



Performance Improvement Priorities: Integrative Model of Organizational Excellence Model and Balanced Scorecard Approach

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Abstract

Due to increase in the strategic and quality management programs in organizations, the need for a comprehensive methodology of project management and organizational performance improvement becomes quite obvious. Considering the importance of improvement, the purpose of this paper is to prioritize improvement projects of X company. A framework has been considered for prioritization. First of all, a self-assessment, with the EFQM model, is used in the company. After that, the company's mission and goals are developed. Using matrix SWOT the strategy of the X company is written. The developed strategies are divided into four perspectives of the balanced scorecard. Then, the relationship of the four perspectives of the balanced scorecard and results of self-assessment are scored by using QFD matrix. Finally, the strategies are ranked using TOPSIS method, and priorities for improvement are identified. Finally, suggestions for managers and researchers are discussed.

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INTRODUCTION

What makes the world of organizations so distinctive from the world of a few decades ago is the complex and unstable environment, increased competition, rapid changes, increasing communication developments, and also the dramatic transformation of knowledge management [1]. All industries in different countries of the world have realized that organizations should constantly use methods and models to evaluate and continuously improve performance and current activities of the organization in order to determine their current position, survival, and development in today's competitive world. In this respect, the use of organizational control systems is essential [2]. Due to the intense competition and the speed and volume of information and challenges facing

today's organizations, a performance evaluation model to assess the situation and develop a strategic plan based on the strengths and weaknesses of the organization seems highly necessary. Necessary Updating and inefficiency, and weaknesses of traditional performance measurement systems have created new models of performance evaluation [1]. So, the need for performance evaluation models and methods that can evaluate it with regard to the current state of organization and future of it, is quite obvious [2]. Management and improvement of organizational performance issues are of high interest to managers of most companies and organizations. Due to increase in the strategic and quality management programs in organizations, the need for a comprehensive methodology of project management and organizational performance improvement becomes quite obvious [3].



Balanced Scorecard and EFQM Business Excellence Model are tools that use organizational performance measurement to improve corporate, which highlight the deficiencies in the current management team. Both have been widely used in recent years, and dealt with similar issues [23].

A combination of balanced scorecard, SWOT analysis and matrix quality function development (QFD) provides a practical approach to build a strategic framework for managers and consultants [24]. So, in the present study, according to Literature Review, a mixed model of EFQM and BSC for link quality management and strategic management is conducted in order to improve corporate performance of X company. QFD model will identify the relationship between EFQM model criterion and the balanced scorecard, and TOPSIS method will be used for the ranking. This study will proceed as follows: Part 2 will be the literature reviews and previous studies done in the field of performance measurement, self-assessment, and integration model of EFQM and BSC. Part 3 will include conceptual frameworks. Part four will be the steps have been implemented in the X company. And section 5 is allocated to the conclusion for future managers and researchers.

Literature Review

EFQM Business Excellence Model has been used in many studies for self-assessment and performance evaluation so far, such as, the studies of Iqbal et al [4], Aytug Sozuer [25], Torabi-Pour et al [5]. Moreover, the balanced scorecard has been used in many studies to evaluate the performance, including, Arab Mazar et al., that assessed the tax affairs, Iranzadeh et al, evaluation of industrial business space by JafariEskandary and et al, the performance evaluation of Social Security of Mazandaran by Azari et al; Research conducted by Barati et al. to evaluate the performance of the staff's of Amiralmomenin Semnan hospital; furthermore, evaluating medical records department by Ajami et al. [2] used the balanced scorecard to complete strategies [6-13, 26]. A combination of EFQM model and the BSC model has been used for performance evaluation and to improve performance, including the research: Research of Muhammad Ahmadvand et al. and the evaluation of the performance of the insurance industry by Mazloumy et al. Lee et al., based on SWOT, BSC, QFD, and MNBQA means, created frameworks for higher education strategy, Zohrabi et al. began strategy formulation in organizations of higher education by the use of SWOT, BSC, QFD, MNBQA tools, and fuzzy techniques [1, 2, 27, 28]; Further researches which have been done in this direction are the studies of Jlaliyoon et al, "Utilizing the BSC and EFQM as a

Combination Framework; Scrutinizing the Possibility by TOPSIS Method"[30], Sayedi et al. study entitled "Presentation of a Combined Model to Analyze Organizational Performance with EFQM and BSC Models" [31], the research conducted in 2008 by Drago et al. entitled "Competitiveness and performance development: an Integrated Management Model "[32], and the research named "Balanced Scorecard versus Quality Award Models: a Strategic Framework" [33].

The combination of EFQM and BSC approach for prioritizing improvement projects has also been investigated in other studies. A number of studies have been conducted in this area include, Akbarian who developed applying simultaneously the balanced scorecard and EFQM modeling through EFQM, QFD, SWOT and MADM. He, then, in 1388, implemented the methodology introduced by his colleague Najafi, under the coordination of the European Quality Management Excellence Model to achieve continued improvement. They introduced two models of EFQM and BSC, and then made a comparison between the two models. And areas of cooperation and support between the two models examined, and they considered the maintenance of passenger cars, the rail industry as a case study. Implemented the Methodology was introduced and the following steps were: the earliest phase began self-assessing with EFQM model. In the next step they identified the company's vision and mission and core values. Their next step was to develop strategies using SWOT analysis. Next, the strategies developed by the SWOT Matrix Model were translated into BSC perspectives. Using the house quality matrix the relationship between BSC and EFQM strategies was scored. The part WHAT includes the strategic goals of BSC and the part HOW includes EFQM model criteria. The scoring QFD criterion was also based on the model introduced by Lee. Then, to rank the strategies, TOPSIS method, through the multi-criteria decision making method, was selected. In the next step, the strategies were prioritized by TOPSIS method. In the final phase, the re-self-assessment was performed by the EFQM model. The performance improved by 62 points [3,14].

In their study, Mirfakhroddini et al. [26] proceed to prioritize improvement projects in the EFQM model with balanced scorecard approach. They introduced EFQM model as a practical tool to assist organizations to understand the shortcomings. They present the solutions in the form of improvement projects, to help organization to go through right management systems. Limitations and resource constraints, prevent organizations from the implementation of all projects of the EFQM model self-assessment process.

Prioritizing the improvement projects proposed by the EFQM model seems necessary. Therefore, they

proposed an algorithm in their study to prioritize improvement projects. They used fuzzy ANP method introduced in 2009 to determine the importance of each toxic indices to prioritize improvement projects. This method is appropriate when the dependence of criterion of possible choices are very much. The logarithmic least square method was based on the calculated fuzzy weights; and proposed their algorithms by reviewing the existing methods in prioritizing improving areas, which includes the following steps: 1. Forming the organization Excellence (decision) Team, 2. Separating homogeneous group program (executable), 3. Determining the decision criteria, 4. Calculating the weights of each of the decision criteria, using expert method, 5. Ranking improvement projects, 6. A final decision regarding the chosen implementation plan. Finally, the proposed algorithm was implemented in Yazd Regional Electric Company [15].

Khana poshtani and Nourolsana [16], in their research about integrated framework for developing and implementing the company's strategy in Iran post company, developed strategies for the company using the tools of BSC, EFQM, QFD. Using the BSC and EFQM model image, they calculated the percent allocation of resources and scores of BSC aspects and EFQM criteria. Using these tools, the post map strategy was developed. Finally, strategic objectives, criteria, measures and projects, and budget allocation were calculated.

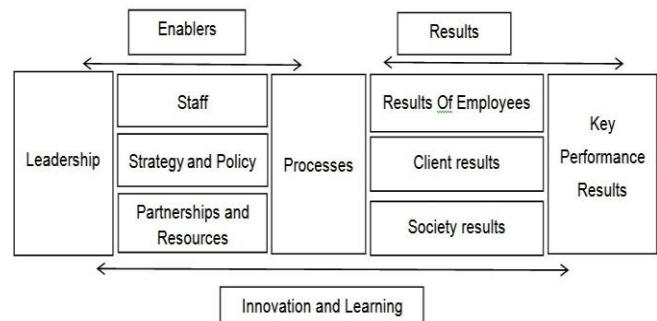
Cooke [34] in his PhD thesis addresses the same issue entitled "A Methodology to Link Strategic Quality Requirements to Operational Activities in Manufacturing". A lot of researches have been done on the rating, for example Dodangeh et al. [35] select the best strategic plans of the balanced scorecard with multi-criteria decision making.

Conceptual and the Research Framework EFQM Business Excellence Model

In 1988, the managers of 14 leading European companies, who didn't want to be defeated by the thinking of the Americans in economic competitiveness, established the European Foundation of Quality Management; And officially introduced EFQM business excellence model in 1991 [17,18]. This model will provide a framework for self-evaluation and continuous improvement. The basic concepts of this model are: Results orientation, customer orientation, leadership and sustainability goals, process-based management, development and participation, learning, innovation and continuous improvement, partnership development, and social responsibility. EFQM model is composed of nine elements. The first five are enablers and four of them are results which are shown in the following figure. Enablers expressed the success factors of the organization; and results express the achievements of the proper implementation. This model can be used as a model for

the organization to move towards total quality management, and can be used as a model for quality award for organizations at national and regional level and as a framework for measuring and managing business performance [19]. In this study, the EFQM Model was used as a measure of performance and the company's current position.

Figure1. European EFQM model Framework.



SWOT Matrix

SWOT matrix is the matches the specific internal and external factors, which creates a strategic matrix (Note: The internal factors are within the control of organization, such as operations, finance, marketing, and other areas. The external factors are out of organization's control, such as political and economic factors, technology, competition, and other areas). The four combinations are called the Maxi-Maxi (Strengths/ Opportunities), Maxi-Mini (Strengths/ Threats), Mini-Maxi (Weakness/Opportunities), and Mini-Mini (Weaknesses/ Threats).

1. Maxi-Maxi (S/O): this combination shows the organization's strengths and opportunities. In essence, an organization should strive to maximize its strengths to capitalize on new opportunities.
2. Maxi-Mini (S/T): this combination shows the organization's strengths considering the threats, e.g. from competitors. In essence, an organization should strive to use its strengths to parry or minimize threats.
3. Mini-Maxi (W/O): this combination shows the organization's weaknesses beyond opportunities. To conquer the weaknesses, the organization should overpass the weaknesses by making the most out of any new opportunities.
4. Mini-Mini (W/T): this combination shows the organization's weaknesses by comparison with the current external threats. This defensive strategy, definitely, is to minimize an organization's internal weaknesses and avoid external threats[35]

Balanced Scorecard

In the early 1990s, Robert Kaplan, professor of Business School Harvard, along with David Norton, who at the time was director of a research firm affiliated with a

consulting firm, began the evaluation methods of research project to investigate the fundamental causes of twelve American companies. The result was the development of the balanced scorecard approach [3,14].

This system divides the objectives into four perspectives: financial, customer, internal processes, learning and growth, and gives equal importance to financial goals and operation objectives and subsequently operational and financial measures in assessing the performance of the organization[19].The objectives of using the balanced scorecard are as follows: Provide a framework for describing the various aspects of the organization's strategy; Stated systems to reduce the gap between the objectives and goals by senior managers understood by staffs; and create a system to measure past performance and guide future practice[16].

Quality Function Development(QFD) Matrix

Organizations, to preserve and expand their markets, are required to adopt measures for customer satisfaction; And satisfaction of customer depends on customer orientation approach meaning identifying needs and expectations and specific ways to meet their demands[16]. The "mechanism of the QFD" is an effective and efficient manner to achieve "customer orientation" in the organization [20].

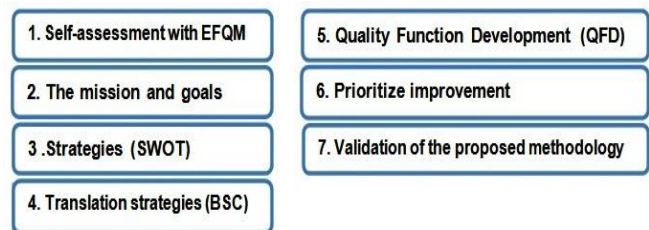
In 1966, Youji Akoua proposed QFD approach in a Japanese company. In1985, QFD approach was approximately used throughout the United States [16]. The QFD assessed the relative importance of needs to establish a relationship between customer needs and product specifications, and compared the organization's performance with the potential competitors performance, and expand the demands and needs of the most important elements and collection of the production processes [20]. In this paper, QFD tools are used to integrate Quality Management and Strategic Management tools. As a result, the process of the strategic priorities for the implementation of organizational strategies has been identified and action plans of improvement, appropriate with the importance of areas planed and organization resources, regarding the process areas, have been allocated [16].

TOPSIS Method

One of the most important elements in the process of strategic management is strategy implementation. In 1999, Fortune magazine, in an article, claimed that over 70% of senior managers in the U.S. fail, not because they are weak in strategy formulation, but because of their lack of success in their strategy implemented. Norton and Kaplan, attribute one of the reasons for the failure in the

implementation of the strategy to the lack of efficient allocation of resources to priority projects and actions [16]. Because of the importance of proper allocation of resources, prioritizing improvement projects seems necessary to reach. In this study, the multi-criteria decision model was used to prioritize improvement projects; and MADM models are selector and is used to choose the best among the M options [21]. Among the different methods of multi-criteria decision making, TOPSIS method has been considered because it weighs the same as in the European quality criteria EFQM model [3]. In TOPSIS method, it is not needed to determine the weight for duplicated score, and the same constant data is used. Then, the conceptual model and the implementation approach used in this study are as follows:

Figure 2. The Conceptual Framework of the Research



MATERIALS AND METHODS

Self-assessment with EFQM Model

In order to plan efficiently for our organizations, with eyes wide open, and to visualize the future position of organization firmly, we must know where and in what position we are. One of the most useful, efficient, and effective methods to achieve this goal, is implementation of the evaluation process. For this reason the evaluation model of EFQM was used. By using this tool, administrators of organize process, in addition to valuable information in the areas of financial and nonfinancial, can obtain considerable knowledge of its strengths and areas to be improved in all areas of the nine criteria of model of excellence, and subsequently improve all levels of the organization and activities [17]. Among existing methods, EFQM self-assessment questionnaire was chosen because of its simplicity. Questionnaires were distributed among the five directors. Finally, they extracted the overall score organization of five enablers and results. The results are shown in the table 1.

Mission and Goals of the Company

In this phase, the strategic planning begins with formulating the company's missions and goals. Mission is the main purpose of the organization, activities of the organization, and the values that will work for employees

[3]. The mission of strategic vision means the future of the company management [22]. The mission of X company is determined as follows: The main missions of the company are to develop and deploy comprehensive, integrated software systems for the industrial, administrative, and supportive services through the web. After determining the company's mission, strategic goals were developed, which are measurable objectives of the mission. These

goals are: Producing integrated software for manufacturing organizations and agencies according to their specific needs, expanding after-sale services to customers, services to government clients for their trust, the use of web technology to respond quickly to customers and providing appropriate ways for doing organization works better by using information technology.

Table 1. Results of self-assessment with EFQM model

Criteria	Key Performance Results	Society Results	Results of Employees	Client Results	Processes	Partnerships and Resources	Staff	Strategy and Policy	Leadership	Total
Rate at Company	30.2	6.4	20.2	45.70	39.2	20.30	19.50	10.2	17.3	209
Ideal Rate	150	60	90	200	140	90	90	80	100	1000

Strategy

In order to develop strategies for X company, SWOT matrix was used. The prerequisites of the formulation of this matrix are external and internal environmental

analysis of the company. These steps were taken in the matrix formulation, and SWOT matrix were then constructed as follows:

Table 2. SWOT matrix.

<p>Weaknesses(W) W1: liquidity problems W2: exclusive customers W3: sales promotion and advertising creative W4: Balance of profit / sales W5: distribution channel. W6: costs and barriers to entry W7: Effective Accounting System</p>	<p>Strengths(s) S1: Organizational Climate and Culture S2: synergy within the organization S3: strategy and pricing flexibility S4: feedback from the market S5: customer focus S6: cost of capital, compared with the industry S7: price and technical ability in comparison with competitors S8: using technology in new ways S9: producing new products</p>	<p>Strengths and weaknesses</p> <p>Opportunities and threats</p>
<p>O-W Strategies 1.Improve the quality (productivity) better management (W2, O4, O3) 2.Obtaining financial support from external sources (W6, W4, W1, O8, O2) 3.Sales promotion programs (W3, W5, O8, O7, O1)</p>	<p>O-S strategy 1. Market expansion strategies (develop activities in the country and the world) (O8, O1, S3, S8, S7) 2. Through increased customer oriented after-sales services (S5, S4, O3, O5, O4) 3. Scores for the use of government subsidies (Scheme ICT) (O7, S7, S6) 4. Strategy innovation in products and services (S8, S9, O1, O6)</p>	<p>Opportunity (O) O1: Economic Growth O2: rising levels of productivity O3: Attitudes About Quality Products O4: attitudes about customer service O5: population change in cities and villages O6: protection of intellectual property O7: the level of government subsidies O8: growing global business</p>
<p>T-W Strategies 1. Development of the project quality and lower price than competitors (W6, W5, T7, T4) 2. Improve internal systems (T5, W3, W7) 3. Costs (W1, W4, T2, T1)</p>	<p>T-S strategy 1. Financed by domestic revenues (S6, S7, T6, T7, T5) 2. Increase the company's market share in existing products (S4, S3, S8, T3, T2) 3.Using the latest technologies (T4, T7, T9, S7, S8)</p>	<p>Threats (T) T1: control price / wage T2: Changes in life style T3: Lack of accurate and comprehensive as the IT industry and its place in the organization unknown T4: Changing Technology T5: Tax Laws T6: lack of government regulations, such as copyright law T7: the rise of new powers T8: Failure Amkkan loan due to the intangible nature of software projects T9: lack of specific IT infrastructure managers in the public sector and lack of adoption agencies TS policymakers</p>

Translation of Developed Strategies to Perspectives of the Balanced Scorecard

In this phase of the study of improving project prioritization strategies, it is necessary to translate

strategies developed in the SWOT matrix into the perspectives of balanced scorecard (BSC). This phase was conducted by several managers. The four perspectives of the balanced scorecard strategy are as follows (Table 3).

Matrix of Quality Function Development (QFD) The next step in prioritizing improvement projects is to construct the quality function development matrix in which the four perspectives of the balanced scorecard strategy in part WHATS and nine EFQM criteria are located

in part How of Quality Function Development, and then are rated the same as the patterns.(In this article, Lee model is used for scoring).The output of this phase will be used to prioritize improvement projects. Quality Function Development matrix is shown in the following table 4.

Table 3. Translating strategy into four perspectives of the balanced scorecard

Strategies derived from the SWOT matrix	BSC perspectives	
Financed by internal revenue	F1	Financial perspective (F¹)
Increasing market share in existing products	F2	
Obtaining financial support from external sources	F3	
Costs	F4	
spread propaganda through projects with lower price than competitors	F5	
market expansion strategies	C1	Customer Perspective (C²)
Expansion propaganda through quality projects	C2	
Increased customer orientation through after sales service	C3	
Sales promotion programs	C4	
Earn points for government subsidies	I1	Internal process perspective (I³)
Innovation strategies in products and services	I2	
Development and diversification of products to counter rivals	I3	
Improve quality through better management	I4	
Upgrade and improve of the internal system	I5	
Using the newest technologies	L1	Learning and growth perspective (L⁴)

¹Financial; ²Customer; ³Internal Business Processes; ⁴Learning and Growth

Table 4. Quality Function Development Matrix, Combining EFQM Model and BSC Model

Criteria of EFQM Model											
How's Whats	Leadership	Key Performance Results	Society results	Results Of employees	Client results	Processes	Partnerships and Resources	staff	Strategy and Policy	Total	percent
F1	9	3	3	0	1	9	9	3	3	40	7
F2	3	3	3	0	9	1	3	3	9	34	6
F3	9	9	3	0	0	0	3	0	9	33	6
F4	1	3	0	0	3	3	1	3	9	23	4
F5	3	9	9	1	3	0	0	0	3	28	5
C1	9	9	3	1	9	0	3	0	9	43	8
C2	0	3	3	3	9	3	1	9	3	34	6
C3	1	1	3	3	9	9	9	1	1	37	7
C4	3	1	3	1	3	9	9	0	9	38	7
I1	9	3	9	0	3	0	3	1	9	37	7
I2	1	3	9	3	9	9	9	3	9	55	10
I3	1	0	1	1	9	9	9	3	3	36	7
I4	9	3	1	3	1	3	0	3	9	32	6
I5	3	1	0	3	3	9	3	9	3	34	6
L1	9	3	1	0	0	9	9	0	3	34	6
Total	70	54	51	19	71	73	72	37	91	538	
Percent	13	10	9	4	13	13	13	7	17		

NOTE: 9 = strong, 3 = low, 1 = weak, 0 = none.

TOPSIS Method

One of the problems of project strategy and failure of them is the lack of appropriate allocate resources for strategic goals; further in this paper, the TOPSIS method is used for ranking strategies. The results of this procedure are given in Table 5.

Validation of the Proposed Methodology

In this study, in order to validate the model and whether the application of these methods and priorities

by TOPSIS method simultaneously is valid or not, priority ranking for improvement was implemented in the X company. After 6 months of implementation of the prioritized improvement projects another evaluation by the EFQM tool was performed; the results of this evaluation are presented in Table 6. According to the results of this evaluation it can be concluded that the implementation of the proposed methodology leads to a 6.31 increase in X company performance.

Finally, this methodology leads to improved performance.

Table 5. Ranking of Improvement Projects with TOPSIS Method

No	Strategy	Rank
1	Financed by domestic revenues	8
2	Increase the company's market share in existing products	5
3	Obtaining financial support from external sources	15
4	Costs	6
5	Spreading propagation through projects with lower price than competitors	12
6	Market expansion strategies	2
7	Spreading propagation through quality projects	9
8	Through increased customer oriented after-sales services	3
9	Sales promotion programs	10
10	Scores for the use of government subsidies	13
11	Strategic Innovation in Products and Services	1
12	Product development and diversification to counter rivals	4
13	Improve quality through better management	14
14	Upgrading and improving internal systems	7
15	Using the latest technology	11

Table 6. Re-evaluation by means of EFQM

Criteria	Key Performance Results	Society results	Results of employees	Client results	Processes	Partnerships and Resources	Staff	Strategy and Policy	Leadership	Total
Preliminary evaluation score	30.2	6.4	20.2	45.70	39.2	20.30	19.50	10.2	17.3	209
Re-evaluation score	45.4	8.5	20.2	47.3	42.3	21	20.2	15.3	20.4	240.6

CONCLUSION AND SUGGESTION

In this paper, using EFQM tool, self-assessment was conducted to identify weaknesses and performance of the organization. The strategies were developed using SWOT matrix. In the next step, using BSC method, strategies developed in SWOT matrix were translated into four perspectives of the balanced scorecard in order to be applied in the next step to combine Total Quality Management and strategic management by using QFD method. After the allocation strategies developed to the four balanced scorecard perspectives, QFD tool was applied for the relationship between Organizational Excellence EFQM and BSC criteria, and scores were assigned to each criterion. The results of the QFD were used for ranking the Multiple Criteria Decision Making TOPSIS method. Then, using TOPSIS method, the ranking improved projects was reached, in which the priority improvement projects of X company obtained. Innovation in products and services has the highest priority in the company, and obtaining financial support from external sources is located on the lowest level of TOPSIS rankings. After implementation of the improvement priorities and re-evaluation, it was understood that the proposed methodology leads to a 6.31 increase in X company performance.

Recommendations to Leaders

Recommend to the managers to implement this cycle continually and compare the results.

Recommendations to authors

Further studies that can be done in this area can be self-assessment with other models such as: the Malcolm Baldrige, and the results compared with the present study. For ranking, improvement projects can also be used for the other ranking models, suggesting to the researchers to study in this area. And the other study can be applied to EFQM Model, BSC model, and the DEA model to develop and evaluate performance.

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