

ARTICLE

PERFORMANCE MEASUREMENT OF KARAJ MUNICIPALITY WITH USING KANJI BUSINESS EXCELLENCE MEASUREMENT SYSTEM

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ABSTRACT

For the performance measurement system, to be effective, this system should be based on success factors. Organizations that higher levels of business excellence have earned, based on the number of customers have shown very high growth, resulting in improved their overall profitability and shareholder value. The aim of this study was to evaluate the performance of the municipality of Karaj using business excellence kanji (KBEMS) and with stakeholders inside and outside the organization's approach. The system has two parts: The Excellence Kanji Model (KBEM) and scorecard kanji (KBS). This research has two populations, which consists of stakeholders internal and external stakeholders. The data collected in this study was a questionnaire that each part of the questionnaire was prepared. Cronbach's alpha reliability was calculated through the collection of performance information about each benchmark and rates can be achieved performance excellence model Kanji scorecard. Specific research has been done in this area. The results indicate that the performance of Karaj Municipality with external stakeholders is average and Unacceptable performance in terms of internal stakeholders and are generally the performance is average.

INTRODUCTION

Business Excellence is "an instrument for simultaneous measurement of customer satisfaction, staff and stakeholders in an organization in order to achieve a comprehensive assessment of organizational performance" [5]. Creating a measurement system in which criteria are used as a management and motivation tool and motivation is important. Thus, to meet this role, performance measurement system must be expanded in which each person and his participation to be determined in a general system. Therefore, performance measurement requires systematic assessment of organization of factors related to its success. Performance measurement has been considered throughout the years, especially within last twenty years, and various performance measurement models have been proposed that each of them examine performance of an organization from specific aspect. A variation of these models has made it difficult to choose appropriate model according to the needs of managers, because each model can be proper depending on specific conditions of each organization, including internal and external activities for different strategies.

Definitions

Organizational excellence

Organizational excellence means growing and promoting in an organization in all dimensions, satisfaction of all stakeholders, creating a balance between the needs and expectations of all stakeholders and ensuring long-term success of the organization. Excellence model is a management structure that paves the way to improvement relying on principles and fundamental concepts and paying attention to the main criteria of comprehensive quality management and self-assessment system [6]. Excellence model is in fact a tool to measure the value of establishment of systems and self-assessment identifying and determining the course of activity of managers.

Performance

Performance is the way of doing duties and results.
It is a folk and singular trait is the result of the work and degree of work.

Evaluation

Evaluation is finding the value and the price of everything, and examining and estimating its value. Evaluating is activity that has educational, economic, social and cultural nature. Therefore, using evaluation, a comparison must be done among implicit objectives and stated or specified objectives on one hand, and unpredicted results on other hand. Then, the impact of these results on environmental, social, and cultural environment should be examined [1].

KEY WORDS

Performance, business, organization

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Performance assessment

Comprehensive measurement of performance process using terms such as efficiency, effectiveness, significance, empowerment, accountability within the framework of the principles and concepts for the realization of the goals and tasks of the organization, structure, plan and long-term development of the organization is called as organization performance assessment [1]. Performance assessment at organizational dimension is usually synonymous with effectiveness of activities. Effectiveness means value of achieving the goals and programs with feature of efficiency of activities [2] (2004). At the dimension of way of using resources, performance assessment is stated in terms of efficiency indicators. If we consider efficiency as ratio of input to output in the simplest definition, performance assessment system in fact measures the efficiency of management decisions on optimal use of resources and facilities [3]. Performance assessment is a process measuring, valuing, and making judgment on performance during specified period [1]. Performance assessment is measuring performance through comparing the existing situation with optimal situation based on pre-specified indices having their own features [3]. In general, performance assessment system is the process of measuring and comparing the degree and way of achieving optimal situation with specified criteria and attitude in the specified and determined range and area, with specified indices at specified period in order to review, revise and improve continuously [3].

Pyramid model of Kanji

Kanji's Business Excellence measurement system structure depends highly on critical success factors, including a limited number of factors that if they results are successful, the success of organization will be guaranteed [7]. As Kanji believes "there are areas of the organization that if the organization wants to achieve success, they must work well [6]. Kanji has considered critical success factors in his pyramid model and summit of pyramid is organizational excellence, as he believes.

Kanji's Business Excellence Measurement System (KBEMS)

According to its general principles and central concepts, 2 structure have been introduced for this model (Kanji, 1998).

1. Kanji's Business Excellence Model (KBEM) [5]
2. Kanji's Business Scorecard (KBS) [6]

The role of Kanji's Business Excellence Model (KBEM) is to measure organizational performance in terms of internal stakeholders, while Kanji's Business Scorecard (KBS) measure it from external stakeholder's perspective. Finally, by integrating internal and external scores, excellence Index of organization performance is calculated finally provides overall organization outcome.

Measuring by Kanji's Business Excellence Measurement system includes two parts of (A) and (B) which are respectively used to assess internal and external stakeholders. Excellence Performance (A) related to (KBEM) and Performance Excellence (B) related to (KBS). Leadership is the most important component in part (A). It means that leaders are the most important factor improving quality and business excellence and their behavior and attitude leads to other part improvement (A). Leaders' attempt should consider four principles, including satisfying customers, management based on reality, management relying on staff, and continuous improvement.

Part (B) includes Kanji's Business Scorecard that is consistent with components discussed in various external stakeholders' evaluation such as customers, suppliers, government and so on. In this part, organizational values are starting point for process excellence, organizational learning, and satisfying stakeholders. Effective management of critical success factors leads to defining performance excellence index in part (B). Parts (A) and (B) should be used simultaneously to provide a single and complementary perspective of organizational performance.

To compare Business Excellence models of KBEM and EFQM

Foundation Quality Management Model is currently used in many countries, and Balanced Scorecard model also takes into consideration the financial dimension of performance and it becomes prevalent. However, Kanji's Business Excellence Measurement Model has advantage over these methods since it has two parts that one is Kanji's Business Excellence Model seeking to performance excellence within organization and one part of Kanji's Scorecard Model aims to performance out of organization, therefore, it can be said that it is combination of two mentioned models, with different structures.

Business Excellence Model was developed to achieve superior performance in the continuous development of organization. As a result, the foundation of this model should be adjusted based on critical success factors. This means that in areas where results are satisfactory, successful competitive performance will be guaranteed for the organization. What is clear that literature used in business excellence model of Kanji is consistent with key elements of total quality management (TQM).

There are many similarities between business excellence models. In all of them, leadership has been introduced as the most important and key factor affecting organization and all of them emphasizes on human resources management, process management, and continuous learning and training. Kanji's model advantage over Malcolm Baldrige' model is that it considers customer satisfaction and paying special attention on continuous improvement culture. Kanji's model includes principles such as "prevention" and "teamwork" that have not been dealt with sufficiently in the European foundation for quality management. Another difference of this model with the European Foundation of Quality Management model is that it has not separated results from enablers and it is due to different structure of this model following Kanji's pyramid model. Table below compares two models.

According to logic that Kanji's Business Excellence Measurement system follows, the final score of internal performance excellence measured by KBEM and external performance measured by KBS are obtained and final score of Kanji's system is placed in 1000 scores scale, multiplied in 10. By obtaining final score of Kanji's Business Excellence Measurement System, the organization performance score is determined. Kanji's model is a structural model, therefore, score of each criterion is reflected in indicators of assessment used to measure it, but also it should be calculated in degree of effort made for different paths to achieve it. As a result, if need to compare scores network exists in these two model, we should be careful that each of European Foundation of Quality Criteria must be adapted and matched with more than one dimension of Kanji's model dimensions [4].

MATERIALS AND METHODS

The research is applied in terms of goal and it is descriptive (a case study) in terms of data collection. The study was conducted in "Organization of Karaj municipality". The population of study consists of a set of individuals or units that have at least one common trait. In any research, the population is selected as researcher want to study trait of its units (Khaki, 2004). As Kanji's business excellence system studies two internal and external organization views, this study has two populations.

The population of internal stakeholders

This population actually consists of specialists, managers, and staff of Karaj Municipality organization (headquarters).

The population of external stakeholders

This population of external stakeholders consists of Fire Organization, Beautification Organization, Sport and Cultural Organization, and IT and Communication Organization. In the present study, simple random sampling was used and questionnaire was also used as one of the most common tools in survey studies.

The questionnaire used in this study is same standard questionnaire measuring business excellence that Kanji has referred to it in his measurement book (Kanji, 2002). It worth to note that as Karaj municipality Organization is an organization that its output is services not product, so focus of questions is on services. The questionnaires used in this study are as follows:

1. Questionnaire (1) relating to questions of performance assessment from internal organization perspective
2. Questionnaire (2) relating to questions of performance assessment from external organization perspective

Questionnaires were developed based on five-point Likert including responses of excellent, good, moderate, weak or very weak, respectively, and their scores are 1 to 5. Each of participants selected options based on his awareness of each question.

Data analysis

After collecting information of questionnaires from this organization, responses were given to Excel Software and its accuracy was examined. Then, information was given to SPSS Software and normality of data was tested and they were analyzed.

To measure Kanji's business excellence measurement system

Kanji's business excellence measurement consists of two parts (A) and (B) used respectively to assess the performance of internal and external stakeholders. Part (A) exactly matches with Kanji's business excellence model (KBEM) (Kanji, 1998). Leadership is the major component (A), in the sense that most

important factor to improve quality and business excellence. To measure the performance, organization's objectives must be determined for the specified period firstly. On the one hand, as performance evaluation from the perspective of internal stakeholders is considered by this model (Kanji, 1998). Organization performance is measured through questionnaires and by interviewing stakeholders. To do this, five-point Likert questionnaire was used. The questionnaire used for this section was written by Kanji.

At the end, scores that respondents give for organization performance are collected and their mean is calculated for each criterion of KBEM. In addition, obtained score in this part for each criterion is mean of scores that respondents have given for related questions. Kanji's Business Excellence Model finally gives the internal organization score with 100 scores scale. Kanji's Business Scorecard was used to analyze the different stakeholders, so different score is obtained for Part (B) using Formula 1.

It should be noted that as this study investigated only 4 groups of stakeholders outside the organization, so in the formula 1, $n = 4$. Finally, in this study, external organization score will be number with 100 scores. As stressed before, critical success factors (with performance generators) constitute basis and foundation of Kanji's model in two parts. Among these differences, it is only possible that differences to be seen only at the level of details and degree of focus to reflect the priorities, needs and skills of different stakeholders. It is essential to note that parts (A) and (B) should be applied simultaneously so that a single and complementary perspective of organizational performance to be provided. Each of criteria making up the system can be examined in detail [8].

Finally, final index of organizational business excellence is achieved that is particular to simple mean of final scores of Part A and B of Kanji's Business Excellence Measurement System calculated according to the formula 2.

Performance Excellence Index: PEI
Performance Excellence of Part A: PEA
Performance Excellence of Part B: PEB

To measure reliability of data

To measure normality of data, Kolmogorov - Smirnov was used. In the case of normal distribution of data for each question of hypothesis, that question is rejected, and it can be concluded that responses have not been given randomly by chance. Hypotheses of H_0 and H_1 are defined as follows:

H_0 : observations distribution follows normal distribution
 H_1 : observations distribution does not follow normal distribution

In the data analysis of each criterion, Kolmogorov - Smirnov as was used. All results are summarized in [Table 2 and 3]. The base to reject null hypothesis is that obtained number to be less than 0.025 as P-Value given by SPSS software. Therefore, when the number is higher than 0.025 for data of a criterion, it becomes clear that the null hypothesis is accepted and the data follow a normal distribution. As is can be seen from Tables 2 and 3, statistical statistic obtained for all criteria of section (KBEM) and (KBS) is more than the number 0.025. Therefore, assuming normal data for all criteria of this section is accepted.

To test all hypotheses, one sample T test was used and as goal is to compare score of each criterion with number 70, test is one domain.

RESULTS

To measure the performance of organization using Kanji's Business Excellence Measurement System, firstly, organization performance score from the perspective of external and internal stakeholders to be obtained. Then, mean of obtained scores will be score of organization performance Kanji's Business Excellence Measurement System. To measure, organization performance based on criterion in two internal and external parts, questionnaires were set based on Likert spectrum. Options of each response included: excellent, good, moderate, weak, and very weak that scores 1 to 5 were assigned for them, respectively. Each criterion (KBEMS) has 100 scores. Therefore, these responses were multiplied in 20 after finding their mean so that obtained score to be based on 100. It should be explained that the minimum score is 5 and minimum score is 100 (KBEMS) number is 100. Therefore, number 5 was multiplied in 20 so that scores to be equivalent. As a result, scores were obtained for each criterion of organization performance in the internal and external parts and final score of organization performance was obtained using mean of scores. Results can be seen in [Table 4]. Scores are multiplied in 10 as indicated in Formula 3. As it can be seen from [Table 6], Karaj municipality performance has 545.3 scores, indicating that organization needs to be examined in terms performance. [Fig. 3] performance shows scores of internal and external organization performance scores along with final score at 1000-score scale.

Performance measurement from internal organization stakeholders' perspective-KBEM

Internal organizational performance scores can be seen in [Table 5]. In addition, [Fig. 4] shows graph of these scores. Regarding scores of criteria of focus on customer, process improvement, staff performance and culture of continuous improvement must be said that as each of these criteria consist of two sub-criteria, so their scores will be equal to mean of each of these scores.

Measuring performance from the external organizational stakeholders’ perspective -KBS

For external organization part, information of questionnaire was collected using Likert spectrum and as it was mentioned before, these score were calculated that are as follows. To do this, fire department, beautification, sport and cultural, and ICT organizations were used as sample and final score for each organization was added and divided to 4 (formula 4). Additionally, score of each organization is obtained by mean of four criteria of organizational values, process excellence, organizational learning, and satisfying external stakeholders. Scores can be seen in Table 6 and graph of external organization performance scores can be seen in [Fig. 5].

To test organization final performance hypothesis-KBEMS
 Finally, main hypothesis was tested and it is stated as follows:

H0= Karaj Municipality has no acceptable performance H0: $\mu \leq 700$
 H1= Karaj Municipality has acceptable performance H1: $\mu > 700$

Here, we examine it at the 1000-score scale. As a result, T test was conducted at 97.5% confidence level and its results are shown in [Table 7].

P-Value is 0.046 that is higher than 0.025, but score value is 545.3 that is lower than 700, Indicating performance that criteria should be examined and moderate performance

Equations

$$B = \frac{\sum_{i=1}^n x_i}{n} \tag{1}$$

$$PEI = (PEA + PEB) / 2 \tag{2}$$

$$PE = [(PEA + PEB) / 2] * 10 \tag{3}$$

$$PEB = (PEB1 + PEB2 + PEB3 + PEB4) / 4 \tag{4}$$

Tables and Figures

Table 1: Comparing scores of EFQM and KBEM

Score	KBEM	EFQM
60	Leadership (60%)	leadership
10	Customer satisfaction (10%)	
10	Management based on reality (10%)	
10	Staff-based management (10%)	
10	Continuous improvement (10%)	
100		
30	Leadership (30%)	Policy and strategy
20	Management based on reality (20%)	
20	Customer satisfaction (20%)	
20	Staff-based management (20%)	
10	Continuous improvement (10%)	
100		
40	Staff-based management (40%)	staff
50	Staff create quality (50%)	
10	Continuous improvement (10%)	
100		
50	Teamwork (50%)	Participations and resources
50	Measurement (50%)	
100		
50	All works are process (50%)	process
40	Management based on reality (40%)	
10	Continuous improvement (10%)	
100		
50	Customer satisfaction (50%)	Customer results
25	External customers' satisfaction (25%)	
25	Internal customers' satisfaction (25%)	

100		
50	Prevention (50%) Staff-based management (30%) Continuous improvement circle (20%)	Staff results
30		
20		
100		
25	External customers' satisfaction (25%) Internal customers' satisfaction (25%) Customer satisfaction (20%) Leadership (10%) Continuous improvement (20%)	Results of society
25		
20		
10		
20		
100		
30	Management based on reality (30%) Continuous improvement (40%) Continuous improvement circle (30%)	Key results of performance
40		
30		
100		
Total	900	1000

Table 2: Sample Kolmogorov-Smirnov Test of KBEM section

One-Sample Kolmogorov-Smirnov Test			
Criteria	N	Kolmogorov-Smirnov Z	Asymp. Sig. (2-tailed)
leadership	58	0.668	0.763
Customers satisfaction	58	0.966	0.309
External customers satisfaction	58	1.354	0.51
Internal customers satisfaction	58	1.235	0.95
Management based on reality	58	0.794	0.553
All works are process	58	0.650	0.792
Measurement	58	0.884	0.414
staff-based management	58	0.829	0.497
Teamwork	58	0.903	0.389
People create quality	58	0.857	0.455
Continuous improvement	58	0.941	0.339
continuous improvement circle	58	0.754	0.621
Prevention	58	1.185	0.121

Table 3: Sample Kolmogorov-Smirnov Test of KBS section

One-Sample Kolmogorov-Smirnov Test			
Criterion	N	Kolmogorov-Smirnov Z	Asymp. Sig. (2-tailed)
Organizational values	88	0.839	0.482
Stakeholders satisfaction	88	0.926	0.358
Process excellence	88	0.902	0.390
Organizational learning	88	0.737	0.649

Table 4: Final score of Karaj Municipality performance

PEA	PEB	Final score of organization
53.40	55.66	545.3

Table 5: Performance scores from internal stakeholders' perspective

Criterion	Score	KBEM part
Leadership	59.69	
Customers satisfaction	55.28	
Focus on customer	53.39	
Management based on reality	49.42	
Continuous improvement	49.54	
Staff-based management	54.82	
Staff performance	57.18	
Continuous improvement	48.73	

Continuous improvement culture	52.58
Performance excellence score of first part -PEA	53.40

Table 6: performance scores from external stakeholders' perspective-KBS

Organization	Score	KBS part
Fire Department (PEB1)	47.67	
Beautification (PEB2)	54.57	
Sport culture (PEB3)	65.69	
Communication and Information Technology(PEB4)	54.73	
Performance excellence score of second part - PEB	55.66	

Table 7: T test for Kanji's Business Excellence score

One Sample Statistics						
	N	Mean	Std. Deviation	Std. Error Mean		
PE	2	545.3	15.98061	11.30000		
One-Sample Test						
Test Value = 700						
	t	df	Sig. (2-tailed)	Mean Difference	97.5% Confidence Interval of the Difference	
					Lower	Upper
PE	-13.690	1	.046	-154.7	-442.3042	132.9042



Fig. 1: Pyramid model of Kanji consisting of critical factors of success.

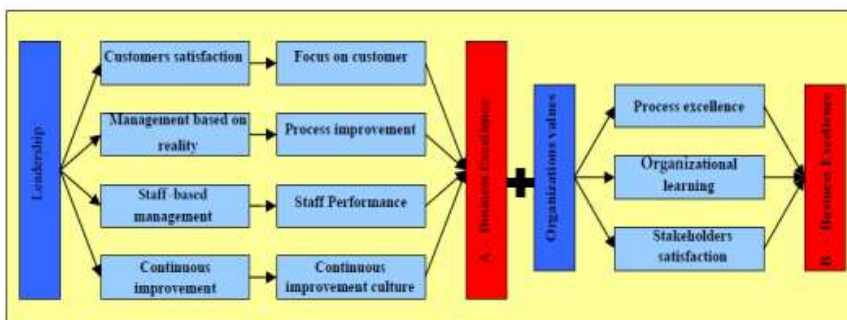


Fig. 2: Kanji's Business Excellence Measurement System.

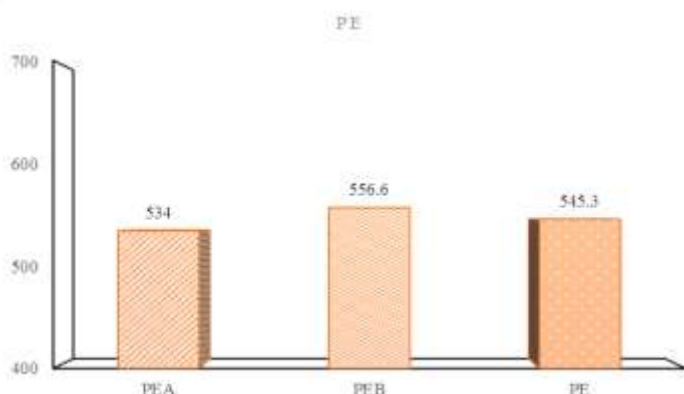


Fig. 3: Graph comparing the performance scores of Karaj Municipality Organization.

DISCUSSION AND CONCLUSION

According to the definition of Kanji's system, Karaj municipality will have acceptable and appropriate performance in each criterion that its score is above 70. According to the results of Karaj municipality, only in organizational values acceptable results were not achieved and regarding Sports and Cultural Organization its score was 70.23. In addition, regarding weak points of performance, Karaj municipality in the criteria of organizational value, external stakeholders' satisfaction, and process excellence only from Sport and Culture Organization view and criterion of organizational values from Beautification Organization view had moderate performance and in other criteria, it has inappropriate performance. According to the strengths and weaknesses of Karaj municipality, recommendations are divided into two parts. First group is to maintain strengths of performance and the second group is recommendations to find the root of weak performance and improving strengths versus weaknesses. What is clear is that weaknesses have impact on organization performance leading that managers and staff to be questioned. Various reasons cause weaknesses of the organization performance, but is considered in the organizational policy and strategic management is that root of reasons must be determined and solutions to be provided for them. Some of them are: To improve excellent leadership, it is proposed that leaders and senior managers of Karaj municipality develop long-term strategies and determine performance vision for their employees. Additionally, to consider internal and external customers views, both complaints and suggestions, will make them more satisfied. In order to improve performance, comparing performance of staff with competitors and encouraging people to communicate and interact with each other are some of suggestions to improve performance in the case of focus on customer. One of the principles considered in quality management systems is organizational processes. All affairs that are done in the organization are process, so it is suggested that the key processes to be identified and assessed for awareness of managers and their comparison with other similar organizations. It is also recommended that the objectives, policies, tasks and executive plans to be developed realistically. It is recommended that managers give necessary training for staff in order to improve their knowledge and their productivity. It should be attempted that feedback is received from staff performance and implementation of the objectives and required resources to be provided for staff.

In addition, staff training in order to empower them and provide good working environment as well as encouraging and motivating them will lead to increased efficiency and performance score. To implement continuous improvement of culture, those methods should be used seeking to find the roots of problems. It also recommended that managers and senior managers of Karaj municipality use continuous improvement and feedback to improve. To do this, using quality management systems and organizational excellence are useful.

Identifying opportunities for improvement, execution of cycle of continuous improvement of processes, developing and implementation of practices to prevent the recurrence of errors, performing corrective actions and identifying the root of the problems are such cases that can be recommended to improve the performance of this criterion. Organizational values should be consistent with organizational objectives and used to satisfy the needs of organizational stakeholders. The results show that the stakeholders complain senior managers of Karaj municipality. Therefore, to solve this problem, it is recommended that senior managers pay attention to problems, do their best to resolve them, and consider the expectations of external stakeholders and meet them. It is also suggested that they give correct and sufficient information

for stakeholders and establish proper work relations with them, and use their views and ideas in developing the plans. Process excellence is an issue that is used in many large organizations and factories. To improve performance and move towards excellence, it is recommended that Karaj municipality officials pay higher attention in serving clients and use organizational excellence indices to determine their own performance. Organizational learning and the concept of learning organization are now one of the organizations' development factors towards excellence. Low organizational excellence score investigated by four stakeholders indicate that staff of this organization has no greater tendency to learn activities from each other and this is a warning for senior managers of this organization.

Suggestions for Future Research

According to the research and literature in research, following recommendations are provided for future studies:

Performance assessment of other municipalities in the country using business excellence of kanji
 Karaj municipality performance assessment using other performance measurement tools
 Examining the effect of each component of Kanji's excellence performance measurement system on organization performance

To measure the performance of other organizations, companies and factories using Kanji's business excellence measurement system

Theoretical and practical comparison of EFQM and KBEM models

Theoretical and practical comparison of BSC and KBS models

CONFLICT OF INTEREST

There is no conflict of interest.

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