

# Procurement Management Performance Evaluation Based on the ISO 10006 with EFQM Comparison

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## ABSTRACT

The Purpose of this study was to evaluate the performance of the efficient provision of goods in project –based organizations with an emphasis on the ISO 10006 standard. This article seeks to provide specialized model for evaluating the performance of the procurement organizations project. Means of gathering resources, documents, books, articles, by laws and rules and regulations of the tenders and reputable sites online. This is an application research. For comparison, the results of performance evaluation based on the EFQM model used to manage the procurement of goods other managers in decision–making can benefit from the results .Purposefully selected a sample of this study population included in this study, all numbers expressing. The proposed indicators include measures of planning and control process for the procurement of goods, statutory requirements, supplier evaluation, monitoring contract performance evaluation model of water and sewage to be added.

**KEYWORDS:** Evaluation the Performance, Procurement, Project, Based Organizations, ISO 10006

## 1-INTRODUCTION

Performance evaluation refers to set of measures and activities which has done to increase the efficient use of resources, in order to achieve the goals and in economical way along with efficiency and effectiveness [1].

In the twenty–first century, the new controlling and accounting tools are needed to implement strategies of organization. Rapid innovation entrepreneurial competitors and costumers with growing demands, has doubled the dynamic of competitive market [2].

As it mentioned, measuring, is considered as a key step in management process and form the basis of continuous improvement. If measurement isn't done very well, the effectiveness of management systems will be undermined and reliable information won't be produced for management about how to control .Although at present, there are lots of public information for measuring performance, but the knowledge for specific performance of systems is still small .For example, administrators can easily now assess the general performance of their organization by utilizing various patterns by the use of positive indicators .But in most of internal organizations, reactive and negative indicators such as: frequency index, severity of frequency, number and similar cases are emphasized for measuring the performance [3].Major process of evaluating model for project –based organizations are followed:

Planning of resources, control of resources, creating organizational structures for the project, staff allocation, and team development. Innovative products, processes related to interdependence, start project and development of project management plane, changing management, termination of process and project, processes related to domain (amplitude) and time processes related to cost estimating, communication and risk, processes related to procurement of goods that has been investigated in this study by the researchers .Procurement of goods includes the following processes:

- Planning and controlling the procurement.
- Statutory requirements of the procurement.
- Evaluating of suppliers.
- Making contracts.
- Contract controlling.

## LITERATURE OF RESEARCH

### Background research

Mohammad Bagher Gorji has done a research on: the relationship between the methods of performance evaluation and improve employee performance. The aim of this study was: to investigate the relationship between method of employee performance evaluation and improve human resources performance of housing bank (Bank –e- maskan) in

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Golestan province. The results indicated that, hypothesis were confirmed with the 95% level of insure. Edysk Pralat Chand (2002) did a research under title: most important principles for choosing and evaluating criteria of Japanies, German and American suppliers and concluded that: in order to reduce the risk of international trade relations and to make better decisions to procurement of goods, suppliers should be evaluated qualitatively by these five features:

- 1 –Quality of product.
- 2- Performance of product.
- 3- Price of product.
- 4- Lasting of the product.
- 5- Product design excellence.

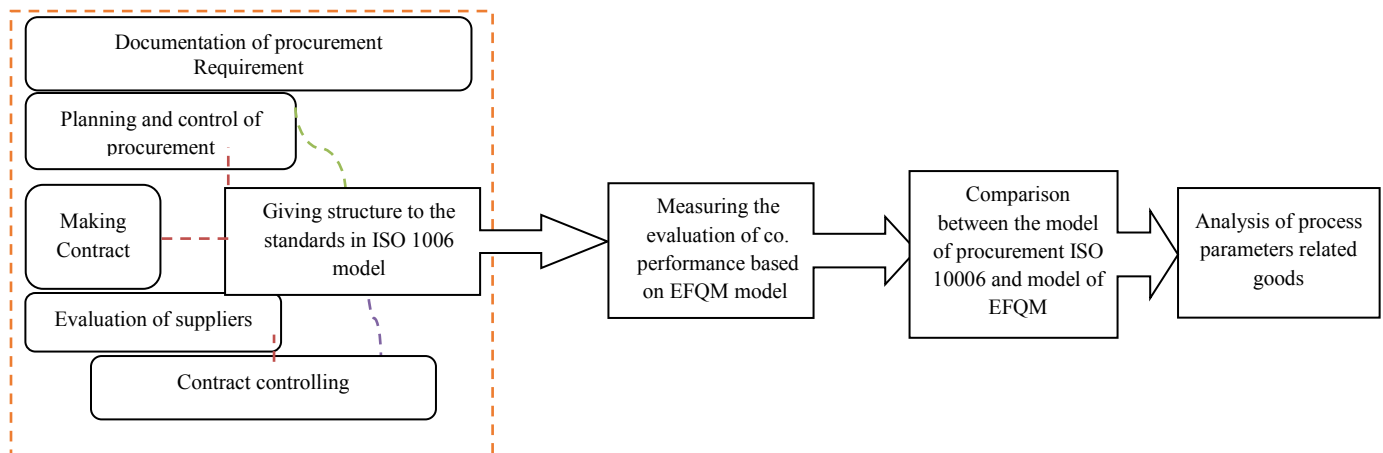
Nikolai George Dragvlanskvin 2002 through the research of websites, tools and criteria in America, came to a conclusion that: analysis and qualitatively evaluation of information available on the web and processes based on a number of concepts of qualitatively management, presents principles and methods as the significant criteria of sites qualitatively evaluation and choosing the appropriate sites .However, in order to develop practical ability in this regard, the ways of critically evaluation of the quality of information available on web should be tested at first.George L. Harris in 2000 conducted a research on: supplier management (evaluation) for continuous improvement (quality) in Japan and stated that, by managing the suppliers and the process of value –added of suppliers, uncertainty in the choice of suppliers would be decreased and the world –class quality of the company can be improved.In this study, in order to have an appropriate image of the creators of evaluation of procurement performance, epistemology “table: 1” model is used [4].

**Table 1.**Indicators of procurement based on ISO 1006 standard

Rate of company 0 -100	Description of process	Process	Sub category
	Identifying and updating of what should be prepared and its time	Planning and Controlling of procurement	<b>Processes associated with procurement of goods</b>
	Formulation of business Conditions and technical requirements	Statutory of Procurement requirements	
	Evaluate each of the suppliers and Subcontractors should be invited to Supply products	Supplier evaluation	
	Publication of the call for Submission of bids, bid evaluation Negotiation, preparation and sub-contracting	Making contract	
	Ensure that the performance of Subcontractors meet contract –based requirement	Controlling of contract	

Inductive model of qualitative assessment approach:

In this part, inductive model of 10006 ISO standard approaches by EFQM has been presented as follow to be easily.



In this standard, given terms and definitions are based on ISO 10006 standard.

Project: is the smallest identified part of a process [5].

The beneficiary: person or group interested in performance or success of an organization for example: customers, owners, employees, Suppliers, bankers, unions, partners or society [4].

Process: Set of interactive activities that transform input into outputs. It's noted that, inputs of a process are generally outputs of the other processes.

Project: A unique process consisting of a set of coordinated and controlled activities with start and end dates which its goal is to achieve compliance with certain requirements and time restriction, cost restriction and resource restrictions are included [4].

Contract controlling: it is done at the time of making contract or when come to an principle agreement for signing the contract and it begins for example at the time of sending memorandum of understanding and a system should be employed to ensure that the terms of the contract such as: time experiences have been observed.

#### **The processes of procurement of goods**

- Planning and controlling procurement.
- Documentation of procurement requirements.
- Evaluating supplier contracts with sub-contractors.
- Making contracts.
- Contract controlling.

#### **Types of variables**

In this study, two independent and dependent variables have been used .The results of EFQM model is independent variable (criteria) and indicators of ISO 1006 model is dependent variable (predictor) .Based on setting the conceptual model, 5 hypothesis has been developed. Adjustment variables which are also called underlying variables, influence direction and amount of relationship between dependent and independent variables [6].Adjusted variables of research model are divided into two categories 1 and 2 .The first set of factors considered “age” and the second set of factors consider “work experience” .However, these variables are ruled as the second dependent variables.

#### **Research methodology**

This research is a kind of applied research considering the aim and considering the method of research, it is descriptive, solidarity and correlative .Because it is done solely for the water and sewage companies in Iran .In this study, the conditions are defined truly and accurately and try to deduce everything without interference or subjective reports and achieved the position of objective results. In this study, based on the available method of performance evaluation (EFQM model) enter prices registered and then insides of procurement in ISO 1006 model are rated and then results will be compared and analyzed.

#### **Statistical population:**

Statistical population includes all of the rural water and sewage companies which are subject to the evaluation of performance which are included 66 companies.

#### **Sampling and sampling methods**

In this study, population were purposefully selected and statistical sample in this study is equal to statistical population .In other words, in this study all of the samples will be counted .Because of the sample size of samples, if we want to do sampling, accuracy of the research will reduced .This is why statistical population is considered a statistical samples.

#### **The hypothesis of the study**

In this study, the obtained rate based on EFQM model is important criterion.

Hypothesis 1: There is a significant relationship between planning index and procurement controlling based on ISO 1006 and EFQM models.

Hypothesis 2: There is a significant relationship between the index of statutory of procurement requirements based on ISO 1006 and EFQM models.

Hypothesis 3: There is a significant relationship between index of evaluation of suppliers based on ISO 1006 and EFQM models.

Hypothesis 4: There is a significant relationship between index of making contract based on ISO 1006 and EFQM models.

Hypothesis 5: There is a significant relationship between the index of controlling contract based on ISO 1006 and EFQM models.

#### **4- Test of hypothesis**

In order to test above mentioned hypothesis, Pearson correlation coefficient test has been used and its results are presented in tables: 2, 3, 4, 5 & 6.

Testing hypothesis 1:

The initial hypothesis: There is a significant relationship between planning index and procurement controlling based on ISO 1006 and EFQM models.

Secondary hypothesis: There is no significant relationship between planning index and procurement controlling based on ISO 1006 and EFQM models.

**Table 2.**Relationship between planning index and procurement controlling based on ISO 1006 and EFQM models

Number	Level of Significant	Pearson correlation (r)	Indexes	Variables
200	0.0077	0.825		Planning index and procurement of EFQM

Results in table 2 indicate that,  $r = 0.825$  and significant level of P is less than 0.01, is significant and it can be concluded that, null hypothesis is confirmed and hypothesis are accepted that mean there is a significant relationship between index planning and procurement controlling based on ISO 1006 and EFQM models.

Testing hypothesis 2:

The initial hypothesis: There is a significant relationship between the index of statutory of procurement requirements based on ISO 1006 and EFQM models.

Secondary hypothesis: There is no significant relationship between the index of statutory of procurement requirements based on ISO 1006 and EFQM models.

**Table 3.** Relationship between the index of statutory of procurement requirements based on ISO 1006 and EFQM models

Number	Level of Significant	Pearson correlation (r)	Indexes	Variables
200	0.0077	0.825		Statutory of procurement requirement rate of EFQM model

Results in table 3 indicate that,  $r = 0.9$  and significant level of 0.00, is significant and it can be concluded that, the hypothesis is confirmed.

Testing hypothesis 3:

The initial hypothesis: There is a significant relationship between index of evaluation of supplier based on ISO 1006 and EFQM models.

Secondary hypothesis: There is no significant relationship between the index of evaluation of supplier based on ISO 1006 and EFQM models.

**Table 4.** Relationship between the index of evaluation of Supplier based on ISO 1006 and EFQM models

Number	Level of Significant	Pearson correlation (r)	Indexes	Variables
200	0.0077	0.825		Index of evaluation of supplier EFQM model

Results in table: 4 indicate that,  $r = 0.92$  and significant level of 0.000, is significant and it can be concluded that, the hypothesis is confirmed.

Testing hypothesis 4:

The initial hypothesis: There is a significant relationship between index of making contract based on ISO 1006 and EFQM models.

Secondary hypothesis: There is no significant relationship between the index of making contract based on ISO 1006 and EFQM models.

**Table 5.**Relationship between the index of making contract based on ISO 1006 and EFQM models

Number	Level of Significant	Pearson correlation (r)	Indexes	Variables
200	0.0077	0.825		Index of making contract EFQM model

Results in table 5 indicate that,  $r = 0.71$  and significant level of 0.017, is significant and it can be concluded that, null hypothesis is confirmed.

Testing hypothesis 5:

The initial hypothesis: There is a significant relationship between index of controlling contract based on ISO 1006 and EFQM models.

Secondary hypothesis: There is no significant relationship between the index of controlling contract based on ISO 1006 and EFQM models.

**Table 6.**Relationship between the index of controlling contract based on ISO 1006 and EFQM models

Number	Level of Significant	Pearson correlation (r)	Indexes	Variables
200	0.0077	0.825		Index of controlling contract EFQM model

Results in table 6 indicate that,  $r = 0.89$  and significant level of 0.000, is significant and it can be concluded that, null hypothesis is confirmed.

**Confounding variables and testing hypothesis:**

In order to compare the mean total evaluation considering adjusting variable the history of people services, one –way (Uni Lateral) variance analysis was used, statistical results are listed in the following table.

**Table 7.** Statistical variable measures of standard rates in terms of history of services

Maximum	Minimum	SEM	Standard deviation	Mean	Number	History
98.40	33.90	1.9963	17.8559	67.9025	16	8-2
99.60	44.90	4.2444	18.9818	70.5700	4	15-9
95.20	46.60	6.2141	19.6508	70.3600	2	22-16
96.10	42.10	1.9025	18.0490	67.8989	18	29-23
99.60	39.90	1.2747	18.0277	68.2905	40	Total

The most people of statistical population have 23 -29 years history of services and the least; have 16 -22 years history of services.

**Table 8.** Variance analysis of confounding variable and history of services

Level of significant	F	Mean square	Degree of freedom	Total square	Indexes Source of changing
0.918	0.173	57.532	3	172 .597	Intra group
		329.095	196	64502 .590	Inter group
			199	64675 .187	Total

The results of tables 8 and 9 shows that  $F = 0.173$  with significant level of 0.918 is not significant .So it can be concluded that, there is significant difference between rating assessment of people in terms of history of services.

In order to make a compare, the mean total evaluation considering the adjustment variables one–way variance analysis test was used, statistical results of tables: 9 and 10 are followed:

**Table 9.** variable statistical measures of total evaluation in terms of kind of employment

Maximum	Minimum	SEM	Standard deviation	Mean	Number	History
99.60	39.90	1. 7245	18.0866	68.6109	22	Contractual
96.10	42.10	1.9025	18.0490	67.8989	18	official
99.60	39.90	1.2747	18.0277	68.2905	40	Total

**Table 10.** Variance analysis of the role of confounding variables and hypothesis tests

Level of significant	F	Mean square	Degree of freedom	Total square	Indexes Source of changing
0.791	0.076	25.095	1	25.095	Intra group
		326.516	198	64650.092	Inter group
			199	46675.187	Total

The results of table 10 shows that,  $F = 0.076$  with significant level of  $P = 0.791$  , is not significant, so it can be concluded that, there is no significant difference between evaluation rate of people in terms of kind of employment, so the variable of history of services was not effected in rating the people.

**5- CONCLUSIONS AND RECOMMENDATIONS**

Based on the theoretical discussion and analyzing the finding of the research, achievements of the research can be summarized as follow:

1-It is better that, indicators of processes which are related to the procurement of the goods and included (hypothesis: 1, 2, 3 & 5) add to the performance evaluation criteria of water and sewage companies of the country.

- Planning and controlling procurement of goods.
- Statutory the requirements of the procurement.
- Evaluation of suppliers.
- Controlling contracts.

2- However, the level of the significance is equal to: 0.017, the different error is considered very small and Pearson correlation coefficient is less than the other testing coefficients in presented study so, it can be concluded that, the importance of making contract index is less, therefore it is logically true because this process is an integral part of

implementation issues of organizations and legal requirements and it is not a healing process .Therefore, adding making contract index is not an advantage for the performance evaluation model.

3- According to table 11 which is based on the standard ISO 1006 .So indexes can be defined based on description of each process.

**Table 11.** Description of processes of criteria which can be added to the model

Hypothesis	Description of process	Process
One	Identifying and updating of what should be prepared and its time.	Planning and controlling of procurements
Two	Formulation of business conditions and technical requirements	Statutory requirements of the procurement
Three	Evaluate each of the suppliers and subcontractors should be Invited to supply products	Evaluation of suppliers
Five	Ensure that, the performance of subcontractors, meet contract – Based requirements	Controlling the contract

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