

## PROPOSE A METHODOLOGY TO IMPLEMENT BLANCE SCORE CARD FOR OPERATIONAL APPRAISAL OF INDUSTRIAL GROUPS

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### *Abstract*

The importance of operation measurement has been determined for organizations now and it plays an importance role in most of the organizations. Complexity and delicateness of decision making in business necessitates strategic management. Also key operational indicators are financial and non-financial measurement criteria used to determine goal's quality and to reflect an organization strategic operation. These indicators are used to evaluate the present condition of the company and to determine appropriate solutions to business methods. The goal of this study is to suggest an appropriate methodology in order to design and implement balanced score card (BSC) for operational evaluation of industrial groups and also in this research multiple attribute decision making technique (MADM) has been used introduced as a technique which is appropriate to achieve the more accurate result. In order to achieve this goal thirteen required steps is proposed and discussed.

**Keywords:** operation evaluation, strategy, indicator, hierarchical analyzing technique, TOPSIS, AHP

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## I. INTRODUCTION

The complexity and subtlety in business decision making, strategic management provides the necessary. Managers design the strategic management process in such a way that seems facilitating to efficient condition of institution in the competing environment of marketing. But most of them talk about non efficient execution of their strategies. The perspective which these managers picture for their organization are clear to themselves but knowledge and understanding of their personnel of this perspective is insignificant and their sympathy and assistance to achieve these goals are more insignificant.

Seniors have been consistently in search to find a way to make sure of the execution of their strategies and then have chosen operation evaluation methods as a tool to execute their strategies. Although measuring the operation is one of the most important and principal elements to progress and reach elevation but the most important factor to appropriately measuring operation is the existence of a correct and compatible model to the environment condition.

On the other hand in the present competing and complex world being aware and informed of all aspects of an organization is vital importance for managers to take a decision. Operation should be measured and termed appropriately and comprehensively. These measures should not only be accordance with the organization commission and perspective but they should also be covering to all aspects of an organization operation. So to achieve this important factor (evaluating the operation), there is a need to design key operational indicators and consequently a proper methodology to set up required indicators. The goal of this study is to propose a proper methodology to design key operational indicators for industrial groups.

## II. OPERATION RESEARCH

The rapid growth of international competitions in the past decade as a result of changes in technology and increase in products variability' caused organizations to feel a necessity in continuous improvement of operation more than ever. [3].(Gill & Lashine, 2003).

Nowadays organizations are using operational measurement to assess, control and improve trading process in order to maintain and develop their computational benefits. Among the managers five duties (planning, organizing, staffing, directing, controlling) controlling requires a lot to measure and evaluate the operation most of all. The general evaluation of an organization operation pays attention not only to considering activities efficiency, but they also require effective controlling of the organization to reach long term goals and strategies.

Some criteria which are reflecting the organization strategies in the best way have to be chosen in order to establish an operation evaluation system. These criteria can be the present and future success key factors which are in turn stemmed from the organization strategies. Operation evaluation helps the management to have the organization's position and condition under the control. In each moment the common feature of all operation evaluation models is the ever growing effort to relate operation factors with the organization strategies and long term perspectives.

### III. THE KEY PERFORMANCE INDICATOR

Evaluating the present condition of the organization and to define appropriate solutions to business matters key performance indicator are often used as value and faced with problem in measuring activities such as profitability rate. Key performance indicators (KPI) differ from each other and based on the kind and organization strategies. KPI assist the organization development rate measuring in the direction of determined goals. KPI is the key part of the measurable goal constructed of a route direction indicator goal and time limitation. The important tip to be indicated is specifying the minimum of KPI in organization.

Key features to determine indicators[2], [1], [1], [1], [1] (Chin et al, 2001; Himes, 2007; Jones & Kaluarachchi, 2008; Mukherjee et al 2002; Robson & Prabhu, 2001):

- Primary definition of business matters requirement
- Having operational goals from business necessities
- Quantitative and qualitative measuring criteria of results and comparing them with the

whole set of goals studying the differences and regulating stage phases or resources to fulfill short term goal.

#### IV. BALANCE SCORE CARD

There are many strategic control techniques and methods aimed at evaluating – from a strategic management perspective – the results of the activities carried out by a business (Ihsan Yuksel , Metin Dagdeviren, 2010). One of the methods enabling periodical and systematic system controls is the Balanced Scorecard (BSC) system developed by (Kaplan and Norton, 1992, 1996a). Balanced Scorecard enables expression of the vision and strategies of a business in terms of performance indicators and thus ensures establishment of the framework required for strategic measurement and management system. While underlying that traditional financial indicators are important, BSC suggests that financial indicators prove to be insufficient in explaining the business performance when they only contain the information related with the incidents that have taken place in the past. In the light of this thought,( Kaplan and Norton,1996b) proposed BSC system that enables integration of the measurements regarding the past business performance with the measurements regarding the elements that will bring future performances.

(Kaplan and Norton, 1996a) presented four perspectives that need to be balanced in performance measurement: financial, customer, internal business process and learning and development perspectives. On the basis of this approach proposed by BSC, not only financial lagging indicators but also leading indicators such as customer, internal business process and learning and development perspectives are taken into consideration in strategic management process. Therefore, BSC acts as a strategic management system rather than an operational system that gives tactics only (Kaplan & Norton, 1996a). However, it is discussed that BSC approach has some deficiencies on a methodological basis[1], (Abran & Buglione, 2003; Lee, Chen, & Chang, 2008; Leung, Lam, & Cao,2006). These deficiencies are in the method to be used in consolidating BSC perspectives or the performance indicators which act as different measurement units under

each BSC perspective; the method to be adopted in determining the contribution to be made by each perspective on the performance [1]. the relative weights or importance of the performance indicators under each perspective and; the method to be used in calculating the business performance with a holistic quantitative approach (Leung et al., 2006). There are some studies, though limited in number, that focused on such discussions related with the methodological aspect of BSC and tried to suggest possible answers for these discussions with the help of multi-criteria decision- making techniques (Lee et al., 2008; Leung et al., 2006; Ravi,Shankar, & Tiwari, 2005; Sohn, You, Lee, & Lee, 2003).

## V. STAGE TO DESIGN BALANCE SCORE CARD

This stage will be presented the methodology relating to design and development the balance score card.

### *A. The first step: The formation of work teams*

Firstly, a team of senior managers, middle managers, experienced and proficient experts to be formed to design a balanced scorecard is required.

### *B.The second step: Develop a mission statement, vision and values*

With the help of a team to develop a mission statement which reflects the value and future image of the organization will be attempting to achieve it.

### *C. Third step: Compiling strategic objective*

Strategies are long-term actions and activities that the organization is required to execute it have to achieve the goals.

### *D. Forth step: Identifying aspects of the balanced scorecard*

The basic model of balanced scorecard has been included four aspects therefore; in this research are proposed four aspects.

### *E. Fifth step: Definition of critical success factors*

A set of performance goals which help organization to achieve the strategy realized correctly. Here, through meetings with managers and experts, a list of critical success factors could be defined.

***F. Sixth step: Ranking of critical success factors according to calculated weight***

Among the identified critical success factors four critical success factors which have the greatest impact in achieving the strategies are chosen. As previously mentioned, with the help of multi-criteria decision-making techniques such as (1) AHP and (2) TOPSIS Prioritization factors might be done.

1) Principles of Analytical Hierarchy Process Group

Analytical Hierarchy Process is one of the most comprehensive system is designed to make decisions with multiple criteria because this technique provides to formulate the problem as a hierarchical and also consider various quantitative and qualitative criteria's. This process involved various options in the decision and able to use sensitivity analysis on the following criteria and benchmarks. In addition, facilitated judgments and calculations due to paired comparisons. Also, it shows the compatibility and incompatibility decisions which is the advantages of multi criteria decision making.(Ming Chang lee, 2007).

2) TOPSIS Method

TOPSIS (technique for order preference by similarity to an ideal solution) method is presented in (Hwang and Yoon, 1981). TOPSIS is a multiple criteria method to identify solutions from a finite set of alternatives. The basic principle is that the chosen alternative should have the shortest distance from the positive ideal solution and the farthest distance from the negative ideal solution.

***G. Seventh step: Ranking of balance score card according to calculated weight***

According to executives and experts opinion to each of the balanced scorecard aspect A weight is assigned and aspects will be ranked according to the weights.



***H. Eighth step: Executive program***

In this phase the session will be formed by Experts and members of the strategic management team according to the vision, mission and strategic goals, Should specify the executive programs.

***I.Ninth step: Selection of indicators***

As the targets were determined it is necessary to define and select indicators for sensing and measuring. To define or measuring the index some criteria should be considered. Kaplan and Norton emphasize that not too many indicators in the balanced scorecard model introduce. (Kaplan and Norton, 1996b), so the most important indexes should be selected.

***J. Tenth step: Strategy map***

Balanced Scorecard strategy map provides a framework to show how the strategy related the intangible asset to the value creation process.

***K. Eleventh step: Prioritization the indicators by TOPSIS method***

In order to prioritize the indicators, comments and attitudes of managers and professionals than any of the indicators is needed. Therefore, in order to collect these comments, a questionnaire are designed and it can be analyzed by using TOPSIS method.

***L. Twelveth step: Calculate the percentage of goal***

At this stage, identify and calculate the Percentage of each indicators initially, quantitative amounts of each of the indicators in the current and ideal solution is collected and measured.

***M. Thirteenth step: The efficiency and performance indicators***

In the final step, with the weights obtained for balance score card, strategic objectives, indicators and the percentage goal of indicators, performance indicators score are calculated and with comparing the performance between current and ideal levels distance and the gap between these two levels (performance gap) is determined. Figure 1 shows the conceptual framework for implementation of BSC in industrial groups.



Figure 1. The conceptual framework for implementing BSC in industrial groups

## VI. CONCLUSION

In this research, steps for design and implement the balanced score card for industrial groups has been expressed. As it has been shown, designing balance score card is included thirteen steps namely; formation of work teams, develop a mission and vision statement, compiling strategic objectives, identifying aspects of the balanced score card, definition of critical success factors, ranking of critical success factors, ranking of balance score card aspects, setting up executive program, selection of indicators, designing strategy map, prioritization the identified indicator, calculation of the percentage of goal and the efficiency of performance indicators. Furthermore, to implement the proposed methodology, prioritization methods and techniques such as AHP and TOPSIS should be addressed to prioritize strategic goals, balanced scorecard aspects, critical success factors and performance indicators. For future work, in order to completely implement the BSC in the industrial organizations, indicators should be introduced for each of the BSC's aspects; financial, costumer, internal process and learn and growth.



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