Model for Performance Indicators Improvement of Public Organizations Using Value-Based Management

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ABSTRACT

The study aims to find a set of knowledge about organizational values and a combination of these values and use them to meet the needs of organization and improve government performance indicators. This research concerned about two questions: What are the core values in public organizations? What is the model (map) of the values of public organizations with an approach to improve performance? The study is for the Iranian government. Therefore, to gather and receive information about the organization’s core values and its relation with performance, the comments and views of the expert group have been used. The analysis method of data is that in order to find the core values of the organization and refine components and criteria of the theoretical framework, the experts’ views through Delphi method have been used. In addition, to prioritize and extract the weighting coefficients of the performance indicators, the pair comparison method and group AHP technique; to prioritize and extract the weighting coefficients of organizational values, the simple ranking using the distance measurement scale technique; to obtain the value model (map), the linear programming, and to determine the coefficients of value model components, allocation technique have been applied. It should be mentioned that to validate the given model, judgment-based expert system has been used. Survey results have led to a value combination of performance indicators for public organizations. It can be the basis of decision-making, planning, policy and behavior of managers to help them in the organizational process. Also, it can draw the executives and decision makers’ attention to the importance of corporate values.

Key words: value, corporate values, public organizations, management based on value, performance indicators

Introduction

One of the best ways to improve performance is using value-based management in the organization. In this method it is tried to give an appropriate response to the turbulent conditions with respect to the values that govern the organization and investigate the management concepts from the perspective of value. The process of managing values is a management model which emphasizes on stimulating people, developing skills, and promoting synergies as well as innovation with the purpose of improving the performance of related organization [7]. Nowadays, in the current situation in which the organizational environment, besides the fundamental rules of business is changing rapidly, the core values of the organization can be a good guide towards the growth and survival of organizations. Indeed a sustainable and lasting change should be realized in the level of values [14].

Organizations, as a response to environmental changes, will not change its core values but if necessary they try to make a change in their environment or previous structures in order to maintain their organizations’ values [5]. In the successful organizations, the real guide is the values. The styles and behaviors of employees and managers are guided by the values. In such organizations, the values play a significant role in planning, policy, decisions, and functions [4]. Given the importance of corporate values, this study aims to identify and express the core values governing the Iranian government agencies and provide an appropriate combination (map) of these values with the approach to maximize the performance indicators. In this regard, two questions are raised: 1. What are the core values in public organizations? What is the model
(map) of the values of public organizations with an approach to improve performance? These questions are the basis of the research work.

Theoretical study:

The values are severally observed in the sub-systems of management. They make the organizations’ values stronger and more stable (Deft, 1374, 622). Organizational culture as one of the essential sub-system of management is the most striking feature affecting the growth of values [9]. One of the components of organizational culture is the values and beliefs in the organization [12].

Decision making and policy setting is one of the elements of the system influenced by the values. Values and beliefs constantly affect the decisions of managers and employees (Deft, 1374, 642).

Value indeed forms one of the main parts and elements of culture, the part which serves as a determiner of goals and a guide to behavior. The concept of value is crucial and determinant in social, cultural, economic, political, and religious speech. In the philosophical culture, the concept of value has been used regarding objects, their function and its relationship with human. The concept of value in economics has been applied by scholars such as Marx, Adam Smith and Ricardo in connection with work, benefits, goods, and human resources [3]. Application of “Psychology” and “Social psychology” is more diverse. Some psychologists have considered it as a synonym for need. This interpretation is based on the theory of human needs especially environmental needs and the system of human choice. Accordingly, human needs and values are divided into primary and secondary groups [13].

In science, the meaning of value is defined as good or bad, appropriate and inappropriate, desirable and undesirable in the eyes of a person or group. Also, some has defined it as a norm and the selection criterion of a person or group among different choices related to a same situation. Values are the principles that help us decide what is right and what is wrong. In fact, the values are a kind of internal belief that are established in our daily affairs and behaviors and are favorite and important for the individual. There is a broad spectrum of values from ethical, religious and social principals to judicial, aesthetic and economic values. The principles include the desired characteristics, guidelines, priorities and, etc. Alpert and colleagues identified six types of value in the organization including ethical, social, economic, political, religious and aesthetic values [13].

Materials and Methods

The study deals with the identification of characteristics, beliefs, values, and attitudes governing the public organizations and aims to provide the appropriate combination (map) of the core values with the approach to maximize the performance in the public organizations of Iran. In this regard, two questions are raised: 1. What are the core values in public organizations? What is the model (map) of the values of public organizations with an approach to improve performance?

To answer the above-mentioned questions, the theoretical framework of the research has been provided according to the theoretical basics. In this framework, the value indicators governing the organization, which are extracted from the theoretical basics, are classified as six categories and finally specified as the organizational values impacting on the process of improving organizational performance. In this situation, the factors that have been demonstrated as the combination (map) of the values for each indicator, affect this process.

Given the importance of corporate values, this study aims to identify and express the core values governing the Iranian public organizations and provide an appropriate combination (map) of these values with the approach to maximize the performance indicators. In this regard, two questions are raised: 1. What are the core values in public organizations? What is the model (map) of the values of public organizations with an approach to improve performance? These questions are the basis of the research work.

![Fig. 1: model of the values](image-url)
In additionally, the conceptual model has been codified and extracted based on three issues of values, performance and combination of values in order to improve the performance in three categories of concepts, dimensions, and design indicators. The model indicates the core values of the public organizations and proposes the appropriate combination of these core values to improve each of the performance indicators.

![Conceptual Model](image)

**Fig. 2: conceptual model**

The data extracted from the research and statistical methods and techniques has been accepted and analyzed. Since the survey results provide a proper ground of information required meeting the needs of managers and executives and have the capability of being used in the public organizations, it is objectively a kind of applied and descriptive research. The statistical population of the study belongs to the public organizations of Iran. Therefore, to gather and receive information about the core values of the organization and its relationship with performance, the comments and views of an expert group have been used. Given to the selected indicators, the number of the expert group members was determined 75. The data collection is done through the field, survey and Delphi method.

Questionnaire is the main tool for collecting data in order to identify the core values of the public organizations, find the performance indicators of the public organizations and understand the role of these values in the performance improvement, coefficients determination and each of the indicators importance. To obtain the information about a part of the performance indicators, some organizational documents have been used. The validity of research tools has been determined by judgment method and through the comments and views of experts and scholars. Also to determine the reliability (stability) of the questionnaire using the test-retest method and statistics program SPSS, Cronbach’s alpha coefficient has been applied. The process of obtaining and analyzing data has been done in six steps:

**Step 1: the process of extracting the core values of organization:**

To determine the core values in the public organizations, the experts’ views and attitudes have been used. As a result, a total of twenty-four values were determined as core values in the public organizations, which they can play an effective role in the fields of human resources, type of structure, and functions of managers and personnel.

**Step 2: the process of affecting the core values’ role in performance indicator and its conversion into measurable scales:**

At this step, using data received from the first step and the extraction of core values of organization as well as in order to answer the second research question, a questionnaire - with two axes, one axis (row) of the extracted core values and other axis (column) of the performance indicators - has been distributed among the expert group. Then the expert group has been asked to make their comments on the role of core values in the indicators. At this stage, in order to sum up the results and access to the most reliable consensus, the Delphi technique was used.
this way, after receiving responses from the members of expert group, the results have been estimated by obtaining the median and amplitude of responses. The results including a questionnaire were sent again to the group. This process was repeated, so that the required consensus was achieved. Afterwards, the extracted qualitative data, based on the evaluated indicators has been converted into quantitative data. This acquired quantitative data plays its role as combination coefficients (a\textsubscript{ij}) in the modeling process.

\begin{align*}
i & = 1, 2, \ldots, m \\
j & = 1, 2, \ldots, n
\end{align*}

**Step 3: Identification of the relationship between corporate values and performance indicators:**

To determine the relationship between the corporate values and performance indicators, the relationship between a Chi- Square Distribution and test of independence was considered. The values a\textsubscript{ij} were determined as the observed frequency (OF) in each cell, which is the interface of row i and column j. In this table, the total of the row i and the column j are given ai and aj respectively. The expected frequencies (Fe) were calculated for each cell according to the null hypothesis (H0) or the independence hypothesis of corporate values with performance indicators. After calculating the expected frequencies, these frequencies were compared with observed frequencies. In the mentioned relationship, the value of the Chi-Square with 184 degrees of freedom in the error level 0/05 was equal to 212/561 and test statistics was 269/537. Since the test statistics lies in H1, null hypothesis (H0) based on the independence of value variables with the performance indicators is rejected to the benefit of H1.

**Step 4: Determining the weighting coefficients of performance indicators:**

In order to determine the value and importance (priority) of each of the performance indicators from total performance, amongst the nine performance indicators, the pair comparison was conducted using AHP- group technique [2]. A table was designed as a matrix of 9 by 9. By considering a value 1 for the diameter of the designed matrix and starring areas under the matrix diameter, the vector matrix was distributed among the expert group. After collecting the completed matrix (upper diameter), following actions was performed:1. the reverse of the specified values for each indicator by the expert group was placed in areas under the matrix diameter, so that the matrix table was fully completed.

2. The total number of each column of pair comparison was calculated.

3. To normalize the matrix numbers of pair comparison, the elements of each column was divided by its total elements.

4. The average numbers in each row as an approximate limit or approximate weight of each indicator was determined from the viewpoint of an expert.

5. To achieve the overall result of the weighted value of each indicator with respect to the number of expert group, the geometric mean of experts’ views was calculated according to the following formula. It was determined based on the approximate weight and ranking and by converting these coefficients into percentage, share of each performance indicator was determined from overall performance. Obtained numbers as the numbers on the right side of the performance limitation (bj) were used in maximizing the linear programming model.

**Step 5: Determination of ranking and rating of value indicators:**

The quantitative data was used to obtain the numbers on the right side of the value limitations (bj) in modeling. In this step, by considering an equal distance between each value indicator, a distance measurement scale was applied. Based on this method, the numerical value of each row extracted from the matrix of the second step process was determined, and then prioritized according to the importance. Given priorities with respect to the twenty-four core values obtained from the first step, were 1 to 24. Based on the outlined priorities, a specific value was given to each above indicator according to this assumption that the distance between the values is equal. Generally speaking, it turns out that this value for the indicator of the first priority and the twenty-fourth priority (the last indicator) are 24 and 1 respectively. These values determined the values on the right side (bi) of value limitations.

**Step 6: Modeling Process:**

After extracting the data from previous processes, three groups of data have been shown:

1. Data which acts as the coefficients of each combination (a\textsubscript{ij}) in the mathematical model. The coefficients based on twenty-four extracted core value (i=1, 2, \ldots, 24) and nine performance indicators includes the coefficients of 216 combination (x\textsubscript{ij}).

2. Data which after converting weight coefficients into percentage criteria are used as the numbers on the right side (bj= 1, 2, \ldots, 9) of performance indicators limitations in linear programming.

3. Data which through an interval scale and by accepting the given assumptions, as the numbers of right (bi= 1, 2, \ldots, 24) limitations of value indicators are used in linear programming
The above data is included in linear programming according to the following steps:

**The objective function:**

The first step in formulating the model is producing the objective function \[11\]. In the above study, the objective function with respect to maximizing the performance indicators through the use of the core values in decision making and the applied program (LINGO) is defined as follows:

\[
\text{MAX} = \sum (\text{Accept (i,j)}):X(i,j));
\]

**Limitations:**

There are four limitations in this model:

1-2- Limitations of performance indicators
   Activity/1...9/: Sahm;
   \@FOR(\text{Activity}(j):@SUM(\text{Accept}(i,j):X(i,j)*Value(i,j))<=\text{Sahm}(j));

2-2- value limitations
   Valor/1...24/: Sum;
   \@FOR(\text{Valor}(i):@SUM(\text{Accept}(i,j):X(i,j)*Value(i,j))<=\text{Sum}(i));

2-3- Limitations prevented collection of some value
   \@FOR (\text{Activity} (j): X (6, j) +X (12, j) <=1)
   \@FOR (\text{Activity} (j): X(7,j)+X(12,j)<=1);
   \@FOR (\text{Activity}(j): X(19,j)+X(14,j)<=1);
   \@FOR (\text{Activity} (j):X(11,j)+X(17,j)<=1);

2-4- Limits of zero and one
   \@FOR (\text{Accept}(i,j)): @BIN(X(i,j));

**The decision variables:**

In the study, there are 216 variables as \(x(i,j)\) in the model, each indicates one of the combinations of value indicator with performance indicator. All variables are non-negative and accept one of the states of zero or one.

By clarifying and defining the objective function, Limitations, and variables, the model has been placed in the program LINGO, a branch of linear programming defined as zero and one. After the analysis of value combinations with performance indicator as zero and one, the following result was obtained:

**Table 1: The results of mathematical model based on zero and one**

<table>
<thead>
<tr>
<th>Performance indicator</th>
<th>Value indicator</th>
<th>Strategic management</th>
<th>Performance management</th>
<th>New structure and rules</th>
<th>Improvement</th>
<th>Customer-oriented</th>
<th>Competitive in administrative health</th>
<th>Of core policies</th>
<th>Quantitative goals</th>
<th>Project success</th>
<th>The number of values selected for the performance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Competence in the appointment and promotion (administrative justice)</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Honesty and integrity in the workplace</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>regulations</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Privacy and communication in the workplace</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Love to work</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Peace at work</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Affection, intimacy and respect</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Employees enjoy the work</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Trust, confidence and social support</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Responsiveness and accountability</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>The efficiency (cost and time)</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Courage to compete in the work</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Income for the organization</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Stability</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Believe in God and religion</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Having spiritual and self-actualization</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Spirit of magnanimity and loyalty</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Job security</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Progress in job</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Gain fame, power and influence</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Being considered job as important and meaningful</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>5</td>
<td></td>
</tr>
</tbody>
</table>
The results based on the objective function and limitations indicates 100 accepted compounds of 216 which 100 compounds have the value 1 and 116 possess the value of 0.

**Findings:**

Using data from previous stages, the model of corporate values combination was designed and presented to optimize each of the performance indicators in the public organizations. Based on this model, the best combination of corporate values for improving nine performance indicators in the public organizations includes:

**A. Strategic management indicator:**

Set of core values for decision making, planning, and policy with approaches to improve the strategic management indicator and its sub-indicators is including 11 following values:


**B. Human resources indicator:**

Set of core values for decision making, planning, and policy with approaches to improve the human resources management indicator and its sub-indicators is including 9 following values:


**C. Organizational structure management indicator:**

Set of core values for decision making, planning, and policy with approaches to improve the organizational structure management indicator and its sub-indicators is including 12 following values:


**D. Systems and methods improvement indicator:**

Set of core values for decision making, planning, and policy with approaches to improve the systems and methods improvement indicator and its sub-indicators is including 11 following values:


**E. Citizen-Oriented indicator:**

Set of core values for decision making, planning, and policy with approaches to improve the citizen-oriented indicator and its sub-indicators is including 11 following values:


**F. Legislation and administrative health indicator:**

Set of core values for decision making, planning, and policy with approaches to improve the Legislation and administrative health indicator and its sub-indicators is including 13 following values:

G. Core policies Implement indicator:

Set of core values for decision making, planning, and policy with approaches to improve the Core policies implement indicator and its sub-indicators is including 11 following values:

1. Competence in the appointment and promotion (administrative justice),
2. Honesty and integrity in the workplace,
3. Love to work,
4. Peace at work,
5. Affection, intimacy and respect,
6. Employees enjoy the work,
7. The efficiency (cost and time),
8. Income for the organization,
9. Believe in god,
10. Job progress,
11. Correct arrangement of personnel.

Table 2: Performance indicators of organizations

<table>
<thead>
<tr>
<th>Performance indicators of organizations</th>
<th>Value indicators</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strategic management</td>
<td>1. Competence in the appointment and promotion (administrative justice),</td>
</tr>
<tr>
<td>Human resources management</td>
<td>2. Regulations, 3. Responsiveness and accountability,</td>
</tr>
<tr>
<td>Organizational structure management</td>
<td>4. The efficiency (cost and time), 5. Income for the organization,</td>
</tr>
<tr>
<td>Systems and methods improvement</td>
<td>6. Having spiritual and self-actualization, 7. Job security,</td>
</tr>
<tr>
<td>Citizen-Oriented</td>
<td>8. Job progress, 9. Being considered as important and meaningful job,</td>
</tr>
<tr>
<td>Core policies implement</td>
<td></td>
</tr>
<tr>
<td>Quantitative goals Fulfillment</td>
<td></td>
</tr>
<tr>
<td>Civil projects success</td>
<td></td>
</tr>
</tbody>
</table>

H. Quantitative goals Fulfillment indicator:

Set of core values for decision making, planning, and policy with approaches to improve the quantitative goals policies Fulfillment indicator and its sub-indicators is including 10 following values:

1. Competence in the appointment and promotion (administrative justice),
2. Regulations,
3. Responsiveness and accountability,
4. The efficiency (cost and time),
5. Income for the organization,
6. Having spiritual and self-actualization,
7. Job security,
8. Job progress,
9. Being considered as important and meaningful job, and
10. Compliance orders in the work.
I. Civil projects success indicator:

Set of core values for decision making, planning, and policy with approaches to improve the civil projects success indicator and its sub-indicators is including 12 following values:

1. Honesty and integrity in the workplace
2. Regulations
3. Responsiveness and accountability
4. The efficiency (cost and time)
5. Courage to compete in the work
6. Income for the organization
7. Having spiritual and self-actualization
8. Job security
9. Job progress
10. Being considered as important and meaningful work
11. Compliance orders in the work
12. The staff shares the aims and purposes of work (teamwork).

Based on the findings, the proposed comprehensive model for improving the performance of the public organizations is as follows:

Results:

As it was stated, the core values are the basis of decision making, policy, and the guide of judicial affairs in organizations. Therefore, the managers and employees by relying on these values are able to ensure the growth and survival of organizations. Development of ethical, social, economic, political, religious, and aesthetic values leads to organizational prosperity and excellence. As these values play a significant role in managers and employees' behavior and are considered as a part of organizational culture system, more attention should be given to them.

The findings aim to provide an appropriate combination of core values with the approach to maximize performance indicators. Therefore, considering the nine performance indicators, the value composition (map) for performance indicators has been presented. The value composition (map) for the implement and realization of the strategic management core in the public organizations includes 11 value indicators, human resources management, 9, structure (organization and rules), 12, system improvement, 11, citizen-oriented, 11, legislation and administrative health, 13, core policies implement, 11, quantitative goals fulfillment, 10, and civil project success, 12.

References


