

A study of performance evaluation models in health care sector with special reference to EFQM and BSC models

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Abstract

Performance evaluation is a comprehensive and regular process, which compares all the activities, processes and results with organizations goals, and the results will help to improve situation. Through an appropriate performance evaluation model this improvement will be possible by getting feedback, analyzing the strengths and weakness, opportunities and threats, accountability and customer satisfaction in organization. In other side, Performance evaluation in organizations which provide health care services is even more significant because of their important and major effects on the health of the people and society. Evaluation of health care services is in the form of different approaches. In this article we have tried to introduce common performance evaluation models in health care and then particular focus on EFQM and BSC model as major and reliable models in performance evaluation system.

Keywords: Performance Evaluation, Balanced Scorecard, European Foundation for Quality Management.

Introduction

In today's competitive world all organizations for development, growth and stability need performance evaluation system, and by that they will be able to evaluate their programs efficiency and effectiveness, process and all other aspects.

With the organizations formation during different periods, different models have been used to evaluate performance. At the first they only used limited criteria to evaluate Base on the organization's needs. The primary organizations in the past only used financial indicators to evaluation, until "Kaplan and Norton" in early 1992, by review and evaluation of management accounting systems found out the inefficient of this kind of information for performance evaluation (Kaplan and Norton, 1992) [8].

In the past at health care sector, quality of health care services was guaranteed only by having a professional staff of doctors and nurses. But health care organizations are complex, and every professional's work is just part of it, and only change in the whole system can lead to the improvement (Nabiloo B., 2004) [17].

Increase in organizational performances and their activities area, dynamic environment and the introduction of new management ideas and issues such as customer satisfaction, social responsibilities and etc., forced the organizations to not suffice to limit indicators. Therefore, a comprehensive and multi-dimension model to performance evaluation was formed and improved gradually. These models would assess various aspects of organizations, and provide appropriate tools by considering multiple parameters.

Health care organizations started using quality standards as a new framework for overall improvement. The application of

quality standards in healthcare sector was common for the first time in 1917 in America, and gradually spread to other countries. Since the early 1990s, healthcare reforms in developed and developing countries increased privatization and healthcare organizations authorities. This has tended to increase efficiency and improve quality in the public and private sectors, and one of the results was a rapid growth in the use of external quality assessment tool by government as a way to improve the quality of healthcare services provided in related organizations. (Montage D., 2003) [16].

External assessment has effect on healthcare services, Governments, clients, professionals, managers and insurance organizations, and it developed a new design which leads to responsibility and clarification towards society and of course quality improvement. (shaw CD., 2001) [23]

Since then, various performance evaluation models have been created. The aim of this paper is give some suggestion to provide a comprehensive model base on the differences and special features of premier evaluation models.

Evaluation

Evaluation as a key element of management can be seen as an efficient tool which realize the strengths and weaknesses, and also by identify the reasons behind them it can do the correct actions to improve performance.

In the other hand, healthcare services have an important role in preventing disease, providing and improving public health. Thus, the existence of an effective system for quality of services, and an evaluation system in healthcare is necessary. The success of any evaluation system depends on the scope and comprehensiveness of that. As much as the evaluation system is able to cover more aspects of quality in healthcare, we can

expect more useful results. Thus, a successful evaluation requires a clear and comprehensive criteria and standards.

Performance Evaluation

Measuring and comparing process in Performance evaluation system is based on the organization’s goals to achieve to a desirable situation, which lead to review, revise and continually improve the performance of the workers and organizations. In the other words, performance evaluations determine the level of success according to the standards, and identify the strengths and weaknesses, opportunity and threats, and then attempts to resolve weaknesses and enhance strengths. (Zarea M.H., 2000) [31]

Performance evaluation system in organization is so necessary, because Lack of this system in different part such as resources evaluation, objectives, strategies and etc. lead to a sick organizations. Therefore, each organization needs a self-assessment system to determine the appropriate activities with a good quality level at the complex and dynamic environment (Eghbal F., 2008) [5].

Importance and necessity of performance evaluation

Continuous improvement in organizational performance will not be possible without knowing about goal achievements and recognize challenges and their feedbacks, and all of these will be impossible without an accurate evaluation system.

Management science confirms that we can’t control something that we can’t evaluate, and if we can’t control that so we can’t manage that. The main issue at all organizational analysis is performance, and performance depends on the evaluation. Thus, no organization can survive without an appropriate performance evaluation system.

Common approaches in performance evaluation

More countries have a voluntary or mandatory mechanism for performance evaluation. (Salmon J.W., *et al.*, 2003) [21]

There are various models to evaluation and performance management, which managers in organizations, based on the type of organizations and their goals, use particular model or methods, or by combining several models they design their own particular model. The purpose of using different approaches in performance evaluation by governments, insurance agencies, managers and professionals is self-monitoring, quality improvement, increase value for money and responsibility and clarification toward the society. The main mission of each performance evaluation system is evaluating the efficiency and effectiveness of the organizations, but it also should be able to determine weaknesses and strengths of organizations by giving solution to the current weaknesses.

New performance evaluation approaches can be categorized into specific two groups. Those which emphasize on self-assessment such as the Deming Prize in Asia and specifically in Japan, American Malcolm Baldrige Award and European Foundation for Quality Management (EFQM), and those models which are designed for managers to measure and improve business processes, such as Balanced ScoreCard (BSC) and CMM (1980). (Kaplan and Norton, 1992) [8].

Table 1 shows the common evaluation models which are as the most known evaluation models, and table 2 also shows a summary of important aspects considered in these models, and as it clear BSC and EFQM are more comprehensive models than others because they cover more aspects.

The following article describes the Balanced Score Card (BSC) model and European Foundation for Quality Management (EFQM) models because they are the most comprehensive and common models to evaluate performance in health care.

Table 1: Common Performance Evaluation Models

Models and Authors	General Specifications	Important aspects
Sink and Tuttle (1989) “Sink and Tuttle”	Focusing on financial and non-financial indicator	According to Sink and Tuttle (1989), the performance is function of seven criteria: 1) efficiency, 2) effectiveness, 3) quality, 4) productivity, 5) quality of work life, 6) profitability or budget ability, and 7) innovation
Keegan (1989) Performance Measurement Matrix	It control performance according to the actual and predicted indicators	integrates four different classes of business performance: internal and external, cost and non-cost
Excellence model European Foundation for Quality Management	It Includes two parts: enables (with five criteria) and results (with four criteria)	Enables includes: Leadership, People, Policy and Strategies, Partnership and Resources, Process And Results includes: Customer Results, People Results, Key performance Results and Society Results
Fitzgerald <i>et al.</i> (1991) Result and determinant model	There is two dimension of performance, Results and Determinants	Results indicators such as competitiveness and financial performance Determinant indicators such as: Flexibility, Resource Utilization, Quality and Innovation
Lynch and Cross (1991) Performance Pyramid	Performance pyramid system combine organization operational performance indicators and objectives, but that excludes continuous improvement, and it designed as a four step performance pyramid	The performance key indicators which have attention on external effectiveness (such as customer satisfaction, product quality and delivery), and the key performance indicator which have attention to internal effectiveness (such as productivity, waste, cycle time)
Kaplan and Norton (1992) [8] The Balance Scorecard (BSC)	By working from four perspectives, it helps organization to translate vision and strategies into implementation	Customer, financial, learning and growth, Internal business process.
Brown (1996)	This macro process model creates links between four stages in a business process and the measures	It includes Inputs (Customer’s needs), Process (Delivery Of Product), outputs (financial results) and Outcomes (Customer Satisfaction)

The Input-Process-output-Outcome Framework	of it. These stages are: processing systems inputs,, outputs and outcomes	
Bititci <i>et al.</i> (1997) Integrate performance measurement	The performance management process is seen as a closed loop control system which applies policy and strategy, and also obtains feedback from various levels in order to manage the performance of the business. So, there are two critical elements with respect to the structure and content of the performance measurement system: Integrity and Deployment.	Shareholders, control indicators, environment establishment, developmental adjectives, internal performance criteria
Malcolm Baldrige (1988)	Its created to identify organization's access to the quality, and their growth and awareness to the importance of quality	Includes: Strategic Planning, Leadership, Human Resource focus, Customer and Market focus, Business Results and Process Management.
Lee (2001) Stakeholder analysis	It begins by identify organization's goals and strategies, and stakeholders divide in two categories: non-key stakeholders, and key stakeholders	Includes: Profitability, customer satisfaction, quality and on time delivery
Neely <i>et al.</i> , (2002) The Performance Prism	It includes five integrated facets. They help organizations to identify areas for address: strategies, stakeholder satisfaction, capabilities and stakeholder contribution and processes.	The unique and critical aspect of the performance prism is the reorganization of the reciprocal relationship between organization and its stakeholders.

Table 2: Aspects considered in the Evaluation Models

aspects	Sink and Tuttle	Performance Measurement Matrix	Performance Pyramid	Result and determinant model	Balanced Scorecard	Business Excellence Model
Financial	+	+	+	+	+	+
People	+				+	+
Efficiency	+		+	+	+	+
Strategy			+	+	+	+
Quality	+		+	+	+	+
Flexibility			+	+	+	
Customer		+	+		+	+
Competitive market		+		+		+
Innovation	+	+	+	+	+	+
Society		+				+

Theoretical Background

Balanced Scorecard

This model was created at the Harvard Business School by Kaplan and Norton since the early 1990s. It is a multi-dimensional approach to performance measurement and management that is linked specifically to organizational strategy (Otley D.,1999) ^[20] As well as financial measures of performance, BSC suggests that attention should be paid to the requirements of business processes, customers, and longer-term sustainability. Four areas of performance are defined by BSC model (Now known as financial, customer, internal business and innovation and learning). Otley D. (1999) ^[20] suggested that up to four measures of performance should be developed in each area (Figure 1 shows the BSC framework) Otley D. (1999) ^[20] also believed a major strength of the balanced scorecard model is its attention to linkage between business unit strategy and performance measures. This is a very weak area in many organizations and the technique provides a practical approach to overcome on this issue.

The framework of the four perspectives of the BSC helps to translate organizational strategies into measurable objectives. By Kaplan and Norton in 1996 ^[9], the four perspectives are known as: financial, customer, internal process, and learning

and growth. Lussier R.N. (2006) said the important factor in each of these perspectives which make them successful is balance between long term and short term, and also internal and external factors that are based on business strategy.

Based on Lussier R.N. (2006) studies, in summary, the helps of BSC in organization is as the following six ways:

1. Promotes growth; due to focus on both long-term strategic outcomes and short-term operational results.
2. Tracks performance; correct and improve performance by tracking individual and results against targets.
3. Provides focus; the BSC could make a focus on what strategy is more important to the company when measures are aligned to a few critical strategies
4. Alignment to goals; measures in organization are linked and support each other when you measure what is truly important to success. This called alignment through organization.
5. Goal clarity; by BSC organizations are able to respond to this question: How does what I do daily contribute to the goals of the organization?
6. 6. Accountability; each people are known as owners of metrics, to provide clear accountability for results.

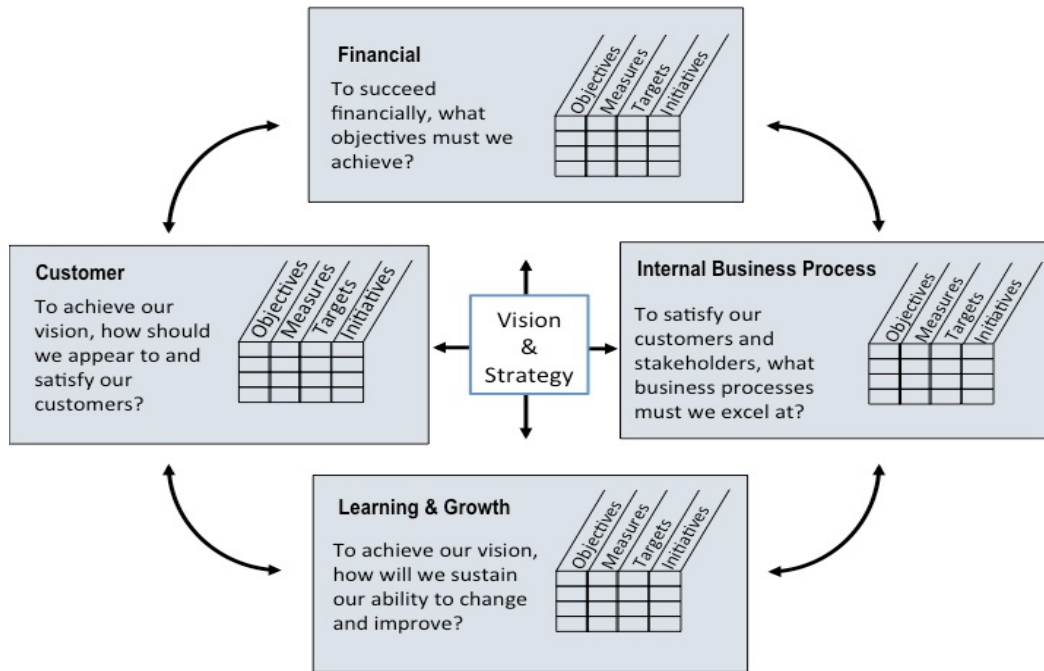


Fig 1: The Balanced Scorecard: a framework to translate a strategy into operational terms

European foundation for Quality management

This Model introduced at the beginning of 1992 as a framework for organizations process assessing to get the European Quality Award (Santos and Gonzalez, 2007) [22]. The EFQM Excellence nine elements are based on the Total Quality Management principles (TQM). as it shown in Figure 2, The EFQM Excellence Model is a non-prescriptive framework based on the nine criteria. Santos and

Gonzalez (2007) [22] said five criteria categorized as Enablers include: people, leadership, partnership and resources, policy strategy, and processes, and four are categorized as Results: customer results, impact on society results, people results and business results. The most widely used organizational framework in Europe is this model, and has become the basis for the majority of national and international Quality Awards.

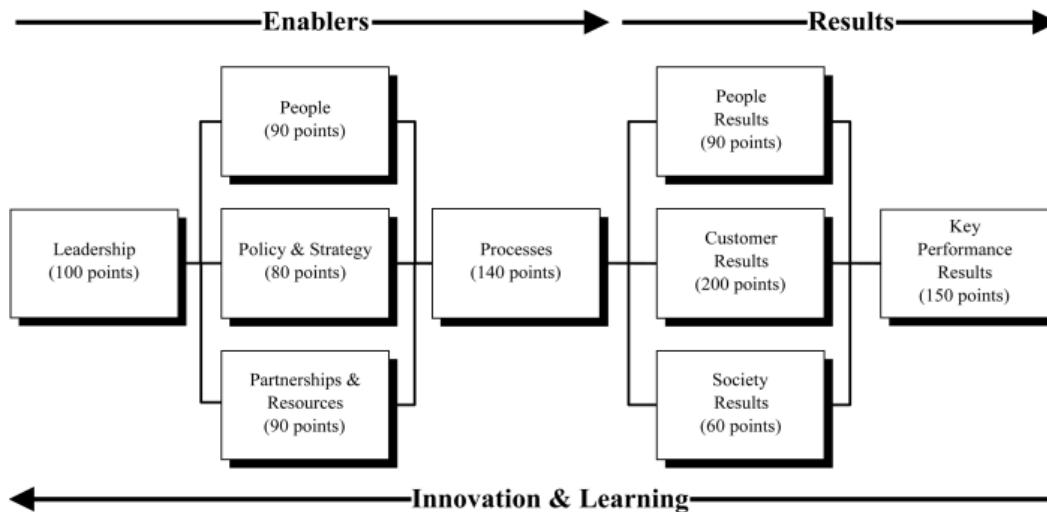


Fig 2: EFQM Excellence Model

Same the other quality awards, The EFQM Excellence Model is a useful and practical tool, from the empirical research perspective that offers several advantages, such as:

1. By incorporating the contributions of EFQM consultants, this model is regularly revised and updated
2. It includes of a set of sub-criteria which explain the exact meaning of each criterion with details.
3. EFQM is intended to be as a benchmarking instrument, for compare the organization with its competitors to achieve or maintain competitive advantage.

Comparison between BSC and EFQM

As indicated in figure 3, Davis & Albright (2004) said the BSC model assumes a segmented management approach by four perspectives, and established cause-and-effect relationships between these perspectives. An appropriate criterion of EFQM Excellence model can confirm or deny the success in accomplishment of any defined objectives under the BSC model. Based on Marija and Dahlgard (2013) [15] studies activities taken under the BSC perspective Learning and Growth reflect the EFQM Excellence model Leadership,

Strategy, and People criteria. Success in the BSC perspective Internal Processes can be related to Processes, Products, People, Partnerships & Resources and Services criteria of the EFQM Excellence model. Results achieved under the BSC Customer perspective reflect Processes, People Results,

Products & Services and Customer Results criteria of the EFQM Excellence model. Finally, People Results, Business Results, as well as Society Results reflect the results of activities taken under the BSC Financial perspective

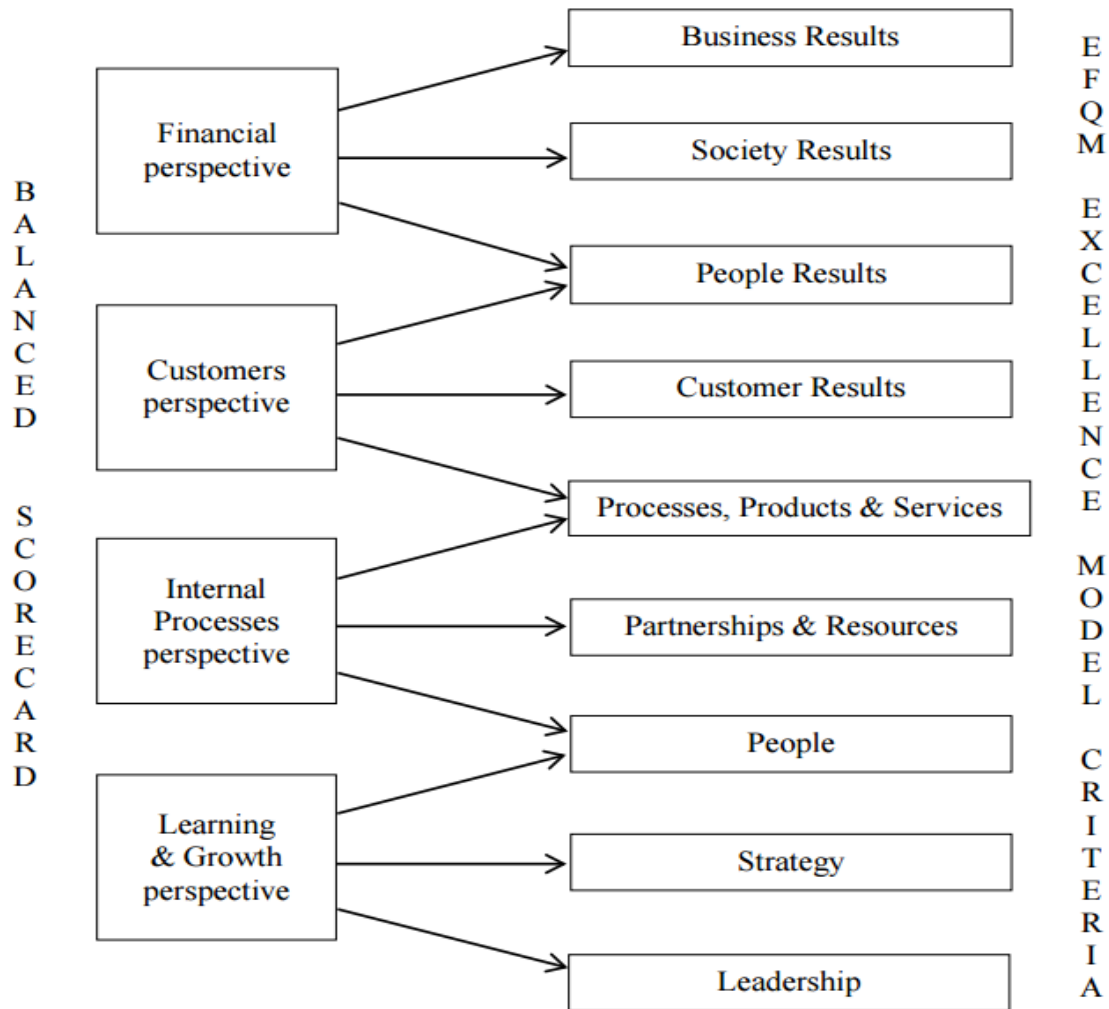


Fig 3: Framework of Relationships between BSC perspectives and EFQM model criteria.

Table 3: High level comparison of the two approaches

	Balanced Scorecard (BSC)	European Foundation of Quality Management (EFQM)
Origins	value creation Performance measurement	Total Quality Management
Aspiration and benefits sought	To translate a company's strategy into operational focused, and measurable terms Enabling strategic for performance Performance improvement	Improvement in performance To identify the strengths and areas for improvement across an organization's processes to encourage best management practice Enabling best management practice
Deliverable	A group of logically linked strategic objectives, with lead and lag indicators or targets across 4 perspectives Set of initiatives based on the strategic objectives and also measures	A benchmark and relative assessment of the quality of an organization's processes and results by assessing or scoring against the 9 Criteria of the Model process strengths and weaknesses related areas
Development Approach	Strategy driven, workshop based, iterative, future looking, hypothesis driven, macro view, management team involvement. Set of objectives and measurement are unique to every organization Step change in performance	Process driven, Self-Assessment, fact gathering, present focused, scoring based, detail oriented, data collection Continuous improvement Set of criteria and measurement areas are the same for all organizations
Success Factors	On-going process set in governance processes Management team level commitment and sponsorship	On-going process embedded in day to day management Management team level commitment and sponsorship

Gaelle Lamotte and Geoff Carter (2000)

Table 3 shows the two Models both tackle the broad subject of performance improvement particularly through the use of measurement. Both are based on similar principles of management; the Models are born out of different origins by different routes, so they deliver different outcomes and have different benefits too. The fundamental difference is that the Balanced Scorecard designed to assess and communicate strategic performance, whereas the Excellence Model and its various applications, such as Self-Assessment, it focus on to encourage the adoption of good practice across all management activities of the organization. For example, Self-Assessment as part of assessing good management practice, typically as an annual process seeks to establish how well an organization defines and manages the process of strategic planning. It does this by determine whether the organization has a formally established and appropriate process, which is reviewed regularly and deployed systematically at different levels. The Balanced Scorecard on the other hand tests the validity of the strategy, and also monitors the organization’s performance in frequent basis, e.g. monthly. The first purpose of the Balanced Scorecard is to ensure strategy gets implemented and it is enable to continuously learn from its performance, and then adapt these strategies accordingly, not to assess the quality of the strategic planning process itself (Lamotte and Carter, 2000) [12].

Table 4 shows the brief comparison of BSC and EFQM by thirteen performance evaluation specifications: After the comparison in table 4, it is so clear that both models, EFQM and BSC, are so similar. Both models are flexible, which means that managers in organizations are able to allocate specific measurement scales base on the organization’s environment and position. Both models are reliable and valid, in particular EFQM model which has more

acceptable history. Both models meet the interests of stakeholders, but EFQM is more unique because it directly refers to the effect of the organization on society. Both models attention to the processes and results and in both models it is possible to analyze the processes. Both models include key objectives, which concentrate in certain area, 9 criteria in EFQM and 4 perspectives in BSC model. The EFQM excellence model is for organizations that wish to get European Quality Award base on continuous improvement and self-assessments, and there isn’t any kind of strategic planning in that. On the other hand, BSC method provides a strategic map which help managers to make a logic connection between causes and effects.

In both models, accept to giving rewards, although there are a few details to connect reward system to performance evaluation system. Only in BSC model, reward system is based on the strategic measures. In both methods feedback is important; both know how to use old information for evaluation. However, BSC needs Double-loop learning to use data from strategic feedback.

The major difference between these two models is that the key objectives in EFQM Excellence model established base on TQM principles, while the key objectives in BSC model established base on the organization’s favorite strategy. BSC is also more flexible that EFQM. Another different is that EFQM is more suitable tool for provide survey sample because it has more uniform structure than BSC.

Andersen H.V. *et al.* (2000) have constructed the following diagnostic table (Table 5) that helps to identify the circumstances which is more applicable for each model. As these circumstances are, by observation, different and not mutually exclusive, this also shows an organization might usefully combine the two tools.

Table 5: choose the most appropriate tool according to organization’s purpose

Purpose	Choice of Model
To perform regular health checks of all business processes, to identify strengths and weaknesses	The EFQM Excellence Model
To initiate and drive a continuous process improvement program	The EFQM Excellence Model
To enable external benchmarking of company processes	The EFQM Excellence Model
To provide a checklist, indicating good practice used for business planning and evaluation	The EFQM Excellence Model
To improve understanding of cause and effect aimed at informed and improved management decisions and actions	The Balanced Scorecard
To align operational activities with strategic priorities, based on vision or mission statement	The Balanced Scorecard
To priorities strategic initiatives	The Balanced Scorecard
To facilitate two-way communication of strategy, and strategic issues across large organizations	The Balanced Scorecard
To focus management agenda on future strategic issues more than on historic financial issues	The Balanced Scorecard

Andersen H.V. *et al.*, (2000)

Conclusions: Why should use EFQM and BSC models at the same time?

Balanced Scorecard seeks to control short term operations with its long-term vision and strategies (Kaplan and Norton, 2013) [9]. This model is able to measure productivity in government complex environment by focusing on strategies.

This model entrance in health care sector happened almost a decade after its creation (Weir E., *et al.*, 2009) [28]. Balance Scorecard method in the most health care organizations in America, Australia, Canada and New Zealand designed independent and as strategic units, and it seems that for health care organizations evaluation this method is appropriate.

Balanced Scorecard is many experts’ concern because of its special framework for information feedback and facilitates forecasting and prospective information flow.

Some of the challenges facing the implementation of this method in health care sectors include: difficulty of making changes in the health sectors processes, diversity of needs, a conflict between goals of the managers and health care staff, inadequate information systems (Silva B., *et al.*, 2005) [25], difficulty for develop appropriate indicators (Cheema S. 2010), lack of commitment, lack of stability in changing environment, misunderstanding of the concepts and cultural diversity (Bambang T., 2007) [2]

It also has the most conceptual approach, focused only on results and it not consider the role of society, it doesn’t have scoring system and also it’s not possible to evaluate areas independently. (Yousefian N., 2009)

About a decade after EFQM birth, The European Foundation in health care created to accomplish its mission which was the

leader of excellence factor in health care organization in Europe. Almost all European countries use EFQM as self-assessment tools (Yousefian N., 2009).

The obvious ability of EFQM is simplicity, flexibility and low cost implementation. Some previous studies believe EFQM is a comprehensive model to cover all concepts in quality assessment. EFQM is also known as an optimal model for comprehensive and systematic integration of health concepts. (WHO. 2005)

Experiences revealed that the use of EFQM and BSC in the same time lead to synergy in promotion of health care. These two actually complete each other (Figure 4).

Fig 4: EFQM and BSC, two complementary models

EFQM	BSC
Base on continuous process improvement How we can improve all things we do?	Base on Strategic Management Which elements of our organization make us compete with other organizations?

- Comprehensive diagnostic tool: for organization quality evaluation and a basis for boost comprehensive quality
- Self-assessment result: identify different aspects to recovery
- Strategy oriented: command tool
- Focus on choosing important strategic objectives, indicators and initiatives

By using the self-assessment information provided by EFQM, organization can has a greater recognition for achieving its strategic goals, which provide by BSC. In the other hand, BSC can help EFQM's Process improvements by prioritize more valuable process to improve base on the strategy. So, use of these two models in same time is possible, and by that they are able to cover the weakness of each other by their strengths. EFQM as a popular model which extensively accepted total quality management model to become a perfect performance evaluation system will need to be apply beside modern strategic management system. So by using the BSC and EFQM together will be possible to make an alignment between operational improvement activities with strategic priorities, so the total quality management (TQM) by its continual improvement tools will support the strategic objectives to yield strategy proper achievements. Figure 5 shows the methodology to apply both BSC and EFQM model in same time at organization and it includes eight steps

References

1. Anderson HV, Lawrie G, Shulver M. The Balanced scorecard vs. the EFQM business excellence model-which is the better strategic management tool?. 2GC Active Management, 2000, 1-15.
2. Bambang T. The implementation of The Balanced Scorecard to Improve Competitive Advantage in The Era of Globalization: Case Study at Local Hospital Organization in. Surabaya-Indonesia. 13th Asia Pacific Management Conference, Melbourne Australia, 2007.
3. Brown MG. Keeping Score: Using the Right Metrics to Drive World-class Performance. Quality Resources. New York, NY, 1996.
4. Cheema S. Samoa's first teaching hospital. Samoa. Medical Journal. 2010; 1:51-52.

5. Eghbal F. Assessment of human resource management performance at Isfahan Medical Science based on European Foundation for Quality Management [M.Sc. Thesis]. Isfahan: Education University, Faculty of Education and Psychology; [In Persian], 2008.
6. Fitzgerald L, Johnson R, Brignall S. Performance Measurement in Service Businesses. CIMA, London, 1991.
7. Jalaliyoon N, Zarei A, Hemati M. Consideration of BSC and EFQM as a combination framework. International Conference on Economics. Businesses and Management, Manila, Philippines; IPEDR. 2010, 2.
8. Kaplan RS, Norton DP. The Balanced Scorecard – measures that drive Performance. Journal: Harvard business review, 1992, 9-71.
9. Kaplan RS, Norton DP. The Balanced Scorecard: Translating Strategy into Action. Boston: Harvard Business School Press, 1996.
10. Kaplan RS, Norton DP. The Strategy-Focused Organization: How Balanced Scorecard Companies Thrive in the New Business Environment. Harvard Business Press. ISBN: 1422163555, 9781422163559, 2013.
11. Keegan DP, Eiler RG, Jones CR. Are your performance measures obsolete. Management Accounting, June, 1989, 45-50.
12. Lamotte G, Carter G. Are the balanced scorecard and the EFQM excellence model mutually exclusive or do they work together to bring added value to a company? (Working Paper). Version 3 of a paper initially prepare for EFQM Common Interest, 2000.
13. Lussier RN. Entrepreneurs use a balanced scorecard to translate strategy into performance measures. Journal of Small Business Management, 2006.
14. Lynch R, Cross K. Measure Up! Yard sticks for Continuous Improvement. Basil Blackwell Inc, Cambridge MA, 1991.
15. Marija Andjelkovic Pesic and Jens Jörn Dahlgaard, Using the Balanced Scorecard and the European Foundation for Quality Management Excellence model as a combined roadmap for diagnosing and attaining excellence, Total Quality Management and Business Excellence 2013; 24(5-6):652-663.
16. Montage D. Accreditation and other external quality assessment systems for healthcare. Health systems resource centre. London, 2003.
17. Nabiloo B. Business excellence model in healthcare and providing a model for Iran. Journal of management and medical information. 2004, 11-17.
18. Nabiloo B. The pattern of organizational excellence in the healthcare system. Tadbir Journal. 2004; 146:58-61.
19. Neely A, Adams C, Kennerley M. The Performance Prism: The Scorecard for Measuring and Managing Business Success, Prentice Hall, London, 2002.
20. Otley D. Performance management: a framework for management control systems research. Management Accounting Research 1999; 10:363-382.
21. Salmon JW, Heavens J, Lombard C, Paula T. The Impact of Accreditation on the Quality of Hospital Care: KwaZulu-Natal Province, Republic of South Africa. University Research Co., LLC. Bethesda, USA, 2003, 3.
22. Santos ML, Alvarez-Gonzalez L. TQM and firms performance: An EFQM excellence model research based

- survey. *Journal of Business Science and Applied Management*. 2007; 2(2):21-42.
23. Shaw CD. External assessment of health care. *BMJ* 2001; 322:851-4.
 24. Shaw CD. The external assessment of health services. *World hospitals and Health Services* 2004; 40(1):24-28.
 25. Silva B, Folly GE, Prochnik V. Seven Challenges for the Implementation of Balanced Scorecard in Hospitals, 3rd .conference on performance measurement and management control, 2005.
 26. Sink DS, Tuttle TC. *Planning and Measurement in Your Organization of the Future* IE Press:, Norcross, GA, 1989.
 27. Umit S, Bititci Allan, Carrie S, Liam Mc Devitt. Integrated performance measurement systems: a development guide. *International Journal of Operations & Production Management*. 1997; 17(5):522-534.
 28. Weir E, Entremont N, Stalker S, Kurji K, Robinson V. Applying The Balance Scorecard to Local Public Health Performance Measurement: Deliberation and Decisions. *BMC. Public Health*, 2009.
 29. World Health Organization, Regional Office for Europe. Health promotion in hospitals: Evidence and quality Management. 2005; 69.
 30. Yusefian N. Reports of performance measurement in hospitals. Iran: Tehran, Ministry of Health and Medical Education; department of human resource development, 2009, 18-135.
 31. Zarea Matin H. *Human Resource Management*. Ghom Islamic advertising office, 2000, 152.