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An organizational improvement model using SERVQUAL and Balanced Score Card structure in a parallel way

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ABSTRACT

In this study we are going to have a useful model which consider both service quality and organizational performance and also be able to determine the distance to the improved organization. The literature review lead research to use balanced score card (BSC) model as a comprehensive model for assessing organizational performance and also structure of the SERVQUAL model for evaluating the service quality. This study presents a model using Fuzzy Analytic Hierarchy (AHP) approach in which calculates the scores of both service quality and organizational performance's indicators from the perspective of the recipients and then compares them to the weights experts gave to that indicators -as the scores of an ideal organization- to identify distances. To implement the model in this study, five governors of Yazd province were selected as the empirical study. The results were quite interesting and practical for experts and executives.

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INTRODUCTION

Based on studies on England economy, in 1970, service sector industries supplied 53% of GDP and 25 years later in 1995, this had grown to 67%. This gradual shift in output share was not unique to the United Kingdom, but occurred in most of the major industrialized economies (Julius and Bulter, 1998). In 2011, service sector had an 80% share of GDP in USA (Bureau of Labor Statistics, 2014).

In today's global competitive environment delivering quality service is considered as an essential strategy for success and survival (Parasuraman *et al.*, 1985; Reichheld and Sasser, 1990; Zeithaml *et al.*, 1990). It is observed that most of the studies to date, have concentrated on service quality in US and European public service sector, while some more recent studies have looked at service quality in developing countries (Agus *et al.*, 2007). The public sector organizations have come under increasing pressure to deliver quality services (Randall and Senior, 1994) and improve efficiencies (Robinson, 2003).

Service quality practices in public sector organizations is slow and is further exacerbated by difficulties in measuring outcomes, greater scrutiny from the public and press, a lack of freedom to act in an arbitrary fashion and a requirement for decisions to be based in law (Teicher *et al.*, 2002).

The public sector in most countries is going through profound restructuring in the face of environmental constraints that force the sector to become more efficient and effective. In this respect, one of the most popular tools used in the contemporary reform programme is the application of performance appraisal systems (Faizal, 2005). Systems which are based on a comprehensive review of all related aspects, provides the possibility of determining the strengths, weaknesses, threats and opportunities.

The purpose of this paper is to achieve a model that can consider quality of services along with organizational performance and thus factors like satisfaction be considered along with performance aspects like productivity. The purpose of this study lead us to seek answers of the following questions:

Q1. How can we improve organization so that be ensure of considering both performance and quality aspects of improvement?

Q2. Is there a comprehensive model for organizational improvement within the public service sector?

Literature review:

In the literature of this area, about the improvement of service organizations, there is a shortage of researches on comprehensive improvement. Studies are mostly in the quality improvement, performance

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improvement and human resource empowerment. We could not see an applied model for balanced improving organizations.

SERVQUAL and quality evaluation:

It is well known that service quality, as a key strategic indicator in service industries, strongly affects customers' satisfaction, loyalty, retention, firms' profitability and performance superiority. (Fitzsimmons, J.A and Fitzsimmons, M. J, 1994).

According to Douglas & Connor, (2003, p.166), Parasuraman *et al.*, (1985, p.42), and Ladhari, (2009, p.172), the intangible elements of a service (inseparability, heterogeneity and perishability) are the critical determinants influencing service quality perceived by a consumer. This means that a service must be well defined by the provider in terms of its characteristics in order to understand how service quality is perceived by consumers.

In this study the definition and approach by Parasuraman, Zeithaml, and Berry (1985), is used to defining quality criteria. The SERVQUAL model was made of ten dimensions of service quality when created; tangibles, reliability, responsiveness, communication, credibility, security, competence, courtesy, understanding the customer, and access, (Parasuraman *et al.*, 1985, p.47-48) but later these dimensions were reduced to five because some dimensions were overlapping:

1. Reliability: The ability of service providers to fulfill their commitments continuously and accurately.
2. Responsiveness: The willingness and accountability of the service providers to support their clients.
3. Empathy: The intimacy with the clients and understanding of their individuals' feelings and problems.
4. Assurance: The competence and skill of the staff of an organization to give confidence and trust to the clients.
5. Tangibility: The tidiness and appearance of assets and property of an organization including its staff (Zeithaml & Bitner, 1996)

According to study carried out by Ladhari (2009) it was recommended that the SERVQUAL model was a good scale to use when measuring service quality in various specific industries but that it was appropriate to choose the most important dimensions of this model that fit to that particular service being measured in order to assure reliable and valid results.

Balanced scorecard and performance evaluation:

Performance is referred to as one kind of measurement of the goals of an enterprise, while evaluation is referred to as the goal that an enterprise can effectively obtain during a specific period (Lebas, 1995). Performance evaluation tells us how employees define their own work, and it establishes a decision-making and communication process for improvement (Rue and Byars, 2005). Kaplan and Norton (1992), that this research use their approach in performance and its evaluation, described performance evaluation as a way to review the achievements of organizations of both their financial and nonfinancial objectives.

They proposed the concept of balanced scorecard (BSC) that measures organizational performance from four perspectives, including financial, customer, internal business process, and learning and growth (Kaplan & Norton, 1992). A large amount of research related to the financial industry employed the BSC to evaluate performance and has benefited from its use (Ashton, 1998; Davis & Albright, 2004).

Balanced Scorecard is a framework used to educate staff, being in harmony and commitment with the strategies. (LaMotte and Carte, 2000). In addition, it is the system get performance criteria in line with the strategies (Decoene and Bruggeman, 2006)

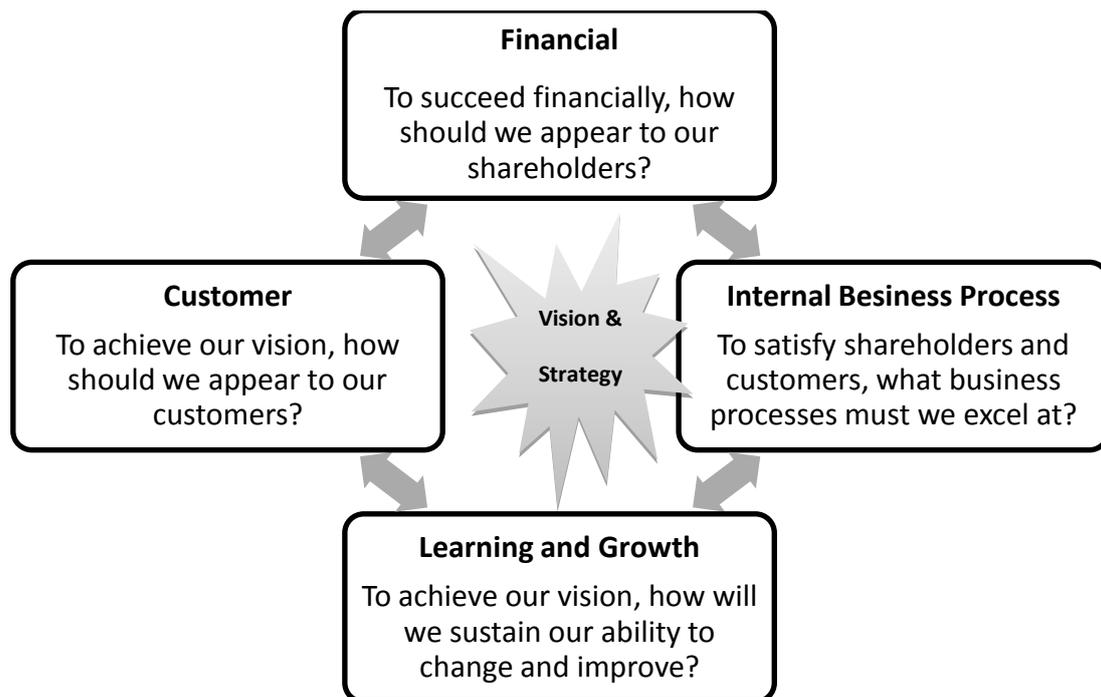


Fig. 1: Basic concept of the Balanced Scorecard (Toro,2002)

Fuzzy AHP:

In this study, Chang's(1992) extent analysis on fuzzy AHP is formulated for problem. Extent analysis for each criteria (g_i) is performed on respectively. Therefore M extent analysis values for each criteria can be obtained using following notation (Kahraman *et al*, 2004):

$$M_{g_i}^1, M_{g_i}^2, M_{g_i}^3, \dots, M_{g_i}^m$$

where g_i is the goal set ($i = 1, 2, 3, \dots, n$) and all the $M_{g_i}^j$ ($j = 1, 2, 3, \dots, m$) are Triangular Fuzzy Numbers (TFNs). The steps of Chang's analysis can be given as in the following:

Step1. The fuzzy synthetic extent value (S_i) with respect to the i^{th} criteria is defined as followed equation:

$$S_i = \sum_{j=1}^m M_{g_i}^j \times [\sum_{i=1}^n \sum_{j=1}^m M_{g_i}^j]^{-1}$$

Step 2. The degree of possibility of

$M_2 = (l_2, m_2, u_2) > M_1 = (l_1, m_1, u_1)$ is defined as:

$$V(M_2 \geq M_1) = \sup[\min(\mu_{M_1}(X), \mu_{M_2}(Y))]$$

X and Y are the values on the axis of membership function of each criteria. This expression can be equivalently written as given below:

$$V(M_2 \geq M_1) = \begin{cases} 1 & m_2 \geq m_1 \\ 0 & l_1 \geq u_2 \\ \text{htg}(M_1 \cap M_2) & \text{otherwise} \end{cases}$$

$$\text{htg}(M_1 \cap M_2) =$$

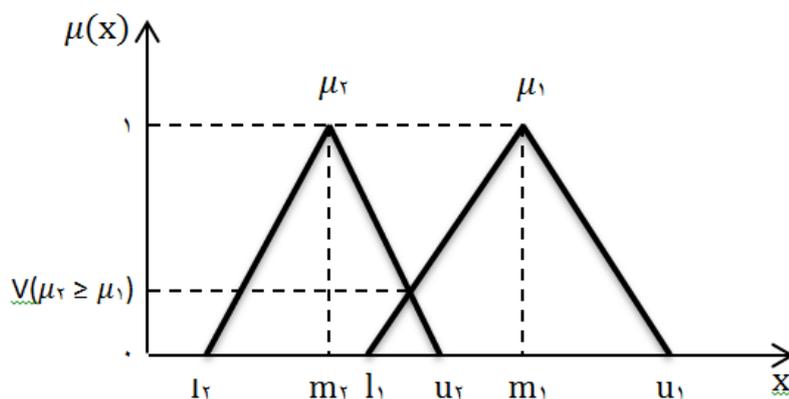


Fig. 2: triangular fuzzy number

Step3. For calculating non-normalized weights:

$$W'(x_i) = \min(V(S_i \geq S_k)), k=1,2,\dots,n, k \neq i$$

Step4. Normalizing weights:

$$w_i = \frac{w'_i}{\sum w'_i}$$

Research methodology:

This study is for answering some questions of researcher. Research questions are:

- 1- In public sector organizations, how can increase service quality and organizational performance in a balanced way?
- 2- Recipients of which city are more satisfied from quality of service and organizational performance of their governor?
- 3- Is there a comprehensive model for organizational improvement in the public services sector? How is it?

Thus, paying attention to measuring organizations through service quality and organizational performance is the major step. The criteria of organizations evaluation that used in this study is separately shown.

Performance evaluation criteria:

The criteria used in organizational performance evaluation separately shown in this table:

Table 1: Criteria used in evaluating performance through Balanced Scorecard

Finance	Growth and learning	Internal processes	Consumer
The proportion of the payroll system with performance	The amount goals and needs are trained and specified.	The proportion of employee selection (inside or outside the organization) with organization needs	The amount of customer complaints and questions
The amount of attention to the proper methods to avoid wasting resources	The amount managers attend to unlocking talents	The amount of Selection and promotion of personnel based on competence	The amount of guidance and training to get better and faster customer service
The proportion of budgets with organizational programs and goals	Amount of programs to prepare personnel for management positions	Amount of attention to dignity of human	Amount of informing about all the services available to clients
The success rate of spending budgets on legitimate places and on schedule		Awareness level personnel have about duties, responsibilities and authorities	Amount of efficiency and effectiveness of communication channels with the external environment
Level of monitoring (construction) projects		The amount of updated information	

Service quality criteria:

The criteria used in evaluating service quality separately shown in this table:

Table 2: Criteria used in evaluating service quality through SERVQUAL

Empathy	Assurance	Responsiveness	Reliability	Tangibles
Giving special and personal attention to clients	Creating a sense of trust in clients by staff behavior	Announcing the exact time of service to clients	Doing work at the time promised	New and good office equipment and accessories
The amount hours are suitable for service	Creating a sense of security for the client	Speed of service	showing honest desire to solve customer	Attractive appearance of

Considering the best benefits of the client	Polite behaving of staff	Constant desire of staff and system to respond the	problems Providing corrects ervice at the first time	physical facilities Staff adornment
Understanding the specific needs of clients by staff	The amount staff have knowledge to respond	Having enough time to respond	The amount of insistence and interest to do perfect service	Attractiveness and collocation of documents, booklets, declarations, etc.

Conceptual model:

In this study after determining the effective criteria on evaluating service quality and organizational performance, coefficient of parameters are specified and actual or present rates of any criteria is determined that this process can be implemented using multi-criteria decision making methods.

Experts' questionnaires analyzed using AHP method by Microsoft EXCEL software. Also because of the nature of the individual opinions about quality and performance, Fuzzy approach is used in the process.

Thus, there are two decision trees or in fact twice run of hierarchical analysis processes. One related to organizational performance, and the other one is related to the quality of service. First, the criteria weight is calculated. It is important to know when experts are making a pairwise comparison on criteria, they are drawing the ideal organization. An organization with good rates in each criteria. For example, when the result of comparisons done by experts indicate the coefficient of one criteria is $\frac{6}{9}$, it means that an ideal organization has this rate at mentioned criteria. In this study, identifying the ideal organization is done on this approach. this ideal organization is one side of model. The other side that is next step, is the actual amount of the indicators that the personnel registered or the rates personnel gave the present organization. The greater difference between this sides indicates organization should be paid more attention to achieve the desired status.

The gap between ideal organization and present organization

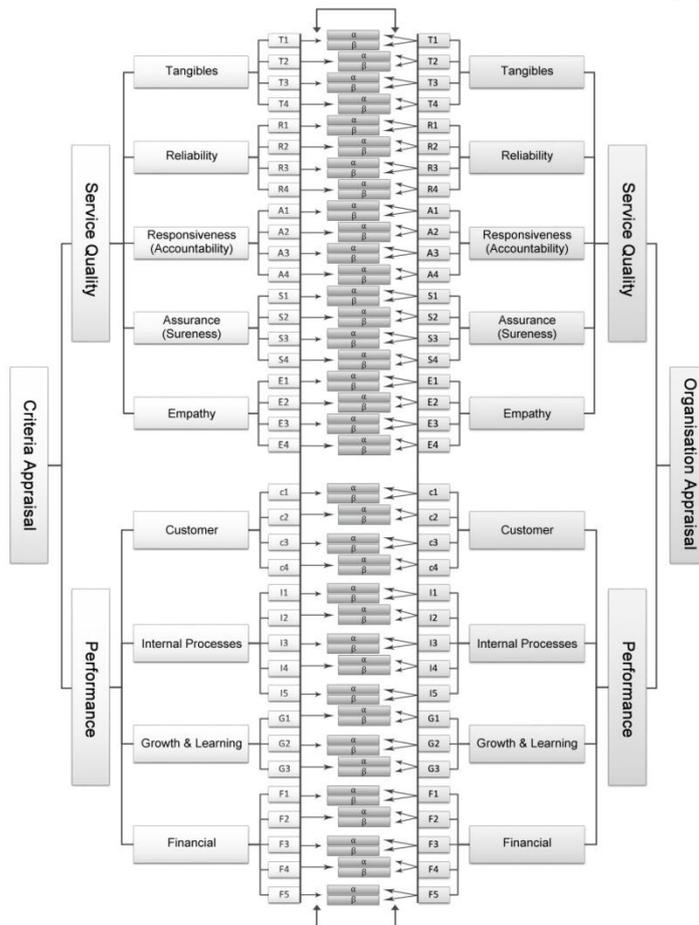


Fig. 3: Organizational improvement model (left side refers to the ideal values and right sides refers to the actual values)

Questionnaires:

Information needed to perform this study, obtained by library, observation, interview and questionnaire methods. The population for implementing the model consisting of public sector experts of Yazd province who rate in the first phase -the screening criteria and determining the coefficients-plus managers of government agencies that are in constant contact with the governor in any city who determined the actual present rate and rank of each governor in the next phase. The following table show how the questionnaires distributed.

Table 3: distributed questionnaires

sum	Taft	Bafq	Tabas	Ardakan	Meybod	
8	-	-	-	-	-	Screening and validity check questionnaire
6	-	-	-	-	-	Pairwise comparisons questionnaire
49	7	7	7	7	7	Present status appraisal questionnaire

The governors of this five city recommended by experts because of their important.

Results of empirical study:

As a result of the overall shape of the proposed model, we should have two numbers for each criteria. One represents an ideal weight in a specific criteria and the other score represents the actual and present rating on that criteria.

The output of the model are summarized in the following table:

Table 4: The difference between the weight of each indicators of organizational performance

Ideal score		Taft		Tabas		Bafq		Ardakan		Meybod	
indicator	indicator weight	difference	score								
C1	weight	-0.001	0.040	-0.001	0.040	-0.017	0.024	-0.010	0.032	-0.010	0.032
C2	0.042	-0.020	0.039	-0.020	0.039	-0.029	0.030	-0.028	0.031	-0.028	0.031
C3	0.058	-0.021	0.038	-0.021	0.038	-0.030	0.029	-0.026	0.033	-0.029	0.030
C4	0.059	0.031	0.041	0.029	0.038	0.022	0.032	0.020	0.029	0.020	0.029
I1	0.010	0.062	0.126	0.062	0.126	0.034	0.097	0.033	0.097	0.062	0.126
I2	0.063	-0.048	0.127	-0.048	0.127	-0.075	0.100	-0.076	0.099	-0.057	0.118
I3	0.175	0.094	0.130	0.094	0.130	0.066	0.101	0.065	0.101	0.074	0.109
I4	0.035	-0.142	0.128	-0.161	0.109	-0.173	0.097	-0.151	0.119	-0.151	0.118
I5	0.270	0.108	0.135	0.081	0.108	0.057	0.084	0.090	0.118	0.099	0.126
G1	0.027	-0.005	0.027	-0.008	0.024	-0.015	0.017	-0.009	0.023	-0.010	0.022
G2	0.032	-0.022	0.026	-0.023	0.026	-0.031	0.017	-0.026	0.023	-0.026	0.023
G3	0.048	-0.007	0.027	-0.001	0.033	-0.025	0.009	-0.013	0.021	-0.010	0.024
F1	0.034	0.002	0.037	-0.002	0.033	-0.025	0.009	-0.003	0.032	0.000	0.035
F2	0.035	0.026	0.037	0.025	0.036	0.008	0.019	0.018	0.029	0.015	0.026
F3	0.011	-0.007	0.037	-0.007	0.037	-0.022	0.022	-0.018	0.026	-0.019	0.025
F4	0.044	0.021	0.035	0.021	0.035	0.008	0.022	0.013	0.027	0.013	0.027
F5	0.014	-0.012	0.031	-0.007	0.036	-0.014	0.029	-0.017	0.025	-0.016	0.026

Table 5: The difference between the weight of each indicators of service quality

Ideal score		Taft		Tabas		Bafq		Ardakan		Meybod	
indicator	weight	difference	score	difference	score	weight	indicator	difference	score	difference	score
T1	0.039	-0.010	0.029	-0.010	0.029	-0.018	0.020	-0.016	0.023	-0.016	0.023
T2	0.070	-0.043	0.028	-0.043	0.028	-0.051	0.019	-0.047	0.024	-0.046	0.024
T3	0.007	0.020	0.028	0.020	0.028	0.013	0.021	0.018	0.026	0.014	0.021
T4	0.006	0.022	0.029	0.022	0.029	0.011	0.018	0.016	0.023	0.018	0.025
R1	0.021	0.022	0.042	0.025	0.046	0.004	0.025	0.020	0.041	0.020	0.041
R2	0.101	-0.054	0.048	-0.054	0.048	-0.069	0.032	-0.067	0.034	-0.067	0.034
R3	0.029	0.020	0.049	0.020	0.049	-0.003	0.026	0.011	0.040	0.004	0.032
R4	0.045	-0.001	0.044	-0.001	0.044	-0.012	0.033	-0.008	0.037	-0.007	0.038
A1	0.100	0.006	0.106	0.006	0.106	-0.035	0.065	-0.001	0.099	-0.016	0.084

A2	0.097	0.018	0.115	0.011	0.107	<u>-0.043</u>	0.053	<u>-0.004</u>	0.093	<u>-0.004</u>	0.093
A3	0.080	0.032	0.111	0.032	0.111	<u>-0.012</u>	0.068	0.001	0.081	0.009	0.089
A4	0.184	<u>-0.073</u>	0.112	<u>-0.073</u>	0.112	<u>-0.118</u>	0.067	<u>-0.095</u>	0.089	<u>-0.103</u>	0.082
S1	0.051	<u>-0.008</u>	0.043	<u>-0.008</u>	0.043	<u>-0.024</u>	0.027	<u>-0.028</u>	0.023	<u>-0.022</u>	0.029
S2	0.018	0.023	0.041	0.026	0.044	0.001	0.019	0.009	0.027	0.017	0.034
S3	0.048	<u>-0.007</u>	0.041	<u>-0.018</u>	0.030	<u>-0.019</u>	0.029	<u>-0.022</u>	0.026	<u>-0.010</u>	0.038
S4	0.048	<u>-0.011</u>	0.037	<u>-0.011</u>	0.037	<u>-0.022</u>	0.026	<u>-0.017</u>	0.031	<u>-0.014</u>	0.034
E1	0.012	0.001	0.013	0.001	0.013	<u>-0.003</u>	0.009	<u>-0.002</u>	0.010	<u>-0.001</u>	0.011
E2	0.016	<u>-0.004</u>	0.013	<u>-0.004</u>	0.013	<u>-0.007</u>	0.009	<u>-0.006</u>	0.011	<u>-0.006</u>	0.011
E3	0.019	<u>-0.006</u>	0.013	<u>-0.005</u>	0.013	<u>-0.008</u>	0.010	<u>-0.010</u>	0.008	<u>-0.008</u>	0.011
E4	0.009	0.005	0.013	0.005	0.013	0.000	0.009	0.001	0.009	0.003	0.012

Conclusion and final remarks:

To analyze the difference between the actual organizations scores with ideal organization scores, we should begin to check the factors that have acquired a negative difference score.

Based on these data, we can determine the relative frequency of the negative numbers obtained on four factor of balanced scorecard, and on five factor of SERVQUAL.

Table 6: The factors and indicators were mostly lower than the ideal, in organizational performance

Criteria that had weak mostly	The frequency of weakness	Relative of	BSC factors
The amount of customer complaints and questions	0.75		Customer
The amount of guidance and training to get better and faster customer service			
Amount of informing about all the services available to clients			
The amount of Selection and promotion of personnel based on competence	0.1		Internal processes
Awareness level personnel have about duties, responsibilities and authorities			
The amount goals and needs are trained and specified.	1		Growth and learning
The amount managers attend to unlocking talents			
Amount of programs to prepare personnel for management positions			
The proportion of the payroll system with performance	0.6		Finance
The proportion of budgets with organizational programs and goals			
Level of monitoring (construction) projects			

As can be seen, the “customer” and “learning and growth” factors are very different from the ideal situation. Especially for growth and learning factor that all its three criteria have less than desirable score. “Awareness level personnel have about duties, responsibilities and authorities” that named I4 in Table 2, is the criteria that has greatest difference with ideal. It also should be noted that the least weakness is in the “internal process”.

Table 7: The factors and indicators were mostly lower than the ideal, in service quality

Criteria that had weak mostly	The Relative frequency of weakness	SERVQUAL factors
New and good office equipment and accessories	0.1	Tangibles
Attractive appearance of physical facilities		
showing honest desire to solve customer problems	0.1	Reliability
The amount of insistence and interest to do perfect service		
Announcing the exact time of service to clients	0.6	Responsiveness
Speed of service		
Having enough time to respond		
Creating a sense of trust in clients by staff behavior	0.6	Assurance
Polite behaving of staff		
The amount staff have knowledge to respond		
Giving special and personal attention to clients	0.6	Empathy
The amount hours are suitable for service		
Considering the best benefits of the client		

Situation of present service quality is closer to ideal place than situation of organizational performance. In service quality factors, we should pay more attention to the “responsiveness”, “assurance” and “empathy” factors because of their greater relative frequency of negative scores. Greatest difference in the quality of services related to “Having enough time to respond” that is named A4 in table 3.

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