Balanced Scorecard Implementing in Cases of Pharmaceutical Industrials

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Abstract- It is demonstrated the need for organizations to implement a set of performance measures that is multi dimensional. The most widely known approach to performance measurement, the Balanced Scorecard is now widely used as a strategy development and execution tool but was developed in an operational environment. The present study tried to point out factors affecting launching and implementing Balance Score Card Systems in cases of Pharmaceutical industrials; Fuzzy AHP was employed as one of the important items regarding multi-criteria decision making. Finally, those factors were ranked according to their importance. To this end, first of all, major factors were classified and ranked into four main groups such as organizational, environmental, technical factors and project team criteria; then minor factors were examined and then ranked. Regarding results of Fuzzy AHP, technical factors and organizational factors are the most important ones and then are project team criteria and environmental factors. Enough attention to factors affecting launching and implementing Balanced Scorecard system is of essential help for useful application and more efficiency of such systems and managements should try to put the approaches suggested in such an article from theory to practice consciously.

Index Terms: Balanced Scorecard, Fuzzy AHP, Factors, Launching, Implementing.

Introduction

To be successful in a competitive environment, organizations must pursue and execute strategies consistent with their mission. Management needs to align its goals and objectives with those of the organization to execute strategies effectively. With this alignment, managers are motivated to attain higher levels of individual performance. Using a Balanced Scorecard (BSC) system is an integral component in these alignment efforts. It is also necessary for the company’s results to improve with the use of the BSC, and, in the case of a profit-seeking firm, the BSC should be associated with improved financial performance (Biggart et al., 2010). The Balanced Scorecard is a performance measurement tool developed in 1992 by Harvard Business School professor Robert S. Kaplan and management consultant David P. Norton. Kaplan and Norton's research led them to believe that traditional financial measures, like return on investment, could not provide an accurate picture of a company's performance in the innovative business environment of the 1990s. Rather than forcing managers to choose between "hard" financial measures and "soft" operational measures -such as customer retention, product development cycle times, or employee satisfaction- they developed a
method that would allow managers to consider both types of measures in a balanced way. "The Balanced Scorecard includes financial measures that tell the results of actions already taken," Kaplan and Norton explained in the seminal 1992 Harvard Business Review article that launched the Balanced Scorecard methodology. "And it complements the financial measures with operational measures on customer satisfaction, internal processes, and the organization’s innovation and improvement activities—operational measures that are the drivers of future financial performance."

One unique characteristic of the Balanced Scorecard concept is its evolving nature, as it witnessed a continual transformation process ever since its launch. The most simplistic way to refer to the BSC is as a tool, albeit with different blends: a comprehensive management tool (Ahn, 2001), strategic management instrument (Hueng, 2000) or strategic management tool (Pforsich, 2005). Some authors recognized early that the BSC is more than a performance measurement technique and considered it to be a management system (Butler et al., 1997). Just to be sure or in order to contribute to the confusion, some authors prefer to use both at the same time: "formal management technique and formal management system" (Hassan and Tibbits, 2000). Others consider the BSC to be a management philosophy as well as a performance management system (Hanson and Towle, 2000). Although it is fairly common for management concepts to have various definitions, the BSC literature goes a step further. The concept is not only defined differently, but it is presented and perceived in various ways.

The following definitions of the Balanced Scorecard concept present a rich picture from multiple angles. Kaplan and Norton (1992) believed that "The Balanced Scorecard retains traditional financial measures. But financial measures tell the story of past events, an adequate story for industrial age companies for which investments in long-term capabilities and customer relationships were not critical for success. These financial measures are inadequate, however, for guiding and evaluating the journey that information age companies must make to create future value through investment in customers, suppliers, employees, processes, technology, and innovation." It could be considered as a tool that translates an organization’s mission and strategy into a comprehensive set of performance measures that provides the framework for a strategic measurement and management system.” (Balanced Scorecard Collaborative, 2010, Online) According with The Balanced Scorecard Institute (2010), it is a strategic planning and management system that is used extensively in business and industry, government, and nonprofit organizations worldwide to align business activities to the vision and strategy of the organization, improve internal and external communications, and monitor organization performance against strategic goals.

In this research the criteria of successful implementing and launching the Balanced Scorecard system, in cases Pharmaceutical industrials will be ranked according to their importance. If we are aware of factors (criteria) affecting implementing and running, it will help the system to reach its goals successfully and prevents waste of financial as well as intellectual capital and then leads to more organizational participation in implementing Balance Scorecard systems. So, the research questions are as follow:

Q1: What are ranking major criteria implementing and launching Balance Score Card Systems in cases of Pharmaceutical industrials?

Balanced Scorecard Implementation

The Balanced Scorecard (BSC) translates a firm's mission and strategy into a set of understandable performance measures (indicators), so that the strategy could be understood, communicated and measured; thus, serving as a basis for all the activities. Moreover, the indicators allow monitoring the accuracy level of strategy implementation (Kaplan & Norton, 1996). In order to respond to the firm's
vision and strategy, the BSC uses four business perspectives. A financial perspective that establishes the financial objectives that must be attain in order to satisfy the shareholders interests. A customer perspective that establishes the objectives that permits to meet the customers' needs in order to reach the established financial aims. An internal processes perspective that establishes the processes which excellence needs to be achieved in order to satisfy customers. A learning and growth perspective that establishes the way in which the firm must learn and innovate to attain all the goals proposed in the other perspectives. It is worth mentioning that before the Balanced Scorecard was implemented, the corporation was working on strategic projects, such as Activity-based Costing, which besides permitting to link the firm's needs and priorities, it offered a sustained frame for resource management, as well as exposing the differences in quality practices through the segments and departments. The BSC elaboration process required an integral entrepreneurial vision of the business into the future, which forced the restructuring of the corporation's strategic framework.

In other words, an Entrepreneurial Strategic Planning was required in order to define the managerial indicators. The corporation's strategic framework was initiated by reviewing the business's definition, so as to clarify the reasons for the existence of the firm, as well as its future projection. The organization's mission, vision and values were reviewed and this was in charge of the Management Committee, which was formed by the General Manager and all the firm's Managers. An experiment developed by Swain et al. (2002) suggests that the perceived linkage between BSC metrics and divisional strategy has a significant and positive effect on the use of these metrics in individual’s performance evaluation processes.

After reviewing the business definition, a strategic analysis was conducted in the firm in order to identify the strategic position and potential that would orient future actions, evaluating the corporation's external and internal environment, and finally, establishing the Strengths, Weaknesses, Opportunities and Threats Matrix (SWOT). This analysis sought to identify the strong and weak points influencing the firm's actions; both, the ones it could handle directly as they represented variables under the responsibility of the internal management, and those it could not handle as they belonged to the external environment. Also, detailed plans were defined for each of the strategic initiatives in order to establish, with greater clarity and accuracy, the courses of action needed to execute each strategic initiative. This involved the elaboration of specific programs, and the appointment of people in charge, terms and resources.

As part of the implementation, it was necessary to align the organization with the strategy by translating the planning into individual operative plans performed by each area head or manager. Their fulfillment is measured within the annual process of Performance Measurement, by which efforts within established levels are rewarded through the benefits and compensation system. These factors such as corporate culture, alignment, review and update, communication and reporting, involvement of employees, management understanding, compensation link, management leadership and commitment, clear and balanced framework, agreement on strategy and success map, data processes and IT support are heavily influenced by the change management literature reflecting the need not only to manage the implementation of a performance management system but also the ongoing change that results from the review and management of performance (Franco and Bourne 2003).

Review of the literature
The shortcomings and dysfunctional consequences of performance measurement systems have been discussed in the academic literature for at least fifty years (Ridgway, 1956), but recently there has been a flurry of activity. Throughout the 1980s vocal and influential authors criticized the measurement systems used by many firms (Johnson and Kaplan, 1988; Hayes and Abernathy, 1980). The basic premise of the BSC is that a company tailors its performance evaluation system to a well-defined mission and a strategy for fulfilling that mission. As its name suggests, the Balanced Scorecard approach seeks to strike a "balance" between financial and nonfinancial measures in evaluating the company and its personnel. Certain nonfinancial measures are considered “leading indicators” of long-run financial goals (Kaplan and Norton, 2004). Recent data suggested that as of 2001, the BSC had been adopted by 57% of organisations in the UK, and 46% of organisations in the US (Neely, Kennerley and Martinez, 2004). In Germany, Switzerland, and Austria, research has shown that only 26% of firms use the BSC (Speckbacher and Pfeiffer, 2003).

Kaplan and Norton (2000) have made some efforts to demonstrate the impact of the Balanced Scorecard, but their approach has been to use largely anecdotal cases. An important and notable effort is the work of Chris Ittner and David Larcker (2003), which reports that only 23% of organizations that they surveyed consistently built and tested causal models to underpin their measurement systems, but that these 23% achieved 2.95% higher return on assets and 5.14% higher return on equity. Dumond (1994) and Sandt et al. (2001) suggest that the using balanced performance measurement systems improves the decision-making performance of managers and employees. Lawson et al. (2003) and Dumond (1994) found that using performance measurement systems and linking scorecards to compensation significantly increased employee satisfaction.

Users of the BSC assert that it is a powerful means for translating a firm’s vision and strategy into a tool that communicates strategic intent effectively and motivates performance against established strategic goals (Ittner and Larcker, 1998). Furthermore, the development of the BSC overcame some of the limitations that traditional performance measurement systems had propagated (refer to Ittner and Larcker 1998), by linking them definitively to strategy (Kanji, 2002). However, researchers have noted that the BSC does not contain an employee/human resources perspective (Maltz et al., 2003). Arguably, a human resources perspective is desirable in performance measurement, and it should be related to those human resource factors which are considered important strategically (Maltz et al., 2003). Furthermore, the BSC is essentially a conceptual model, and as such, researchers and practitioners have difficulties defining measures, since they are not established clearly (Ahn, 2001). Nevertheless, the original appeal of the BSC approach to total business performance measurement was that it organised measurement under a small set of dimensions of business performance with which any manager can work, arguably (Kaplan and Norton, 1992).

Biggart et al. (2010) investigated about usefulness of Balanced Scorecard in a competitive retail environment. Their result reflects that managers have a positive attitude toward the BSC and it improves managers’ understanding of how to achieve organizational strategy, impacts how managers do their job, and provides a financial benefit. The results indicate that a significant association exists between the BSC score and managerial satisfaction. Similarly, the results indicate a significant association between the BSC score and the financial results as measured by sale-to-plan. They noted perceived improvement at a statistically significant level in these research questions: teamwork, goal alignment, and fairness of the organization’s performance evaluation, decision quality, business performance, and the overall focus on goals of the individual segment. They found disagreement, however, regarding the BSC’s improvement in fairness of the individual performance evaluation, job satisfaction, employee performance, and shareholder value. These findings indicate that managers
generally appreciate the unique characteristics of information the BSC provides with regard to the operation of their store. The dominance of common measures in the system (sales-to-plan and shrinkage), however, results in disagreement as to the improved value of the BSC as an individual performance measurement system. Their results show that, in some areas, managers report higher levels of organizational benefits, information characteristics, and functionality, as well as positive attitudes toward the BSC. We also find that positive managerial attitudes toward the BSC are associated with higher BSC scores and that higher BSC scores are associated with higher financial performance. At the same time, the study highlights weaknesses in Wildcat’s BSC, such as timeliness, adequacy of training, and individual employee performance measurement. Their findings also contribute to BSC research by noting the differences in perceptions among multiple levels of management within the organization. Areas in which senior managers perceive the BSC as providing higher value include financial benefit and performance measures, and lower-level managers perceive characteristics such as accuracy and reliability more favorably. These results support previous research findings in which senior levels of management focus more on the strategic value a management technique such as a BSC provides.

Some internal characteristics of firms play a significant role in BSC implementation. For example, Chen and Jones (2009) found that differences existed between BSC adopters and non-adopters in terms of information capital. They claimed that BSC adopters had more developed information systems that enabled firms to process information in real time; thus, the adoption process was facilitated.

Islam and Kellermanns (2006) examined an individual-level model that embraced behavioral issues that could enhance or impede BSC usage inside the firm. They examined the association between four different factors and found that employee awareness of the BSC capabilities led to a better perception of BSC’s ease of use and usefulness. Further, perception about BSC’s ease of use was also associated with positive perception of the BSC’s usefulness. Finally, Perception of the BSC’s usefulness among employees led to greater intention to use the BSC as a management control tool.

There is some empirical evidence that the firms who have implemented the BSC have achieved some form of success and enhanced financial performance (De Geuser, Mooraj and Oyon 2009; Hoque and James 2000; Maiga and Jacods 2003). Nevertheless, the difficulty of implementing the BSC has impeded companies, on numerous occasions, from achieving the desired results (chen and Jones 2009). Kaplan and Norton (2001) emphasized the linkage between the different measurements of the BSC and the firm’s strategy to promote the non-financial measures from a strategic operational point of view. In other words, the mapping between the BSC and the firm’s strategy is fundamental for a successful implementation, which means that the firm’s strategy should embrace the customer, internal business, and learning and innovation dimensions as well as the financial dimension. However, the fit between the BSC and strategy does not guarantee enhanced performance, since other variables might make a usage and other internal and external variables.

Clement and Jones (2009) in their survey results suggested that companies that have implemented the Balanced Scorecard may be relatively further along than non-BSC companies in terms of strategy alignment and adopting a continuous improvement environment, but they may fall short in communicating objectives to employees and generating the level of motivation intended. As a result, employee buy-in is significantly lacking at many of these firms, and BSC employees are not any more motivated than those in companies that do not use this management tool. Moreover, they are no more likely to view their performance evaluations as reflective of their true performance or to view compensation as related to performance measures. It is also noteworthy that even BSC companies may not be making sufficient strides toward a balance between financial and non-financial measures. Finally,
BSC employees do not view their company’s outcomes as better than competitors in terms of performance in their respective markets. The results of this survey suggested, therefore, that to derive full benefits from the scorecard approach, companies must work harder to get employees at all levels on board with the method.

Research Method

Regarding former researches, criteria affecting implementing and running Balanced Scorecard system in cases of Pharmaceutical industrials are classified into four groups such as organizational, environmental, technical factors and project team criteria. Major and minor criteria that affect on implementing and launching the Balanced Scorecard are shown in Table 1. Organizational criteria consider formal and informal relationships between employees, departments and managers. On the other hand, environmental criteria are related to conditions which are outside the enterprise and managers cannot control them. Technical criteria are derived from the nature of Balanced Scorecard System. Finally, Project team criteria include characteristics and attribute of the planning and implementing project team. The purpose of this research is to prioritize and rank the criteria that affect the Balanced Scorecard implementation and launching process.

So, criteria affecting implementing and launching BSC System were recognized then using Fuzzy Analytical Hierarchy Process (FAHP) they were ranked. Analytic Hierarchy Process (AHP) is one of the well-known Multi-criteria decision making techniques that was first proposed by Saaty (1980). Although the classical AHP includes the opinions of experts and makes a multiple criteria evaluation, it is not capable of reflecting human’s vague thoughts. The classical AHP takes into consideration the definite judgments of decision makers (Wang & Chen, 2007). Different methods for the fuzzification of AHP have been proposed in the literature. Experts may prefer intermediate judgments rather than certain judgments. Thus the fuzzy set theory makes the comparison process more flexible and capable to explain experts’ preferences (Kahraman et al., 2003).

In this study, Chang’s (1992) extent analysis method is used to compare the performances of banks because of the computational easiness and efficiency of this method. Let \( X=\{X_1, X_2, ..., X_N\} \) be an object set, and \( U=\{u_1, u_2, ..., u_N\} \) be a goal set. According to the method of Chang’s extent analysis, each object is taken and extent analysis for each goal is performed, respectively. Therefore, \( m \) extent analysis values for each object can be obtained, with the following signs:

\[
M_{gi}^{1}, M_{gi}^{2}, ..., M_{gi}^{m} \quad \text{where} \quad i=1,2,\ldots,n
\]

Where all the \( M_{gi}^{j} (j=1,2,\ldots,m) \) are TFNs.

The steps of Chang’s (1996) extent analysis can be given as in the following:

Step 1: The value of fuzzy synthetic extent with respect to the \( i \)th object is defined as

\[
S_i = \sum_{j=1}^{m} M_{gi}^{j} \otimes \left[ \sum_{j=1}^{m} \sum_{j=1}^{m} M_{gi}^{j} \right]^{-1}
\]

To obtain \( \sum_{i=1}^{n} M_{gi}^{j} \) perform the fuzzy addition operation of \( m \) extent analysis values for a particular matrix such that:
\[ \sum_{j=1}^{m} M_{gi}^j = (\sum_{j=1}^{m} l_j, \sum_{j=1}^{m} m_j, \sum_{j=1}^{m} u_j) \] (3)

and to obtain \[ (\sum_{i=1}^{n} \sum_{j=1}^{m} M_{gi}^j )^{-1} \], the fuzzy and to addition operation of \( M_{gi}^j, (j = 1, 2, \ldots, m) \) values is performed such as:

\[ \sum_{i=1}^{n} \sum_{j=1}^{m} M_{gi}^j = (\sum_{i=1}^{n} l_i, \sum_{i=1}^{n} m_i, \sum_{i=1}^{n} u_i) \] (4)

and then the inverse of the above vector is computed in this equation such as:

\[ (\sum_{i=1}^{n} \sum_{j=1}^{m} M_{gi}^j )^{-1} = \left( \frac{1}{\sum_{i=1}^{n} u_i}, \frac{1}{\sum_{i=1}^{n} m_i}, \frac{1}{\sum_{i=1}^{n} l_i} \right) \] (5)

Step 2: As \( M_2 \) and \( M_1 \) are two triangular fuzzy numbers, the degree of possibility of\( M_2 = (l_2, m_2, u_2) \geq M_1 = (l_1, m_1, u_1) \) (6)

Is defined as: \( V(M_2 \geq M_1) = \text{sup}[\min(\mu_{M_1}(x), \mu_{M_2}(y))] \)

and can be equivalently expressed as follows:

\[ V(M_2 \geq M_1) = hgt(M_1 \cap M_2) = \mu(d) = \begin{cases} 
1, & \text{if } m_2 \geq m_1, \\
0, & \text{if } l_1 \geq u_2, \\
\frac{l_1 - u_2}{(m_2 - u_2) - (m_1 - l_1)}, & \text{otherwise}
\end{cases} \] (7)

where \( d \) is the ordinate of the highest intersection point \( D \) between \( \mu_{M_1} \) and \( \mu_{M_2} \) (Fig. 1).
Step 3: The degree of possibility for a convex fuzzy number to be greater than k convex fuzzy numbers \( M_i (i=1,2,...,k) \) can be defined by:

\[
V(M_1 \geq M_2,...,M_k) = V(M_1 \geq M_2) \cdot V(M_1 \geq M_3) \cdot \ldots \cdot V(M_1 \geq M_k)
\]  

(8)

\[
d(A_i) = \text{Min}\{V(S_i \geq S_k)\},
\]

(9)

For \( k=1,2,\ldots, n; k \neq i \). Then the weight vector is given by:

\[
W' = (d'(A1), d'(A2), \ldots, d'(An))^T,
\]

(10)

Where \( A_i (i = 1,2, \ldots, n) \) are \( n \) elements.

Step 4: Via normalization, the normalized weight vectors are:

\[
W = (d(A1), d(A2), \ldots, d(An))^T,
\]

(11)

where \( W \) is a non-fuzzy number.

For gathering data needed for FAHP tables, the researchers used interviews, questionnaire and making expert work groups. The respondent of this research were managers, financial managers, researchers, university professors and experts of ASC system. We sent the survey questionnaires by mail during the June and July 2011. We followed up with phone calls tow weeks after the mailing date. After recording the answers, combining pair wise comparison matrix for each participant would be started.

Rezult and Discussion
In this study, the effect of four major groups on implementing and launching Balanced Scorecard system among some accepted companies in cases of Pharmaceutical industrials examined. As table 1 illustrates, regarding findings of the research, the importance of technical criterion (0.272) is more than other criterion; then are other factors such as organizational criterion (0.270), project team criterion (0.248) and environmental criterion (0.211).

\[
M^{-1} = (13.81, 17.4267, 22.12) - 1 = (0.0452, 0.0574, 0.0724)
\]
\[
S1 = (3.6667, 4.6667, 6.00) \otimes (0.0452, 0.0574, 0.0724) = (0.1658, 0.2678, 0.4345)
\]
\[
S1 = (2.8833, 3.72, 4.99) \otimes (0.0452, 0.0574, 0.0724) = (0.1303, 0.2135, 0.3613)
\]
\[
S1 = (3.67, 4.70, 5.88) \otimes (0.0452, 0.0574, 0.0724) = (0.1659, 0.2697, 0.4258)
\]
\[
S1 = (3.59, 4.34, 5.25) \otimes (0.0452, 0.0574, 0.0724) = (0.1623, 0.2490, 0.3802)
\]

\[
V(S1 \geq S2) = 1.0000, V(S2 \geq S1) = 0.7826, V(S3 \geq S1) = 1.0000, V(S4 \geq S1) = 0.9196
\]
\[
V(S1 \geq S3) = 0.9929, V(S2 \geq S3) = 0.7765, V(S3 \geq S2) = 1.0000, V(S4 \geq S2) = 1.0000
\]
\[
V(S1 \geq S4) = 1.0000, V(S2 \geq S4) = 0.8484, V(S3 \geq S4) = 1.0000, V(S4 \geq S3) = 0.9121
\]

Min V (S1 ≥ S2, S3, S4) = Min (1, 0.9929, 1) = 0.9929
Min V (S2 ≥ S1, S3, S4) = Min (0.7826, 0.7765, 0.8484) = 0.7765
Min V (S3 ≥ S1, S2, S4) = Min (1, 1, 1) = 1
Min V (S4 ≥ S1, S2, S3) = Min (0.9196, 1, 0.9121) = 0.9121

\[
W' = [0.9929, 0.7765, 1, 0.9121]^T
W = (W1, W2, W3, W4) = (0.270, 0.211, 0.272, 0.248)
\]

<table>
<thead>
<tr>
<th>Criterion</th>
<th>Weight of Criterion</th>
<th>Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Organizational criterion (I1)</td>
<td>0.270</td>
<td>2</td>
</tr>
<tr>
<td>Environmental criterion (I2)</td>
<td>0.211</td>
<td>4</td>
</tr>
<tr>
<td>Technical criterion (I3)</td>
<td>0.272</td>
<td>1</td>
</tr>
<tr>
<td>Project Team criterion (I4)</td>
<td>0.248</td>
<td>3</td>
</tr>
</tbody>
</table>

**Conclusion**
It is demonstrated the need for organizations to implement a set of performance measures that is multi dimensional. This reflects the need to measure all the areas of performance that are important to the organization's success. The most widely known approach to performance measurement, the Balanced Scorecard is now widely used as a strategy development and execution tool but was developed in an operational environment. The implementing new performance measurement systems like Balanced Scorecard in organization is inevitable. So, for many different reasons the success in such systems when they are implementing is not so much. Such reasons can be classified in the four groups including organizational, environmental, technical factors and project team factors. The best solution to the problems existing for implementing BSC systems is to train employees and managers in a good way and to make them much more aware of the new system and also to introduce their advantages in the organization concerned.

Some technical factors as the most important factors are definition complicated of indexes, lots of index for perspectives, knowing the importance of each measure and integrated with other informational systems. Some organizational factors are participation all department and segments in the system, paying bonus according to BSC results, directions to implement and run the system and monitoring and supervising the operation.

When we are aware of the reasons of the failures, we can easily solve the problems and predict the probable problems and find solution for them. As results, we will experience more success and can enjoy benefits of Balanced Scorecard system more than ever and finally value of the organization would be added. It is important to note a limitation of this study, namely that data were collected within one country, meaning that findings are not necessarily representative of different world markets.

References