.2030	1.4349	1.7007	0.5614	0.6815	0.8312	0.6158	0.7374	0.8944	1.6625	1.9468	2.2459	1.2030	1.5097	1.8654	1	1	1	0.6754	0.7890	0.9117	0.8658	1.1371	1.4824	0.0810	0.1418	0.2468	0.1565	4
G	1.0274	1.2250	1.4690	0.3139	0.3877	0.4961	0.6626	0.7542	0.8706	1.4087	1.6612	1.9165	1.1709	1.4103	1.6553	1.0968	1.2675	1.4805	1	1	1	0.7885	1.0155	1.3138	0.0737	0.1266	0.2188	0.1397	5

C.R = 0.0107, C. I = 0.0142, λmax = 7.0851