

ORIGINAL RESEARCH PAPER

## Proposing a performance measurement framework for the Municipalities

M. Valibeigi<sup>1,\*</sup>, M. Afsharirad<sup>2</sup>, M. Valibeigi<sup>3</sup>, E. Sarhangi<sup>4</sup>

<sup>1</sup>Department of Urban Planning, Buein Zahra Technical University, Buein Zahra, Iran

<sup>2</sup>Department of General Economic Affairs, Kharazmi University, Tehran, Iran

<sup>3</sup>Department of IT planning, Mellat Bank, Tehran, Iran

<sup>4</sup>Department of Regional Planning, Beheshti University, Tehran, Iran

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### ABSTRACT

**BACKGROUND AND OBJECTIVES:** The main objective of this paper is to propose a performance measurement framework for Iranian municipalities as a public institution.

**METHODS:** By selecting Karaj Municipality and referring to Balanced Score-Card Methodology (BSC), an attempt has been made to provide a framework that can be used in public institutions as an efficient tool for measuring performance. The research used analytical methods and stand-alone questionnaire survey techniques, a case study approach by cross-sectional method. The research environment was the central municipality of Karaj and the relevant deputies. Content validity was used to determine the validity of the questionnaire. The reliability of the questionnaire was determined based on Cronbach's alpha. Also, the Balanced Score-Card framework is integrated with an Analytic Hierarchy Process (AHP).

**FINDINGS:** The results show that through the citizenship viewpoint, the satisfaction level of personal investors and makers is almost 7 times more important than citizens' satisfaction. The Municipality of Karaj pays more attention to the interests of the private sector than the public interests which comes from the municipality money making target. The improved implemented projects index was, through the internal processes of business, about 3 times more important than the number of new projects index. It seems more logical to focus on the process improvement plan and project management improvement. Completion of the current projects can increase the added value to Karaj municipality. Also proper performance of Information Technology (IT) unit shows the growing importance of e-government to improve the performance of municipalities and process improvement plan.

**CONCLUSION:** Finally, it seems a continuous process of such framework has the ability to bring together all key internal and external shareholders and rulemakings can be shaped during time and this process can be accepted by Iran's municipal management with methodologies that compare relative importance in performance criteria.

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\*Corresponding Author:

Email: [mojtaba.valibeigi@gmail.com](mailto:mojtaba.valibeigi@gmail.com)

Phone: +989120593514

Fax: +982189770659

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**INTRODUCTION**

The performance measurement system goals can be described under the performance management strategy. It will cause the development simplification, responding acceleration, and learning and innovation simplification, giving the initial alerts, generating a performance culture and making great decisions (Van Dooren et al., 2015). The reinventing government book by Osborne (1993), can be considered as one of the key stimulators in this domain. These systems have the ability to regulate the aims, assess them in organization management and responsibility, strategic planning, economic development evaluation, customer satisfactory and the municipal competitiveness (Van and et al., 2015). It can also be a great management tool for planning, monitoring and reviewing the performance criteria and assessment requirements of municipal services effects (Ammons and Rivenbark, 2008; Padovani et al., 2010). In the last 30 years, managerialization movements have regularly stressed the indispensability of the use of performance measures in the public sector, while underlining certain limits and peculiarities (Giacomini, 2020). McGill (1993, 1995) believes that a big difference could be found among the performance of profit organizations and non-profit organizations, during the performance assessment. The difference has been reported in Table 1.

According to Table 1, third part, the executive performance, is common for both profit and non-profit sectors, while the performance criterion, at first and second level, separates the public and private sectors (Van Dooren et al., 2015). At these two levels, public sectors must work to succeed in the particular projects and citizens' satisfaction and also overall performance of programs in relation to general social conditions; while in contrast to a financial organization, it has automatic special sales and profits feedbacks. Therefore, there are two different challenges in the measurement. First, as Self (1983) stated, it is easy to

state the executive paths and goals and then complete them without attention to the external environment. An external look raises the question of the consequences of this project and its distributional effects, usefulness and popularity in society. The second challenge is to go beyond financial and profit criteria (Julnes and Holzer, 2001; Rainey et al., 1976). As an example, the aforementioned challenges were happened in Malawi (McGill, 1995). The project of the development of the local government of the World Bank has considered the task of urban management as one of its components, which a part of that, was the Malawian City councils' improvement. The framework was developed in three parts. In order to evaluate the urban management performance, first step was performance development which related to organization and urban structure. What development should be initially planned and then be implemented? Executive operations that is a bridge between development by itself and the organizational ability to operate effectively and economically in the city, was the second step. And third step was impact performance that its objective was assessing the impact of work done on overall social indicators. This step suggests that the impact of performance is related to the cumulative outcomes of the development as well as the executive levels of organizational activity. Ideally, in this situation the impact of urban management processes on some social indicators should be evaluated (McGill, 1995). Kaplan and Norton (1995) developed a conceptual framework and performance measurement based on balanced scorecard (BSC) which included different dimensions of performance. They tried to propose a more complete methodological framework in organization performance assessment, considering the organization complexity, environment dynamics and market competitiveness (Kaplan and Norton, 1996b; Olson and Slater, 2002). Welcoming the adoption of performance management methods and control systems such as the BSC that has the capability to be used by both public

Table 1. Relation between performances of the profit and non-profit organizations

Executive Performance	Organization Performance	Review Level
Program Performance in Context of Social Conditions	Total Profit and Capital Growth	Level 1 3-5 years
Success in Major Projects and Citizenship Satisfaction	Success in Market and It's Profit	Level 2 1-3 years
Executive Efficiency, Budget Control, Staff Sprit and Project Management	Executive Efficiency, Budget Control and Production Management	Level 3 1-1.4 years

(McGill, 1993)

and private sectors, has been emphasized by many researchers (Sharma and Gadenne, 2011; Watson and Fisher, 2008). Although there is an abundance of literature on the BSC framework, there is a scarcity of literature on how this framework should be properly implemented in municipalities and community-based organizations. The Balanced Scorecard (BSC) is an important multi-attribute evaluation framework that has been accepted by many companies. The BSC advocates the incorporation of nonfinancial attributes into the company reward system, and highlights the contribution of nonfinancial attributes to the wealth creation process (Guimares et al., 2010; Lawson et al., 2006). The conceptual framework of the Balanced Scorecard has been implemented and utilized effectively for years in a large number of for-profit organizations. More recently, the model has been effectively utilized in not-for-profit organizations as well (Martello et al., 2016). Therefore, there is a lack of literature that addresses the actual implementation of the scorecard in local governments and Community-Based Organizations (CBO). However, the multiple dimensions of a balanced scorecard may provide better multiplier nature of performance evaluation, there are some problems with prioritization of decisions. Also, it is believed that the AHP is a versatile multi-attribute decision methodology that can be adapted to a wide range of BSC decision environments like Local Government. Many governments including local governments are reviewing the way they plan, prepare budgets, implement and manage programs and deliver services to meet the government's and citizens' demands for improved performance and accountability (Umashev and Willett, 2008). In order to enhance the efficiency and effectiveness of plans and projects, new accounting systems and participation of key internal and external stakeholders, Iran's Municipal Management requires this new public management system. The paper aims to examine whether the implementation of the Balanced Scorecard (BSC) has been of value to a municipality in Iran. As Salamzadeh (2020) mentioned, a theoretical contribution of the article is related to examine a previously tested theory in a new context. However, there is fairly broad consensus that there are significant challenges in transposing the BSC principles to public sector organizations, and that particular circumstances unique to the public sector give rise to the need for adjustments in both BSC design and implementation (Sharma and Gadenne,

2011). Accordingly, the performance assessment framework has been done in Karaj municipality as a public institution in Iran. The framework used in this article is based on the work of Sharma (2011) and Martello et al., (2016). Also, for this purpose, an Analytic Hierarchy Process (AHP) is used to facilitate the implementation of the BSC. Also some of complex problems of a balanced performance assessment, such as the use of subjective versus objective measures can be determined using Analytic Hierarchy Process (AHP) method (Bentes et al., 2012; Chan, 2006). Accordingly, the article is comprised of the following parts: first, we try to establish the context of the work being done. This is accomplished by discussing the relevant literature review and summarizing our current understanding of the problem we are investigating and finally, briefly explain our rationale and approach. Second, we describe both specific techniques and the overall experimental strategy. And we try to describe the research design. Third, it includes our results and the data collected during the research. There are analyzed the raw data in tables and figures to draw our own conclusions. Finally, in discussion section, it will be explained interpretations of the data and described what the work suggests and how it relates to other studies.

#### *Literature Review*

Some of researchers like Venkatraman and Ramanujam (1986) stated that the traditional financial measurement is not enough for the accurate assessment of organizational performance (Venkatraman and Ramanujam, 2002). Financial measurements typically show the returns or margins of past results and do not speak about expectations of future performance. Some financial measurements, such as NPV (net present value) and Tobin's q or share value show the expectation of long-term future performance (Wang and Chen, 2010). Ambler (2000), Performance is a function of external criteria (such as financial metrics and adjustment interest with changes in value) and internal criteria (such as innovation and employee commitment) (Clark and Ambler, 2001). A four-level hierarchy is enough for the structural performance, based on Diamantopoulos and Kakkos (2007), including: 1. Overall Objective (e.g. export performance), 2. Different objectives (or outputs) (e.g. sales versus profits compared to new product introductions) 3. Reference framework (e.g. a competition or customer plan) 4. Time frame

(e.g. short and long term). In the case of a structure linkage with two or some sides (e.g. assessment of performance), researchers should determine the side which is the best reflect (Bollen and Lennox, 1991).

Therefore, a change in the performance index will cause a change in the hybrid standard (Bentes *et al.*, 2012). One of the most popular performance assessment models is the Balanced Scorecard, developed by Kaplan and Norton (1995). This model suggests that some balance indices should be utilized for each organization performance assessment. Different sides make it possible to answer four principle questions (Kaplan and Norton, 1996a) as below:

1. How is the look on shareholders? (financial side)
2. In which domains, governments should work properly? (internal side of business)
3. How the customers are thinking about us? (customer side)
4. How can we continue to generate value? (Innovation and learning side)

Balanced Scorecard contains that kind of financial criteria which depict the previous activities in addition to non-financial criteria considering which are the prerequisites and stimuli for the future financial performance. Kaplan and Norton (1995) believe that knowing the financial processes, customer, internal business and training and innovation sides will eliminate the increasing of information problem. Managers also have to concentrate on some limited numbers of criteria. Applying these kinds of different performance sides, on the other hand, prevent the partial optimization while makes a balance between the short-term and long-term targets, financial and non-financial criteria and the external and internal viewpoints. As the public sector comes under greater pressure from both internal and external sources to demonstrate improvements in its performance, various local/municipal governments are taking an interest in performance measurement and reporting with an emphasis on improving performance and increasing accountability (Bouckaert *et al.*, 2016; Sharma and Gadenne, 2011). Other challenges include a culture of not trusting business solutions, a lack of staff skills in developing innovative measures, and failure to link the scorecard to compensation. Wisniewski and Stewart (2004) emphasize the importance of public sector firms recognizing that the performance management system is required to serve multiple purposes to meet the needs of a somewhat diverse array of stakeholders. For instance, in the municipality of Tehran, As Mirpour

and Mirafshar (2018) mentioned, in order to bridge the gap between the current and the desired situation, it is necessary to implement a new comprehensive plan that addresses the integrated Human Resources management systems. The main contribution of the Balanced Scorecard is the acceptance of multifaceted performance relative to a difficult economic position, although it creates complexity in performance appraisal. This complexity is observable via the extra information, judging prerequisites and combined judgment making (Huang, 2009; Wu *et al.*, 2009). The most important weakness of this approach is that it has been designed to show the overall performance to high level managers of the organization. The multi-criteria decision-making framework is suitable for the performance assessment and the AHP is a beneficial tool for the Balanced Scorecard analysis. But an important point is that managers give the same importance to all related measures while they are different in real world. However, in the last decade, the balanced scorecard's multi-dimensional focus has also been viewed as a way of addressing the need for a strategic performance measurement (Umashev and Willett, 2008). Some studies in public sectors were done like Sharma and Gadenne (2011) who investigate if the implementation of a BSC has been of value to a large Local Government Authority (LGA) within Australia. This study has shown that the LGA experienced problems in relation to each of the seven major themes encompassing the planning phase; deployment, assessment and review; leadership and motivation; communication mechanisms; measurement techniques; reward and incentive schemes; and transferability to other internal public sector divisions. This is not surprising when it is realized that the LGA has many divisions and programs, and designing a BSC for such a complex organization would involve challenges of the highest order. However, there is also evidence that the LGA has learned from its experience with BSC implementation. Verzola *et al.*, (2009) studied a multidimensional evaluation of performance in Ferrara university hospital. They concluded that the fast releases of BSC in public institutions are testament to its great potential. Such projects could be seen as a preparatory phase in the strategic analysis of a subsequent business plan.

In addition, prioritization of indicators from scorecards helps focus and weight more on the most important ones. Thus, AHP is considered as the second phase of the study. After selecting the most relevant indicators and weighting them, it will be feasible to

rank our alternative organizations (municipal districts) based on them (Gholipour *et al.*, 2018). The analytical hierarchy process (AHP) is a structured technique for organizing and analyzing complex decisions, based on mathematics and psychology. The ratio scales are derived from the principal Eigen vectors and the consistency index is derived from the principal Eigen value. The AHP converts these evaluations to numerical values that can be processed and compared over the entire range of the problem. This capability distinguishes the AHP from other decision-making techniques. In the final step of the process, numerical priorities are calculated for each of the decision alternatives. These numbers represent the alternatives' relative ability to achieve the decision goal, so they allow a straightforward consideration of the various courses of action (Leung *et al.*, 2006; Bentes *et al.*, 2012). The Municipality of Karaj has been selected as sample study and the balance Scorecard has been selected as the best method for explaining the four aspects and finally AHP method has been used for quantifying the weights of the four indices. Considering the AHP tree, at first the relative degree of importance of balanced Scorecard is assessed, containing the innovative and learning, financial, customer and internal business process sides. Then the relative degree of importance of each side performance criteria is evaluated. The learning and innovative side consist of employees' skill enhancement and the improvement of education and skill. The internal process of business includes the new project operations and the improvement of the annual performed projects. The customer side consists of the citizens, investors and makers' satisfaction, while the financial side includes the value modification, decreasing the operational costs and the costs of the performed projects. Finally, the best municipality unit is determined via the Balanced Scorecard indices. This study has been implemented in the Municipality of Karaj during the 2019 by using of AHP method.

## **MATERIALS AND METHODS**

Since the aim of the present study is finding a framework for the municipality performance assessment in Karaj, Iran, it is an applicable study. The research used analytical methods and stand-alone questionnaire survey techniques, a case study approach. Content validity method was used to determine the validity of the questionnaire. For this purpose, to evaluate the validity of the content of the questionnaire items, the items were studied by

experts and their opinions were obtained. Then, by applying the opinions of experts, the content validity of the questionnaires was confirmed. Internal reliability (Cronbach's alpha index) was used to measure the reliability of the questionnaire. For this purpose, 10 balanced scorecard questionnaires were distributed. The reliability of the questionnaire based on the internal reliability coefficient was 0.92, which indicates the reliability of the questionnaire.

Then, three units of Municipality of Karaj which were chosen includes the Inspection and Oversight unit (IO), Information Technology unit (IT) and Income Guarantee unit (IG). The statistical society of the study consists of active municipality employees, related to aforementioned units. A non-random purposeful judgment sampling method has been used. In order to select the performance indicators and conduct the comparative judgments, the researchers invited nineteen personnel to participate in the research, include: three municipality master managers (one for each section, all with long experience in the municipality); three supervisors (one for each section); Twelve master experts (four for each part); and the chief financial officer. For constructing the comparison matrices, the research used the agreement building approach, which resembles a focus group design. An agreement-building approach whereby evaluating judges reach some (pseudo-)consensus about the value of priorities and of performance levels. The criteria used in this study, were selected based on the theoretical fundamentals of the Kaplan and Norton (1996) study and contain the financial, customer satisfaction, internal process of business and the learning and innovation sides. The performance criteria were selected for each side and then experts in Municipality of Karaj by asking from the municipal management. It can be seen in AHP model (Table 2).

Accordingly, researchers collected two types of data: (i) the values for the nine performance indicators selected for the study; (ii) the relative importance of each indicator versus the others, and of each BSC perspective versus the others. Balanced Scorecard is an example of a closed-loop controller or cybernetic control applied to the management of the implementation of a strategy. Closed-loop or cybernetic control is where actual performance is measured (Sharma and Gadenne, 2011). The measured value is compared to a reference value and based on the difference between the two corrective interventions are made as required. Balanced Scorecard was initially proposed as a general purpose

performance management system. Subsequently, it was promoted specifically as an approach to strategic performance management. Balanced Scorecard has more recently become a key component of structured approaches corporate strategic management. Two of the ideas that underpin modern balanced scorecard designs concern making it easier to select which data to observe, and ensuring that the choice of data is consistent with the ability of the observer to intervene. In another aspect, balanced Scorecard is a type of card that the strategy for them is related to a set of financial and non-financial indices. It has 4 sides, including financial, customer, internal process of business and the learning and Innovation (McLean, 2006). These sides are changeable; in other words, they can be changed, considering the kind of assessed organization (Northcott and Ma’amora Taulapapa, 2012). For example, the organization may be a local one which doesn’t follow the financial aims, therefore the financial side can be removed for this organization, or a new side can be defined.

*Financial Side*

Financial measurements are from the balanced assessment system important parts. Especially in profit organizations, this factor expresses that the successful performance of the other three sides finally make what kind of results. In Non-profit organizations maybe, valuisim (improving the value) is the most important performance of financial side which emphasizes the integration of various ways to improve value with organizational activities. Removing additional functions and creating and improving useful functions, will decrease the operational cost.

*Citizenship Side*

Selecting the aims and measurements related to citizenship aspect, the organizations should answer

two questions. First, who the target citizens are? And second, what is the suggested values for them? In this domain, people who are using the municipality services are divided into two groups including citizens and the investors and personal makers.

*The side of business internal processes*

In internal processes side, the organization should define those kind of processes, which can continue the process of making value for the citizens. The target of each defined targets in citizenship side, needs to do some operational performances applicable and effective. These processes should be determined in internal processes side and suitable measurements should be expanded to develop their controlling. Increasing the citizen’s satisfaction may be done by some new processes such as the improvement and rehabilitation of finished projects and performing the new projects. In other words, the internal processes that are set of activities which are done for the citizen satisfaction increasing their living place, is paid to environmental quality improvement of objective standards and welfare of citizens.

*The Innovation and Learning Side*

How can we achieve, the determined targets in internal process, citizenship and local investors sides? The answer to this question relates to learning and innovative side. In other word, this side is a fundamental empowering to make it easy to reach the other sides’ goals. The gap between the employees’ skills and the current situation, has been recognized after setting of citizenship and internal processes sides. Upon to that, the learning and innovative side consists of employees’ skill improvement beside the learning and skill development. The main duty of BSC is to translate the organization strategies into a set of performance criteria. But the main question is that, how BSC can do

Table 2. Criterion and the Municipality Units in AHP and BSC Framework.

Identify the best part of the administrative								
Perspective of learning and innovation		Perspective of internal process		Citizenship perspective		Financial perspective		
Development of training and skills	Employee Skills Development	Improved implemented projects	Number of new projects	Investors and personal developers	Citizens	Decrease in operating costs	Cost of implemented projects	Improve the value
	IO		IO		IO		IO	
	IT		IT		IT		IT	
	IG		IG		IG		IG	

Balanced Scorecard (BSC)

it? The answer is that BSC considers some cause and effect relationships among the different levels. Strategy is made of a set of cause and effect hypotheses. Fig. 1 shows the cause and effect relationship in 4 balanced assessment sides in a local organization.

Achieving the citizenship value making and the citizens' satisfaction could not be done unless the costs be decreased and incomes be more stable. It can make a work space suitable for the creativity, novelty, experiences exchange and learning (learning and innovative side). Fig. 1 shows the steps, we took to conduct the research. Accordingly, the mission and strategy of the organization in BSC is translated into aims and 4 side's operation indices. The BSC, indeed, is a content for the interpretation of organization strategy aims to a set of operational indicators in 4 financial, citizenship, business internal processes and the learning and innovative sides. Therefore, the BSC using will improve the current operation of an organization in addition to attempts for the development of correction processes, employees' educating and the information systems' increase. The data for implementing BSC and AHP have been extracted by a standard questionnaire.

## RESULTS AND DISCUSSIONS

The obtained results have been shown via the internal dependence Matrix, Non-weighted Super Matrix, Weighted Super Matrix, Limited Matrix, the final and relative priorities of criteria and selection. Table 3 shows the final matrix of performance criteria and related normal weight.

In 3\*3 Matrix through the financial viewpoint, the CR/L ratio is below 10, which is acceptable. Three remained matrices are 2\*2 and their compatibility ratio is zero. The C1 index is almost 3.5 times more important than the C2 index and is almost 9 times more important than the C3 index. Through the citizenship viewpoint, the C4 index (the satisfaction level of personal investors and makers) is almost 7 times more important than the C5 index (citizens' satisfaction). In other words, the Municipality of Karaj pays more attention to the interests of the private sector than the public interests which comes from the municipality money making target. The C6 index was, through the internal processes of business, about 3 times more important than the C7 index. Focusing on the projects' modification and upgrading is more sensible, considering the municipality current

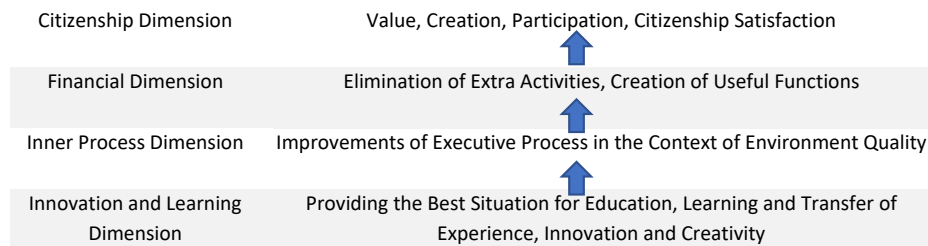


Fig. 1. Cause and Effect Relationship in 4 Balanced Assessment Sides in Municipality

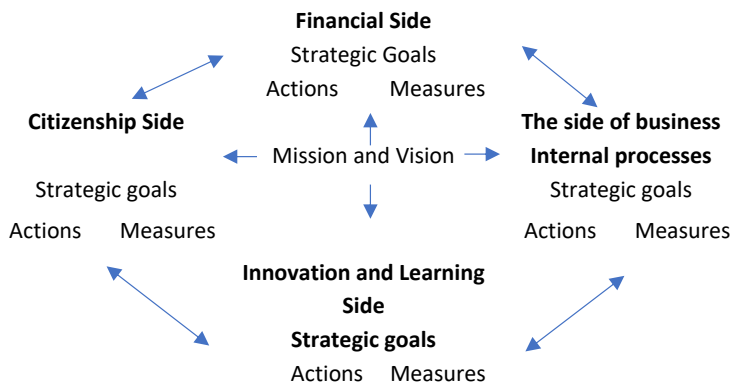


Fig. 2. Balanced Scorecard Diagram

situation; while the progression and completion of existing projects can increase the added value of the municipality. Finally, for the Innovation and learning viewpoint, the C8 index was about 5 times more important than the C9 index. Then the managers defined the relative weight of each BSC viewpoint, using the 9<sup>th</sup> scale. Researchers afterward calculated the normal weight of each viewpoint in a similar style to the previous step. The compatibility rate of every comparative matrix revealed that the managers should participate whether in a collaborative process for the no compatibility rate or not. Table 4 shows the raw and normal weights in addition to 4\*4 compatibility matrix. It should be considered that the managers assessed the financial viewpoint as the most important viewpoint. The financial side was about 3, 5 and 7 times more important than the citizenship, internal business processes and innovative and learning sides, respectively.

In the next step, the total weight of each performance criterion was estimated, which is the result of performance criterion local weight and BSC side local weight equality (Table 5).

Then a pairwise comparison of the performance of each functional area was performed according to each performance criterion. Table 6 shows a relative assessment of each function unit (Normal and raw weights) in each 9th performance criterion with 3\*3 compatibility rate matrix.

The Information Technology (IT) unit is much

more successful than the two other units, considering the financial viewpoint based on C1 and C3 indices. The Inspection and oversight unit, on the other side, is more successful in C2 index and has the minimum success in C1 and C3 indices. Considering the citizenship side, the Information Technology (IT) unit operates much better than the two other units in both C4 and C5 indices. The income unit has the worst operation in both indices. Considering the internal business process, has better rank in C6 and C7 indices. The inspection and oversight unit have the worst performance. In innovative and learning viewpoint, the Information Technology (IT) unit has the higher rank again than the other two units in C8 and C9 indices. The inspection and oversight unit has the lower rank than the income unit. Only consideration to units' performance based on specific criteria is a difficult issue in finding the best unit. Due to that, the results should be conjugated to find a good criterion for the units ranking. The AHP, deterministically, provides the best solution. The best performance at the moment is that the researcher considers universal relative importance of all indices. The final step eventually was the finding that how much that each unit helped the Balanced Scorecard (Table7). In next step, the best performance unit is obtained in each side via the comparison of the business unit local weights and the universal weight of criteria. Table 7 shows each unit share in every viewpoint weight. For example, the inspection and oversight,

Table 3. The relative importance, normal amounts and the stability ratio in performance criteria

Financial	C <sub>1</sub>	C <sub>2</sub>	C <sub>3</sub>	W	Internal	C <sub>6</sub>	C <sub>7</sub>	w
C <sub>1</sub>	1	4	7	0.69	C <sub>6</sub>	1	3	0.75
C <sub>2</sub>	0.25	1	3	0.20	C <sub>7</sub>	0.33	1	0.26
C <sub>3</sub>	0.14	0.33	1	0.79	CR	0		
CR	0.03							
Citizenship	C <sub>4</sub>	C <sub>5</sub>	W	Innovation	C <sub>8</sub>	C <sub>9</sub>	W	
C <sub>4</sub>	1	7	0.10	C <sub>8</sub>	1	5	0.85	
C <sub>5</sub>	0.14	1		C <sub>9</sub>	0.2	1	0.19	
CR	0			CR	0			

\*C indicates Criteria in each dimensions

Table 4. The ratio of viewpoints stability and the BSC amounts

Perspective	Financial	Citizens	Internal	Innovation	w
Financial	1	5	4	5	0.58
Citizens	0.2	1	3	3	0.2
Internal	0.25	0.33	1	2	0.13
Innovation	0.2	0.33	0.5	1	0.09
CR	0.09				



Table 5. The relative succession grades in performance indices by each function unit

C <sub>1</sub>	IO	IT	IG	W
IO	1	0.14	3	0.1
IT	7	1	0.33	0.63
IG	2	0.2	1	0.27
CR	0.01			
C <sub>2</sub>	IO	IT	IG	W
IO	1	4	0.5	0.61
IT	0.25	1	5	0.18
IG	0.33	3	1	0.19
CR	0.06			
C <sub>3</sub>	IO	IT	IG	W
IO	1	0.25	0.5	0.15
IT	4	1	4	0.5
IG	2	0.25	1	0.35
CR	0.05			
C <sub>4</sub>	IO	IT	IG	W
IO	1	0.5	3	0.2
IT	5	1	7	0.71
IG	0.33	0.14	1	0.09
CR	0.06			
C <sub>5</sub>	IO	IT	IG	W
IO	1	0.25	2	0.2
IT	4	1	3	0.65
IG	0.5	0.33	1	0.15
CR	0.09			
C <sub>6</sub>	IO	IT	IG	W
IO	1	0.5	0.2	0.18
IT	2	1	0.25	0.24
IG	5	4	1	0.58
CR	0.02			
C <sub>7</sub>	IO	IT	IG	W
IO	1	0.5	0.16	0.15
IT	2	1	0.33	0.22
IG	6	3	1	0.63
CR	0			
C <sub>8</sub>	IO	IT	IG	W
IO	1	0.2	0.33	0.11
IT	5	1	3	0.59
IG	3	0.33	1	0.3
CR	0.03			
C <sub>9</sub>	IO	IT	IG	W
IO	1	0.25	1	0.2
IT	4	1	2	0.59
IG	1	0.5	1	0.21
CR	0.05			

Table 6. Local to Universal amount of each index

Perspective	Indicator	W		Perspective	indicator	W	
Financial		local	global	Internal		local	global
Weight 0.59	C <sub>1</sub>	0.67	0.4	weight 0.12	C <sub>6</sub>	0.78	0.10
	C <sub>2</sub>	0.23	0.1		C <sub>7</sub>	0.22	0.05
	C <sub>3</sub>	0.10	0.08				
Perspective	indicator	W		Perspective	indicator	W	
Citizens		local	global	Innovative		local	global
Weight 0.21	C <sub>4</sub>	0.10	0.05	weight 0.08	C <sub>8</sub>	0.80	0.08
	C <sub>5</sub>	0.90	0.16		C <sub>9</sub>	0.20	0.03

Table 7. Regional share of each operational unit in general performance goals

Financial	C <sub>1</sub>	C <sub>2</sub>	C <sub>3</sub>	Indicator	outcome	Financial	C <sub>1</sub>	C <sub>2</sub>	C <sub>3</sub>	Indicator	outcome
				C <sub>1</sub> 0.4	0.12					C <sub>1</sub> 0.4	0.12
IO	0.10	0.61	0.15			IO	0.10	0.61	0.15		
				C <sub>2</sub> 0.1	0.31					C <sub>2</sub> 0.1	0.31
IT	0.63	0.18	0.50			IT	0.63	0.18	0.50		
				C <sub>3</sub> 0.08	0.15					C <sub>3</sub> 0.08	0.15
IG	0.27	0.19	0.35		W0.58	IG	0.27	0.19	0.35		W0.58

Internal process	C <sub>6</sub>	C <sub>7</sub>	Indicator	Outcome	Internal process	C <sub>6</sub>	C <sub>7</sub>	Indicator	Outcome
			C <sub>6</sub> 0.10	0.02				C <sub>6</sub> 0.10	0.02
IO	0.18	0.15			IO	0.18	0.15		
			C <sub>7</sub> 0.05	0.03				C <sub>7</sub> 0.05	0.03
IT	0.24	0.22		0.08	IT	0.24	0.22		0.08
				W0.13					W0.13
IG	0.58	0.63			IG	0.58	0.63		

Table 8. The final results for the best operation zone assessment

Aspects of BSC	Financial	Citizens	Internal	Innovative	Total
IO	0.12	0.04	0.02	0.01	0.19
IT	0.31	0.14	0.03	0.05	0.53
IG	0.15	0.02	0.08	0.03	0.28
Total	0.58	0.20	0.13	0.09	1.00

the Information Technology (IT) and financial units show the importance of financial viewpoint in overall analysis, with 12, 31 and 15 percent, respectively.

Each unit's share, as the same way, will be found in final analysis. Table 8 shows the obtained results in each viewpoint. Results revealed that the IT unit has had the best performance in financial, customer and the innovative and learning fields. The income unit has the better performance than the internal business processes. Its quota is equal to 0.28 in final decision making. Decision-makers in municipality, consider the information technology quota equal to 0.53. Therefore, the AHP method lets the managers recognize the IT unit as the best unit in relative situations.

### CONCLUSIONS

For years, the Balanced ScoreCard conceptual framework has been effectively implemented and operated in private sectors. The BSC implementation in the public sectors obviously have their own unique challenges which is rooted in the nature of its accountability to citizens within communities rather than to stockholders. The aim of this study was to investigate if this framework can be used in public organizations as an efficient tool for performance assessment. Accordingly, we chose Karaj's municipality

as a public organization sample in Iran. In this case integrated AHP and balanced value card used as the methods. The logic behind such a combination was while the balanced value card gathers multiple viewpoints beside the financial lookout. AHP helps the managers to have a more proper insight into the performance criteria from the balanced value card. Three departments of Municipality of Karaj were assessed. There was an equal emphasis on citizenship (consumer) approach and financial outlook in implementing a balanced scorecard approach. This equal emphasis, has been based on the necessity that municipalities carry out its primary mission for its citizens as well as the necessity to maintain financial stability within the municipality. The emphasis on both of these has become a necessity for the municipality to increase efficiently and effectively. The summary results in Municipality of Karaj show that it is more reasonable to focus on process improvement project. In terms of process improvement projects, they can be defined as those temporary or short-term endeavors designed to improve a process and resulting in improved performance in a key performance indicator and improving results are considered important. Accordingly, A Process Improvement Project is an effort to incrementally reduce cost, cycle time, variation or

defects within a process and optimize performance. Completion of the current projects can increase the added value to Municipality of Karaj. Also, proper performance of Information Technology (IT) section shows the importance of e-government to improve the performance of municipalities and process improvements' plan. Finally, while acknowledging that the such performance processes need a continuous development process, managers have emphasized that there are now regular and coordinated efforts to provide better results through surveys and discussions with key internal and external shareholders and rulemakings can be shaped during time. The current research tried to investigate if the implementation of a BSC has been of value to a public institution like municipalities in Iran. Although there are some challenges, it seems, based on some evidence, that this performance measurement framework has the potential and capabilities that Iranian municipalities can learn from their experience with BSC implementation. It seems that while using BSC in the long-term planning process for Iran's municipalities is relatively new, this process can be accepted by Iran's municipal management. Although, there is an understanding that over time the implementation of a BSC based on a "one size fits all" approach is not appropriate for many sections and programs within public administrations and such a process would be improved by methodology that compare relative importance in performance criteria e.g. AHP, ANP or FUZZY.

#### AUTHOR CONTRIBUTIONS

M. Valibeigi performed the literature review, experimental design, analyzed and interpreted the data, prepared the manuscript text, and manuscript edition. M. Feshari performed data analysis and interpretations, compiled the data and manuscript preparation. M. Valibeigi performed various administrative tasks and was an assistant in data gathering process and data analysis. E. Sarhanghi helped in literatura review and manuscript preparation.

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#### CONFLICT OF INTREST

The authors declare that there is no conflict of interest regarding the publication of this manuscript. In addition, the ethical issues, including plagiarism, informed consent, misconduct, data fabrication and/or falsification, double publication and/or submission, and redundancy have been completely observed by the authors.

#### ABBREVIATIONS

AHP	The analytic hierarchy process
BSC	The Balanced ScoreCard
C	Criteria
CBO	Community-Based Organizations
IG	Income Guarantee unit
IO	the Inspection and Oversight unit
IT	Information Technology unit
LGA	large Local Government Authority
OU	operating units

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