REDESIGNING ORGANIZATIONAL STRUCTURE BY CONTINUOUS IMPROVEMENT OF EFFICIENCY APPROACH (CASE STUDY: A SUPPLIER COMPANY OF DENTAL EQUIPMENT)

SAEED NAJIB MOGHADAM\(^1\) AND ELHAM ASGHARI AGHGHALEH\(^2\)

\(^1\) M.s of MBA Department, NooreTouba Virtual University, Tehran, Iran
\(^2\) M.s of MBA Department, NooreTouba Virtual University, Tehran, Iran

ABSTRACT

One of the most important needs of every organization is having the potentiality of response to competitive situations, increasingly environmental change, and improving the efficiency of the organization in all levels. By having a descriptive-analytical methodology and a practical approach, the present research studies the relationship between organizational structure of Dorsun Teb Pars Company and the efficiency of the organization, and it provides an appropriate structure in order to overcome the shortcomings. To achieve this goal, three hypotheses have been made. The independent variables of hypotheses include three aspects of organizational structure, i.e. complexity, formality, and centralization, and the dependent variable is efficiency. The study of the relationship between variables was done in the level of personnel and the results showed that improving the efficiency of organization requires the restructuring in a flexible and dynamic way and according to the organizational mission.

Keywords: Organizational Structure, Efficiency, Complexity, Formality, Centralization

INTRODUCTION

Manager is a real person, and management is all activities done by the manager to navigate his or her complex. So, manager, management, and the complex are three main and interconnected items. The complex, whatever the size and activity, is considered as an organization. Organization is a targeted social institution with clear programs which does specific activities due to have an informed structure and defined boundaries \([1]\). Stable efficiency, change, innovation, and quality are among general goals which the manager like to have in an organization. The most important needs of every organization is having the potentiality of response to competitive situations, increasingly environmental change, and improving the efficiency of the organization in all levels. Efficiency improvement creates enormous synergistic force which supports the programs of growth, development, and creating opportunities of organizational promotion. Peter Drucker has defined “efficiency” and “effectiveness” as follows: “Efficiency means doing activities in a good and appropriate way, and effectiveness means doing good and appropriate activities” \([2]\). Achieving efficiency in an organization requires an approach of change. Findings and experiences in theoretical sciences make organizations to adapt with changes happening and move forward accordingly. On the other word, the main principle in the organization is having flexibility with the aim of preventing undesirable changes, and facing with conditions, happenings, and implementation of programs which the situations of time and place motivate. Change and movement are obvious principles which do not need any reason, since you a person cannot find anything in nature which is immune to change and
stable [3]. General appearance of change includes explaining the desirable situation, identifying present situation, determining general direction of strategies, determining the appropriate situation, and the manner of transition of organization from existing situation to the desired situation. One of the issues of change in management is changing the structure of organization, i.e. organizational structure of the framework of governing relations on jobs, systems, people and groups which try to reach the goal [4]. By organizational structure, operation and activities inside organization are managed and responsibilities and authority limit are determined. The structure of organization is manifestation of strategic thought. Since the strategies of organization explain the structure of that organization. , There must be always a balance between the strategies of organization and its structure, and on the other hand, the efficiency of organization is one of the effective factors in organizational structure. Dorsun Teb Pars Company is one of the biggest importer companies of dental equipment. It is an exclusive representative of Dentium Company, was founded in Iran in 2004 by a group of professors and faculty members of dentistry department with the aim of fulfilling the needs of country in the section of dentistry services. By having 160 personnel and active agencies throughout the country, this company provides the main part of internal need to material and equipment in the health services area in dentistry. The variety of health services activities in dentistry and also widespread changes of science and technologies in dentistry and consequently in health services have provided various opportunities to develop the activities of Dorsun Teb Pars Company. By identifying these opportunities, the quality of resources and effectiveness of activities, and finally, continuous improvement of efficiency of the company are leveled up. Regarding the necessity of restructuring of organization in a reaction to changes of circumstances, the aim of the research is studying the relationship between the aspects of organizational structure with organization efficiency, and providing an appropriate structure in order to eliminate shortcomings, coordinate between different departments of organization, and finally, improve the efficiency. In this research, structural and content variable, goals, and mission of organization was studied.

2. Organizational structure
The structure of organization is a way by which organizational activities are divided, organized, and coordinated [2]. Moreover, by this structure, the process of delegation of authority, responsibility of monitoring regulations, and standards are specified for activities and their administrators [5]. In other definition, organizational structure includes a model of interactions between sections and components of an organization. Organizations consciously create some sections and units as parasystems in the main system, and they also make some specific communication and interchange model between these parasystems. The distinction between sections and their models of communication is called the structure of the organization [6]. A relatively simple and tangible concept of structure is summarized as an organizational diagram and it is a representation of the reality of organizational structure. The aspects of the structure of organization are classified into two structural and content groups. Organizational aspects introduce internal characteristics of an organization, and organizations can be compared by them. Content aspects show the position of organization and influence the organizational aspects.

2.1. Organizational aspects
These aspects indicate internal characteristics of an organization, and a basis can be extracted of them by which the type of organization is determined and the organizations are compared. Three components used to create organizational structure include complexity, formality, and centralization that are incorporated and the result is organizational structure [1]. Each of them is explained here:

- Complexity: It is a degree of people specialization based on occupational specialty in organization, and the number of places in which the activity is done there It also include the number of occupations, and the number of hierarchies that do the tasks.
- Formality: It means the rate of which the organizational occupations are standardized, or in other words, an extent to which an organization depends on regulations and procedures to direct personnel’s behavior.
- Centralization: It is about the rate of flexibility in decision-making and evaluating of activities in a centralized form [7] and the degree of concentration of decisions in one point of
organization [8]. Concentration is related to the distribution of authority in organization, and it determines who has the authority of deciding.

2.2. Content aspects
Content aspects are introducer of the whole organization and they show the organization or environment in which the structural aspects exist. These aspects, not only affect the structural aspects (complexity, formality, and centralization) but also get affected, too. The important content aspects of organizational structure are:
- **Size**: Size is the magnitude of an organization that is determined by the number of personnel.
- **Strategy**: Strategy can be defined as the process of determining long-term fundamental objectives, determining methodology, and allocating required resources to achieve these objectives [1]. Strategy means activities that organization designs for responding to or predicting the changes of external environment [9].
- **Environment**: Environment is factors inside or outside of the organization that influence the effectiveness of everyday operations and the performance of organization, and the organization have a little or no control over them.
- **Technology**: It is knowledge, machineries, procedures, and raw material that change data to outputs [10].
- **Culture**: People working in organizations form the organizational environment. The environment defines the kind, manner of selection and implementation of strategies, regulations, and methods in an organization, and so, it is indirectly an important and effective force in the formation of the culture of organization [11].

3. Efficiency
Efficiency can be defined in many ways. Efficiency is doing things right [12], or the amount of resources which is consumed to produce a product and it can be calculated based on the ratio of consumption to product. Efficiency means understanding how to do an activity and how to do it well; and this happens when for each unit of input, more valuable outputs are produced [13]. It is a ratio that compares some functional aspects of an activity with the costs spent for doing that activity [14]. Efficiency shows the product of the system of organization; a product whose consumption resources are human resources, capital, and other financial resources which are used to produce output. Some definitions are somehow general, and they have not introduced a measurable criterion practically; but what is definite is that managers can evaluate the efficiency of organization and staffs only when they can be sure about the rate and accuracy of obtaining the objectives. Some researchers have investigated different aspects of the structure of organization and the quality of the proceeds of organization within the last years. However, a few researchers have studied the effect of the role of the aspects of the organization structure on the organization efficiency. The research of Hadi Zade Moghaddam et al. (2010) can be mentioned in this regard. By studying the relationship of learning organization and complexity theory regarding quantum views, they found out that complexity is an indispensable quality of an organization, and the increase of complexity in the organization leads to managers’ change of thought and the mental model and improvement of learning capacity in the organization, and propels it to a desirable change and efficiency. Different organizations experience different levels of changes and pressures, therefore, they use different combinations of methods and tools to face with them. While studying the role of internal factors in explaining a model for changing the present organizations to active organizations, Jafar Nejad and Zarei (2010) have found out that the necessity of decreasing formality in the organization, i.e. delegating more authorities to staffs, and providing an opportunity to find and apply better methods, and upgrading the level of interactions inside organization, is a requirement for organizational agility. So, decreasing centralization and formality in the structure helps the agility and efficiency of the organization.

4. Organizing and restructuring the organization
Organization includes general division of duties, determining responsibilities, authorities, and relationships [15]. Organizing is a three-stage process including designing and classifying activities in organizational positions and making connections between positions to obtain a shared goal. Redesigning the organization means a set of managerial activities that are done to make change in technologies, processes, and organizational structure. The aim of such implementation is organizational effectiveness, problem solving, and the ability of adaptation to a changing environment.
Lately, a growing tendency for different activities that may affect the process of organizational redesigning is appeared. These tendencies have been shown in metaphors like layer scavenging, reengineering, and redesigning. Managers and the members of organization try to detect the environmental and organizational factors that are effective in redesigning activities. Now, the question is that how can the Dorsun Teb Pars Company, as one of the biggest importers of dental equipment and the exclusive importer of Dentium in Iran, have a dynamic interaction with other social systems? Dynamic interaction means that this company, with regard to the environmental changes, could change so that no disorders happen in the function and efficiency of the organization. This change requires a deep understanding of the operation and governing atmosphere of the organization. This research aims to answer following questions: If the organizational structure plays role in improving the efficiency of the organization? If the present organizational structure of Dorsun Teb Pars Company has led to any improvements? And finally, what are the factors of an appropriate organizational structure for Dorsun Teb Pars Company which cause efficiency improvement in this organization?

5. Research hypotheses
Three hypotheses are studied in this research:
First hypothesis: There is a significant relationship between the complexity of the present organizational structure in Dorsun Teb Pars Company and improvement of organizational efficiency.
Second hypothesis: There is a significant relationship between the formality of the present organizational structure in Dorsun Teb Pars Company and improvement of organizational efficiency.
Third hypothesis: There is a significant relationship between the centralization of the present organizational structure in Dorsun Teb Pars Company and improvement of organizational efficiency.

Regarding the classification of the aspects of organizational structure, following conceptual model (Figure 1) is used to study the effect of organizational structure on the improvement of organizational efficiency in this research.

**Figure 1**
*Conceptual model of the research*

---

6. Methodology
This research is methodologically descriptive-analytical type, and in terms of objective, it is practical. Moreover, since it studies the present situation of the organization by questionnaire and without any manipulations, it is a library research and survey regarding data gathering. The statistical population of the research is all people working in Dorsun Teb Pars Company formally and contractually. have positions in the levels of staffs, experts, middle managers, and general managers. Those who who are working as part-time or far from the company were not included in this study. With respect to the statistics of human resources in the organization while gathering the data, statistical population estimated as 110 people. Sampling in statistical population was done in four levels of general managers, middle managers, experts, and staffs by using Cochran’s formula (relation 1) which is a common method in determining the sample size. So, N is the size of statistical population and n is the size of required sample. To obtain the maximum size of sample, p and q were determined 0.5; the margin error of estimation d is 0.05 and \( Z^2 \) calculated 1.96 for the confidence interval 0.95.
The results of the estimation of the statistical sample size are in table 1:

\[
(1) \quad n = \frac{N.p.q.Z^2}{N.d^2+p.q.Z^2}
\]

Table 1

<table>
<thead>
<tr>
<th>Level</th>
<th>Statistical population size</th>
<th>Statistical sample size</th>
</tr>
</thead>
<tbody>
<tr>
<td>General managers</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>Middle managers</td>
<td>12</td>
<td>11</td>
</tr>
<tr>
<td>Experts</td>
<td>18</td>
<td>16</td>
</tr>
<tr>
<td>Staffs</td>
<td>75</td>
<td>54</td>
</tr>
<tr>
<td>Total</td>
<td>110</td>
<td>85</td>
</tr>
</tbody>
</table>

First documents of the organization were studied to gather the data and understand the present situation and organization efficiency of the organization. Then, three kinds of questionnaire were used. To measure independent variables of the research, Standard Questionnaires Measuring Organizational Structure Robins, which includes 24 questions about three aspects of organizational structure were used [9]. Job Performance Questionnaire Paterson, which includes 15 questions, and Evaluating Performance Questionnaire Paterson, which includes 10 standard questions about staffs’ personal evaluation of their performance and efficiency in the organization were also used for evaluating the efficiency of organizational structure. The reliability of the questionnaire is confirmed because they have been used several times. To evaluate the validity of questionnaire a pre-test including 30 cases were used. The value of Cronbach’s alpha was 0.8 for the completed questionnaires, which shows that the questionnaires have a good validity. The central index average was used for descriptive analysis of the data, and Spearman Rank Correlation was used to test hypotheses and the study of the relationships between the variables. Since the data were ranked, this test was used. Spearman Rank correlation is between +1 and -1.

7. Data analysis

The participants’ statistical information, which is was gathered via questionnaires, shows that about 60 percent of participants were men and 40 percent of them were women. Most of them had master degree, and 2 to 7 years of experience in the company, and they were 30 to 40 years old. Complexity average (questions 1 to 7), formality (8 to 14), and concentration (14 to 24) were measured in the levels of general managers, middle managers, experts, and staffs for the Standard Questionnaire Measuring Organizational Structure Robbins. Table 2 shows the information related to the participants’ answers to questions 1 to 7. As it is seen, staffs and experts believe more in complexity in organization than general managers and middle managers.

Table 2

| Complexity average between four levels of general managers, middle managers, experts, and staffs |
|-------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|
| Complexity                   | 1     | 2     | 3     | 4     | 5     | 6     | 7     | Total |
| General managers              | 2.83  | 2.5   | 4     | 2.2   | 4.16  | 3.83  | 1.6   | 21.12 |
| Middle managers               | 2.5   | 4.8   | 3.9   | 2.1   | 4.6   | 2.3   | 3.7   | 23.9  |
| Experts                       | 4.16  | 4.6   | 4     | 4.5   | 4     | 3.54  | 4     | 28.8  |
| Staffs                        | 4.2   | 4.8   | 4.2   | 4     | 4.2   | 4.8   | 30.2  |
| Average                       | 3.42  | 4.18  | 4.03  | 3.2   | 4.19  | 3.47  | 3.53  | 26    |

Table 3 shows the information related to the participants’ answers to questions 8 to 14. As it is seen, staffs and experts believe more in formality organization than general managers and middle managers.
Table 3
Formality average between four levels of general managers, middle managers, experts, and staffs

<table>
<thead>
<tr>
<th>Formality</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
<th>12</th>
<th>13</th>
<th>14</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>General managers</td>
<td>1.6</td>
<td>1.6</td>
<td>2.5</td>
<td>3.3</td>
<td>2.2</td>
<td>3.83</td>
<td>3</td>
<td>18.03</td>
</tr>
<tr>
<td>Middle managers</td>
<td>3.6</td>
<td>4</td>
<td>1.8</td>
<td>2.5</td>
<td>3.33</td>
<td>4</td>
<td>1.8</td>
<td>21.03</td>
</tr>
<tr>
<td>Experts</td>
<td>4</td>
<td>4.2</td>
<td>3.5</td>
<td>4</td>
<td>4.2</td>
<td>4</td>
<td>28.1</td>
<td></td>
</tr>
<tr>
<td>Staffs</td>
<td>3.83</td>
<td>4.8</td>
<td>4.2</td>
<td>4.4</td>
<td>4.5</td>
<td>4</td>
<td>4.8</td>
<td>30.53</td>
</tr>
<tr>
<td>Average</td>
<td>3.26</td>
<td>3.65</td>
<td>3</td>
<td>3.55</td>
<td>3.56</td>
<td>3.96</td>
<td>3.45</td>
<td>24.42</td>
</tr>
</tbody>
</table>

Table 4 shows the information related to the participants’ answers to questions 15 to 24. As it is seen, staffs and experts believe more in centralization and lack of authority in organization than general managers and middle managers.

Table 4
Centralization average between four levels of general managers, middle managers, experts, and staffs

<table>
<thead>
<tr>
<th>Centralization</th>
<th>15</th>
<th>16</th>
<th>17</th>
<th>18</th>
<th>19</th>
<th>20</th>
<th>21</th>
<th>22</th>
<th>23</th>
<th>24</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>General managers</td>
<td>1.2</td>
<td>1.5</td>
<td>2</td>
<td>2.2</td>
<td>1.5</td>
<td>1.88</td>
<td>2.5</td>
<td>2.2</td>
<td>1.2</td>
<td>1.5</td>
<td>17.68</td>
</tr>
<tr>
<td>Middle managers</td>
<td>2.3</td>
<td>2.2</td>
<td>1.5</td>
<td>2.8</td>
<td>1.8</td>
<td>3.33</td>
<td>3</td>
<td>2.5</td>
<td>2.2</td>
<td>1.8</td>
<td>23.43</td>
</tr>
<tr>
<td>Experts</td>
<td>4</td>
<td>3.33</td>
<td>3.6</td>
<td>3.83</td>
<td>1.9</td>
<td>2.5</td>
<td>4</td>
<td>4.2</td>
<td>3.83</td>
<td>4.2</td>
<td>35.4</td>
</tr>
<tr>
<td>Staffs</td>
<td>4.4</td>
<td>3.83</td>
<td>4</td>
<td>4.2</td>
<td>4.8</td>
<td>2.5</td>
<td>4</td>
<td>4.8</td>
<td>3.83</td>
<td>3.23</td>
<td>31.4</td>
</tr>
<tr>
<td>Average</td>
<td>2.97</td>
<td>2.7</td>
<td>2.77</td>
<td>3.25</td>
<td>2.5</td>
<td>2.92</td>
<td>3.42</td>
<td>3.42</td>
<td>2.76</td>
<td>2.7</td>
<td>29.47</td>
</tr>
</tbody>
</table>

To determine the complexity of the organizational structure of Dorsun Teb Pars Company, the total averages of questions 1 to 7 of questionnaire Robin were used which were 26 scores out of 35 total scores, and it shows 74.3% complexity. The total averages of the questions eight to fourteen associated with formality was 24.4 scores out of 35 total scores, which shows 69.7% of formality in the structure of organization. Moreover, for centralization, the total average of 10 last questions, 29 scores were obtained out of 50 total scores, which shows 59% of centralization in the organization. Due to the alignment of questions in the Job Performance Questionnaire Paterson and Evaluating Performance Questionnaire Paterson, all questions were gathered in a questionnaire including 25 questions to determine the efficiency. First, the value of “always” which shows numerical value of 5 and is the highest limit of each choice was multiplied by 25 questions of the questionnaire, and it was found that the highest score to be obtained is 125. The results of the questionnaire showed 78 was an average score of efficiency and the staffs’ performance efficiency was 62%. Therefore, efficiency is in a middle level in this company. Spearman Rank Correlation test was done between the variables to test the hypotheses, and the study of the relationship between the aspect of the structure of organization and efficiency. The results are shown in table 5.

Table 5
Results of the testing hypotheses

<table>
<thead>
<tr>
<th>Hypothe</th>
<th>Spearman Correlation</th>
<th>Rank</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>First</td>
<td>0.558</td>
<td>Positive and significant relationship between the complexity of organizational structure and organization efficiency</td>
<td></td>
</tr>
<tr>
<td>Second</td>
<td>0.719</td>
<td>Positive and significant relationship between the formality of organizational structure and organization efficiency</td>
<td></td>
</tr>
<tr>
<td>Third</td>
<td>-0.689</td>
<td>Positive and significant relationship between the centralization of organizational structure and organization efficiency</td>
<td></td>
</tr>
</tbody>
</table>
As it is seen in the table of testing hypotheses:
1. There is a positive and significant relationship between complexity and efficiency of organization structure. Although the complexity is in the middle level and above, efficiency is not in a desirable level, especially in the horizontal hierarchy of organization; efficiency is obtained slowly due to less number of occupations and variety of responsibilities. The analysis of questionnaires indicates that the large number of responsibilities and lack of specialized job in lower level of organizational hierarchy lead to disharmony and increase of the hours of doing specialized activities, and the whole process decrease the dynamicity of the organization.

2. There is a positive and significant relationship between formality and efficiency of the organization structure. Formality is the organization relies on regulations, rules, policies, and procedures to guide its staffs’ manner. When formality is high, there are particular descriptions of tasks, many rules and regulations, and clear guidelines about activity in organization so that staffs act completely accordingly. Unlike the middle and above level of centralization in the regarded company, the analysis of questionnaire shows that emphasis on rules and regulations, responsibility variations, and lack of people’s complete familiarity with descriptions of duties and occupations have led to lack of compatibility of organization operation with organizational mission and finally to efficiency drop.

3. There is a positive and significant relationship between the centralization of organization structure and efficiency. Too much centralization in structure leads to an efficiency drop. Centralization refers to the distribution of authority and it determines who has the right to decide. Based on the results of the questionnaires, high centralization, particularly in comparison to horizontal hierarchy of the organization, leads to a decrease in individual’s experience and lack of growth of commitment and responsibility among staffs. Centralization has an inverse relationship with delegating authority. When there is more delegation of authority, there will be lack of centralization, and by having more flexibility in decision-making, its implementation and supervising will transfer to lower levels of organization. In such a situation, staffs’ ability, commitment, and responsibility will increase and the organization efficiency will improve.

CONCLUSION

Efficiency is a comprehensive and wide concept that includes all economic, political, social, and cultural sections. Managerial experience of developed countries shows that the most important factor in economic progress of organizations in those countries are programming, organizing, coordination, and a systematic movement towards increasing the organization efficiency. The final achievement of increasing the organizational efficiency is the amplification of competition in internal and external markets, development of market, income augmentation, and a flourished economy. Regarding the importance of efficiency and its improvement in the organization, this research has been done with the aim of studying the relationship of organization structure and efficiency in Dorsun Teb Pars Company. The result of first hypothesis shows that there is a positive and significant relationship between complexity of organizational structure and efficiency. Based on the results of Hadizadeh Moghadam et al.’s research (2010), the increase of complexity in organization will bring about a change in managers’ thought and mental model and will lead the organization toward a desirable change and efficiency. This confirms the result of the present research. Additionally, the result of the second hypothesis indicates that there is a positive and significant relationship between complexity of organizational structure and efficiency. This finding is not consistent with the findings of Jafar Nejad and Zarei’s research (1995) in studying the role of internal factors of organization in explaining a model to convert the present organizations to the dynamic organizations, and reducing formality to increase dynamicity and efficiency. The result of the third hypothesis shows that there is a negative and significant relationship between centrality of the organization structure and efficiency. This is consistent with the findings of Jafarnejad and Zarei’s research (1995) of reducing centrality to increase dynamicity and efficiency of organization. Regarding the results of the research and middle level of efficiency in Dorsun Teb Pars Company, efficiency improvement of the organization requires restructuring in a flexible and dynamic manner and in accordance to the organizational mission in order to
eliminate the present defects. These solutions are proposed to redesigning the present structure:
1. By employing experts in lower level of organizational hierarchy, specialized activities would be coordinated and speeded up.
2. The organization chart is a visible symbol of all activities and processes of the organization, so, it is important to give all staffs the plan of organizational structure in order to have complete awareness of organizational level, organizational hierarchy, position of people in a unit, and the area of managers’ control.

REFERENCES