E-ISSN: 2706-8927
P-ISSN: 2706-8919
www.allstudyjournal.com
IJAAS 2021; 3(1): 348-354
Received: 07-11-2020
Accepted: 11-12-2020

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Align European quality excellence model and strategic management to achieve performance improvement

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Abstract
Managing and improving the performance of the organization is one of the topics that are considered by most managers of companies and organizations. With the increase of strategic management and quality management programs in the country's organizations, the need for a comprehensive methodology plan to manage and improve the performance of organizations has become more apparent than ever. Balanced scorecard in the field of strategic management and European quality excellence model in the field of total quality management have entered the category of performance management system. Therefore, the combination of the balanced scorecard and the European quality excellence model is a link between the two areas of strategic management and total quality management in the category of performance management. This paper presents a new methodology for the simultaneous use of the balanced scorecard and the European quality excellence model to improve organizational performance through the MADM, SWOT and QFD tools. In the literature of the article, in the comparison of the two models, the library method is used, and in the methodological analysis section, the field method is used to collect information. After a theoretical study and comparison of the two models, the methodology of using these two categories is presented and is implemented step by step as a case study.

Keywords: Align European quality, excellence model, strategic management, performance improvement

1. Introductions
Determining the position of different systems, methods and instructions in the body of organizations and how they relate to each other and determining the strengths and weaknesses and ultimately improving the performance of organizations is an issue that is of interest to most managers of companies and organizations. Performance appraisal refers to a set of measures and information that is performed in order to increase the level of optimal use of facilities and resources in order to achieve goals in economic ways with efficiency and effectiveness. In recent years, the use of performance appraisal system in organizations has expanded and the most important tool in this field has been financial metrics. But in this regard traditional financial systems face many problems. One of the most important problems is just paying attention to financial variables. The Balanced Scorecard provides a framework for measuring and strategically managing the organization to improve organizational performance. In this framework, the strategies of the organization are translated into strategic goals in terms of balanced scorecard and can be understood by all members of the organization [4]. Outstanding models also try to improve organizational performance with a holistic quality management approach. Each model is distinguished according to the characteristics mechanism and logic behind each, which are suitable for the use and application that are designed. In this paper, the overlap of models in practice will be examined in more depth and a methodology for the simultaneous application of strategic management and a European quality excellence model for the application of the core capabilities of the two models will be presented.

2. Literature Review
Previous studies on the comparison of the balanced scorecard and the European quality excellence model, despite the strong emphasis on the simultaneous use of two models, have not provided a comprehensive implementation framework or methodology for organizations to express how the two performance management systems interact accurately and codified [2]. In this article after studying the literature of the two models, the executive methodology is presented along with the case study and implemented step by step.

The research method used in this article is as follows: first the concept of balanced scorecard and the European quality excellence model are reviewed and studied. In the study of thematic literature in the section of comparing the two models the library method is used and in the section of methodological analysis the field method is used for data collection. The result of this study is familiarity with these concepts and their scope of application in organizations. In the next stage, the focus of the studies is on the simultaneous study of two concepts and their comparison, and the methodology of simultaneous use of two models to improve the performance of the organization is developed. After preparing and presenting this methodology, according to the nature of the work, a case study will be presented for it, and in the last stage, conclusions as well as experiences will be presented.

2.1. Model of Excellence EFQM

The European quality management foundation was established in 1988 by fourteen leading European organizations in Brussels, Belgium, to excel the business of European industries through quality improvement as a basic process for continuous improvement. In the EFQM Excellence Model, a model of an organization is presented that is superior to other organizations in idea and action and shows how to act in a competitive environment for growth, sustainability and superiority. The EFQM excellence model is a non-coercive framework based on nine criteria, of which five are empowerment criteria and four are results. Empowerment criteria cover what the organization has done and outcome criteria cover what the organization achieves [4].

2.2. Balanced Scorecard Model (BSC)

In the early 1990s, Robert Kaplan, a professor at Harvard Business School with David Norton, then director of a research firm affiliated with a consulting firm, devised a research project to examine the reasons for the success of twelve American companies and started to study their performance appraisal methods. These companies started.

The result of the work of these two people was the development of a balanced scorecard method. Balanced Scorecard is a method of measuring the performance of the organization in which a strategy is developed and the action plan is transferred to all levels of the organization and it is checked how much it is implemented. Kaplan and Norton stated that in order to make a complete performance appraisal, this performance must be evaluated from four perspectives: financial perspective, customer perspective, internal process perspective, and learning and growth perspective [7].

3. Support for Two Models of EFQM and BSC

3.1. Support Fields from the Perspective of Balanced Scorecard

Many organizations have quality improvement programs, including EFQM, before using a balanced scorecard.

Balanced scorecard and strategy map can provide a high level and strategic background for these programs for these organizations and while concentrating quality programs, by aligning them with the strategic goals of the organization, make the programs more effective. Quality models can be local, tactical, or without links to other applications. Unlike these models, the Balanced Scorecard creates clear links through the strategy map. To create a strategy map for a balanced scorecard, the organization's strategy must be clear .The Balanced Scorecard first achieves strategic goals and then identifies the programs and initiatives needed to improve processes to support strategic goals [13]. The Balanced Scorecard sets small goals for outstanding performance not just for parity with top organizations. Many quality programs model the performance of their internal processes against superior activities and focus on continuous improvement as a result of the work. On the other hand, setting quantitative goals with a balanced scorecard begins by eager to increase performance greatly in financial and customer metrics field. Companies that implement a balanced scorecard expect to be a role model for others [17].

The Balanced Scorecard often discovers completely new processes that are critical to achieving strategic goals. However, quality models often try to improve the organization's current processes making them better faster and cheaper. However, by applying the scoring card principles, especially when a new strategy is implemented, often completely new processes are revealed in which the organization must excel. Once a critical strategic process is identified, quality programs will then be able to expand to improve the performance of those processes [14]. In addition to the above, the balanced scorecard creates a strategic priority for process development. Even without the need to introduce completely new strategic processes in the organization, companies need to prioritize. Some processes are more essential to achieving strategic success than others. Resources are allocated to processes according to superior activities. Once organizations have identified critical and key processes, they can use the principles of quality management to improve and develop them [14].

3.2. Areas of Cooperation from the Perspective of EFQM Model

In the EFQM handbooks, the Balanced Scorecard is mentioned as an effective tool in leadership, policy and strategy criteria as well as key performance outcomes [1-11].

The Leadership criterion states that transcendent leaders formulate and facilitate the achievement of ideals and missions. They create the values and systems needed for the sustainable success of the organization and implement them with their appropriate action and behavior. In times of change, the organization is consistent in its intentions and, wherever necessary, able to change the direction of the organization and encourage employees to follow it. In their 2001 book, Norton and Kaplan cite leadership as one of the most important factors in creating a strategy-oriented organization. They also mention leadership as one of the intangible assets of the organization in their book 2004 [12-23] and provides guidance on how to measure leadership. Leadership, culture, alignment and carte blanche are also mentioned as organizational assets in the most root layer of the strategic plan.

The second criterion of policy and strategy states that transcendent organizations carry out their mission and aspirations by creating and formulating a strategy focused on the interests of stakeholders and taking into account the market and the sector in which they operate. Policies, plans, goals and processes are formulated and implemented in order to implement strategies [24-39].

The key performance outcome criteria which is the last of the nine criteria of the EFQM model is also in the outcome

criteria category stating that superior organizations comprehensively measure important outcomes related to key policy and strategy elements and they reach them. Of course, when EFQM talks about performance results, it does not consider all of these outputs as financial, but also considers non-financial outcomes such as market share, product or service launch time, and sales volume [40-50].

4. Methodology for Simultaneous Application of Strategic Management and Excellence Model

The proposed methodology is based on Mr. Lee's research model, which has been validated by a case study in a commercial educational organization [51-66], within the framework of a strategic performance management system. Before going into the details of this methodology, it is necessary to mention a few things. First, in this methodology, the goal is not to provide a framework to move towards the excellence of the organization and the goal is not just to establish strategic management. Therefore, there is no need to address all the techniques and tools available in the framework of the BSC and EFQM model and the goal is to improve performance by these two tools. The methodology steps are described step by step. In the first step using EFQM self-assessment the organization scores to measure the improvement of performance after the implementation of the methodology. In the second step, the mission and vision of the organization are determined. In the third step, using SWOT analysis and considering the strengths inside the organization and the threats and opportunities outside the organization, the strategies of the organization are formulated and in the fourth step, we fit it in the four perspectives of the balanced scorecard model. In the fifth step, using the QFD model quality house matrix, we determine the relationship between the strategies formulated in the four perspectives of the balanced scorecard model with the European quality excellence model. Thus, in the "what" part of the matrix, we write the four-dimensional strategies of the balanced scorecard, and in the "how" part of the matrix; we write the criteria of the excellence. Then using a survey of experts during a brainstorming session, we establish strategies divided into four perspectives of the balanced scorecard. In the sixth step, we rank these strategies, and then in the seventh step, we implement the prioritized strategies using the balanced scorecard model. Finally, in the eighth step, using self-assessment, we get the improvement of the organization's performance [67-73].

5. Case Study of the Presented Methodology

In order to study the model presented in Section 3, the steps of the above methodology are implemented step by step in the maintenance and repair of passenger cars of the railway industry.

5.1. Self-Assessment by Model EFQM

In this phase, the organization's score is obtained before the implementation of the model. Among these self-assessment methods, the questionnaire method is selected because it is simpler, faster and more cost-effective than other methods. In this case study, representatives are selected to answer this questionnaire and the average for each questionnaire is taken. In the desired industry, the EFQM model score in the first stage is 169.98. The upper limit of this score is 1000. If the industry wants to be at the top levels of the EFQM model, it is at level one, the level of commitment to excellence.

5.2. Determining the Vision, Mission and Core Values

In this part, the strategic management platform of the organization is established by formulating the mission and vision and fundamental values. Mission is the reason for the existence of the organization and the main destination of the organization's activities and the values that guide the activities of employees. The mission is to determine how the organization wants to compete and provide value to its customers. The vision of the organization creates a picture of the future of the organization that explains the orientation and helps people understand why and how they should support the organization. The value of the organization reflects the beliefs, priorities of the organization. These values, as principles, guide management decision-making and guide the behavior of people in the organization. The vision of the rail industry is to be a world-class, leading, learning and dynamic policy-making organization. It is in charge of suburban, intercity and international transportation of rail passengers in the country, which, by achieving international standards, has become one of the top 10 railway companies among the countries of the International Railway Union and one of the safest, fastest and most convenient systems. In order to achieve its desired vision, this organization is also tasked with policy-making, supervision, investment, equity participation, outsourcing in the field of transportation and providing services to rail passengers, and to develop rail transportation in its market and provide customer service.

5.3. Develop a Strategy and Study the Internal and External Environment of the Analysis Organization by SWOT Analysis

In this phase, using the weaknesses and strengths within the organization that were obtained by self-assessment in the first phase and opportunities and threats outside the organization, the SWOT matrix is formed and the initial strategic goals of the organization are formulated.

5.4. Translate the Strategies Developed in the Previous Step into BSC Model Perspectives

After formulating a strategy based on SWOT analysis to prepare these strategies for the next step (scoring the relationship between EFQM model criteria and strategic goals), during the brainstorming session with the presence of experts, strategic goals are divided into four perspectives of balanced scorecard. The result is eighteen strategic goals that are divided into four perspectives of the scorecard model.

5.5. Using QFD Quality House Matrix to Score the Relationship between EFQM and BSC Strategies

In this phase, the relationship of eighteen strategic goals divided into four aspects of the balanced scorecard and nine criteria of the EFQM model was achieved during a brainstorming session with the presence of experts so that these strategic goals can be prioritized for the next phase [74-79]. At this stage of aligning the balanced scorecard team and the organization's EFQM consultants after setting strategic goals (goals in balanced scorecard views, in the WHAT section and the criteria of the EFQM model in the HOW section of the quality house matrix, considering the

strengths and weaknesses of the criteria based on the self-assessment of the first phase and the opportunities and threats of the third phase, the relationships between each strategic goal and EFQM model criteria are scored. The scoring mechanism is done according to the methodology presented by Lee model [80-90]. The sum of the scores for each row and each column is given at the bottom of the table.

The percentages at the end of each row indicate the importance of the BSC landscape strategies versus the EFQM model. The numbers at the end of each column indicate the importance of that criterion to the organization's strategies that the leadership, policy, strategy, and key performance outcomes have the highest score, as noted in Section 4-1. The information in this section is used to rank the strategies in the next section.

5.6. Ranking Strategies Using the TOPSIS Method

Among the various multi-criteria decision making methods, the TOPSIS method is considered because the criteria weight of the EFQM model is consistently present in the European quality organization. It should be noted that the TOPSIS method does not require double scoring to determine the weight and is consistently used as the problem data.

In the previous phase, the relationship between strategic goals and EFQM model criteria was developed using the quality house matrix. Norton and Kaplan called one of the reasons for the failure of the Balanced Scorecard projects is the lack of resource allocation. Therefore, these strategic goals are prioritized in order to allocate the necessary resources according to the priority.

5.7. Implement the Prioritized Strategies of the Previous Step

In this phase, the strategic goals of the previous stage are implemented in order of priority. In order to implement these strategic goals effectively a balanced scorecard is used. The most important issue in the balanced scorecard project is the formation of a strategy-oriented organization, that Norton and Kaplan outline strategies in their 2001 Strategy-Based Organization book. In this phase, in order to implement the strategic goals, a strategy-oriented organization was created and these goals are implemented by using the cause and effect relationship and taking into account the priority.

5.8. Re-Self-Assessment by EFQM Model

At the beginning of the implementation of the methodology, the organization score was obtained based on the EFQM model. In the last phase, with self- assessment, the rate of improvement of the organization's performance was obtained. In the first phase, the EFQM standard score was 169.98 in the studied organization .After implementing the methodology in the last phase, self-assessment was performed again and reached 231.89 with 62 points increase. In the key results criterion, the performance decreased, which it is hope that will improve in the future. The reason for the decrease in this criterion is improper financial performance at the end of the fiscal year and is expected to improve with the improvement of financial performance in this criterion.

6. Conclusion

Using the self-assessment of the EFQM model, the strengths and weaknesses of the organization and the areas in need were identified, improved, thus the organization was properly identified and evaluated and progress trends were measured periodically. The people of the organization were taught the basic concepts of excellence and used to improve the current performance of the organization. Using SWOT analysis, the data of the previous section were used and the strategic goals of the organization to achieve long-term performance improvement were formulated. In the next step, by scoring, the relationship between the criteria of EFQM model and strategic goals was obtained and it was concluded that the three criteria of leadership and policy and strategy and the key results of performance are more strategically important than the other six criteria. Using the Balanced Scorecard, strategic goals were achieved to achieve improved strategic performance and were considered as part of the organization's annual planning cycle, and all financing and resource allocation plans will be linked to the organization's strategic goals. The organization achieved good results. Six months after the implementation of the methodology, all strategic goals were monitored and measured, and almost all of them improved, and finally a performance improvement of 62 EFQM points was achieved. The implementation of the methodology caused the employees to gain a better understanding of the strategy of the unit and the organization, communication and teamwork increased, and the spirit of excellence of the organization increased.

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