Performance Measurement- A Balanced Score Card Approach

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ABSTRACT

This paper suggests a framework of performance measurement through a balanced scorecard and to provide an objective indicator for evaluating the achievement of the strategic goals of the corporate. This paper uses the concepts of balanced score card and adopts an analytical hierarchical process model to measure an organizational performance. The balanced score card is a widely used management framework for the measurement of organizational performance. Preference theory is used to calculate the relative weightage for each factor, using the pair wise comparison. This framework may be used to calculate the effectiveness score for balanced score card as a final value of performance for any organization. The variations between targeted performance and actual performance were analyzed.

Keywords

Balanced score card, corporate strategy, performance measurement, financial factors and non financial factors.

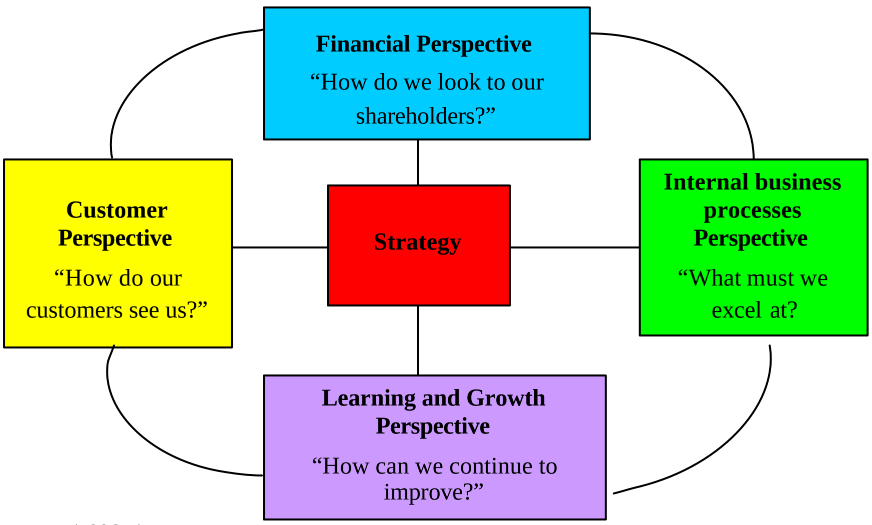
1.0 INTRODUCTION

Over the recent past, organizations have tried various methods to create an organization that is healthy and sound. By requiring strategic planning and a linking of program activities performance goals to an organization's budget, decision making and confidence in the organizational performance is expected to improve. A business organization vision is one of its most important pieces of intangible assets. Vision is planned by strategy and executed by values that drive day to day decision making (Sullivan, 2000). The economic value of an intangible asset drives the decision to invest further, continue to hold onto it, or dispose of it. An intangible economic value is the measure of the utility it brings to the business organization. Strategy is used to develop and sustain current and competitive advantages for a business, and to build competitive advantages for the future. Competitive advantage strategy depends on the command of and access to effective utilization of its resources and knowledge. Strategy is the identification of the desired future state of the business, the specific objectives to be obtained, and the strategic moves necessary to realize that future. Strategy includes all major strategic areas, such as markets, suppliers, human resources, competitive advantages, positioning, critical success factors, and value chains (Alter 2002). In today's fast changing business environment, the only way to gain competitive advantage is by managing intellectual capital, is commonly known as knowledge management (KM). Now a day's knowledge is increasingly becoming the greatest asset of organizations (Ravi Arora, 2002). The basic objective of a knowledge management programme should be well understood and its potential contribution to the business value should be established before beginning of the process. One of the objectives of a KM programme is to avoid re-invention of the wheel in organizations and reduce redundancy. Secondly KM programme is to help the organization in continuously innovating new knowledge that can then be exploited for creating value. Thirdly KM programme is to continuously increase the competence and skill level of the people working in the organization (Ravi Arora, 2002). KM being a long term strategy, Balanced Score Card (BSC) helps the organization to align its management processes and focuses the entire organization to implement it. The BSC is a management framework that measures the economic and operating performance of an organization. Without a proper performance measuring system, most organizations are not able to achieve the envisioned KM targets. BSC provides a framework for managing the implementation of KM, while also allowing dynamic changes in the knowledge strategy in view of changes in the organizational strategy, competitiveness and innovation. Inappropriate performance measurement is a barrier to organizational development since measurement provides the link between strategies and actions (Dixon et al., 1990). Performance measurement as a process of assessing progress towards achieving pre determined goals, including information on the efficiency. In which, resources are transformed into goods and services, the quality of those outputs and outcomes, and the effectiveness of organizational operations in terms of their specific contributions to organizational objectives (Dilanthi Amaratunga, 2001). This paper identifies the balanced scorecard developed by (Kaplan and Norton, 1992, 1996a) as a leader in performance measurement and performance management in an attempt to identify an assessment methodology for organizational processes.

2.0 BALANCED SCORE CARD

Robert S. Kaplan and David P Norton (1992) had devised the Balanced Scorecard in its present form. They had framed the balanced scorecard as a set of measures that allows for a holistic, integrated view of the business process so as to measure the organization's performance. The scorecard was originally created to supplement "traditional financial measures with criteria that measured performance from three additional perspectives—those of customers, internal business processes, and learning and growth". The BSC retains traditional financial measures. But financial measures tell the story of past events, an adequate story for those 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 performance of the modern companies as they are forced by intense competition provided in the environment, to create future value through investment in customers, suppliers, employees, processes, technology, and innovation. Non-financial measures, such as customer retention, employee turnover, and number of new products developed, belong to the scorecard only to the extent that they reflect activities an organization performs in order to execute its strategy. Thus, these measures serve as predictors of future financial performance.

In due course of time, the whole concept of the balanced scorecard evolved into a strategic management system forming a bridge between the long-term and short-term strategies of an organization. Many companies readily adopted the BSC because it provides a single document in which the linkages of activities-more particularly by giving adequate importance to both tangible and non tangible factors-were more vividly brought out than in any other process adopted. Clearly, opportunities for creating value are shifting from managing tangible assets to managing knowledge based strategies that deploy an organization's intangible assets: Customer relationships, innovative products and services, high quality and responsive operative processes, information technology and databases and employee capabilities, skills and motivation. The BSC has grown out itself from being just a strategic initiative to its present form of a Performance Management System. The balanced scorecard, as it is today, is a Performance Management System that can be used by organisations of any size to align the vision and mission with all the functional requirements and day-to-day work. It can also enable them to manage and evaluate business strategy, monitor operational efficiency, provide improvements, build organization capacity, and communicate progress to all employees. Hence it is being adopted by many companies across the world today cutting across the nature of the industry, types of business, geographical and other barriers.



Source: Kaplan and Norton (1996 a)
Figure 1: Balanced Score Card

Kaplan & Norton (1992) describes the Balanced Scorecard as a process which "moves beyond a performance measurement system to become the organizing frame work for a strategic management system". It is important that the scorecard be seen not only as a record or results achieved, and it is equally important that it be used to indicate the expected results. The scorecard in this way will serve as a way to communicate the business plan and thus the mission of the organization. It further helps to focus on critical issues relating to the balance between the short and long run, and on the appropriate strategic direction for everyone's efforts (Olve et al., 1999). The BSC allows managers to look at the business from the four perspectives and provides the answers to the above basic questions, as illustrated in figure 1.

2.1 Customer Perspective

This perspective captures the ability of the organization to provide quality goods and services, the effectiveness of their delivery, and overall customer service and satisfaction. Many organizations today have a mission focused on the customer and how an organization is performing from its customer's perspective has become a priority for top management. The BSC demands that managers translate their general mission statement on customer service into specific measures that reflect the factors that really matters to customer. The set of metrics chosen under this perspective are enhance market share by 5%, 10% increase in export sales, obtain competitive pricing, and increase after sales service outlets by 10%.

2.2 Internal Business Processes Perspective

The business processes perspective is primarily an analysis of the organization's internal processes. Internal business processes are the mechanisms through which performance expectations are achieved. This perspective focuses on the internal business processes results that lead to financial success and satisfied customers expectations. Therefore, managers need to focus on those critical internal business operations that enable them to satisfy customer needs. For example, the set of metrics chosen under this perspective are improving productivity standards, eliminating defects in manufacturing, provide adequate technical knowledge and skill for all the levels of employees and customer feedbacks to be integrated in the operation.

2.3 Learning and Growth Perspective

The targets for success keep changing the intense competition requires that organizations make continual improvements to their existing products and processes and have the ability to introduce entirely new processes with expansion capabilities. This perspective looks at such issues, which includes the ability of employees, the quality of information systems, and the effects of organizational alignment in supporting accomplishment of organizational goals. For example, the set of metrics chosen under this perspective are involve the employees in corporate governance, become a customer driven culture and inculcate leadership capabilities at all levels.

2.4 Financial Perspective

Financial performance measures indicate whether the organization's strategy, implementation, and execution are contributing to bottom line improvement. It shows the results of the strategic choices made in the other perspectives. By making fundamental positive changes in their operations, the financial numbers will take care of themselves. For example, the set of metrics chosen under this perspective are 12% return on equity to be achieved, 20% revenue growth, 2% reduction in cost of capital and 7% reduction in production cost.

3.0 METHODOLOGY

This paper used the Balanced Score Card approach proposed by (Robert Kaplan and David Norton, 1992) and the model adopted by (Brown and Gibson, 1972) along with the extension to the model provided by (Raghavan and Punniyamoorthy, 2003)to arrive at a single measure called Effectiveness Score (ES). This score is used to compare the differences between targeted performance and actual performance of any organization.

According to the Balanced Scorecard Collaborative, there are four barriers to strategic implementation:

1. Vision Barrier – No one in the organization understands the strategies of the organization.
2. People Barrier – Most people have objectives that are not linked to the strategy of the organization.
3. Resource Barrier – Time, energy, and money are not allocated to those things that are critical to the organization. For example, budgets are not linked to strategy, resulting in wasted resources.
4. Management Barrier – Management spends too little time on strategy and too much time on short-term tactical decision-making.

All these observations call for not only developing proficiency in formulating an appropriate strategy to make the organizational goals relevant to the changing environment but also call for an effective implementation of the strategy.

4.0 EFFECTIVENESS SCORE FOR THE BALANCED SCORECARD (ESBSC)

The Balanced Scorecard in its present form certainly eliminates uncertainty to a great extent as compared to the traditional financial factors based performance measurement systems. However when we set out to measure the actual performance against the targeted performance, mostly not all the criterions is met. For some factors actual performance is greater than the targeted performance, for some it is less. Therefore for the decision makers there may be some kind of confusion regarding the direction in which the organization is going. That is, the decision maker may not be clear whether the firm is improving or deteriorating. This is because the firm might have achieved the desired performance in not so vital parameters but would have failed to show required performance in many vital parameters. Hence it becomes imperative to provide weightage for the factors considered, so as to define the importance to be given to the various parameters. So this provides a clear direction to the management as to prioritize the fulfillment of the targets set for those measures which have been ascribed for the larger weightage.

The organization can reasonably feel satisfied if it is able to achieve the targets set for it, as it would encompass all the performance measures. Basically "The Balanced scorecard" is constructed taking into account all the strategic issues. The effectiveness score, which we are suggesting is basically derived for the balanced score card. If the single bench mark measure "The Effectiveness Score for the Balanced Scorecard" is created then it would clearly mean that the firm will be reasonably be in a position to evaluate the achievement of the strategic targets. In short it is a single benchmarking measure, which evaluates under or over achievement of the firm in respect of fulfilling the goals set by the organization. It can also provide the variation of the actual measure from the targeted measure under each of the factors considered. Thus the framework as suggested in this paper will provide a single bench mark information for the decision makers to take appropriate action and concentrate on such measures which would result in the achievement of the strategic needs of the company.

5.0 DEVELOPMENT OF EFFECTIVENESS SCORE (ES)

Let us now see the development of Effectiveness Score Model for Balanced Scorecard. As discussed earlier the Balanced Scorecard divides all the activities under four perspectives. The perspectives, the measures under each perspective, the target and actual values of each measure are analysed in a framework as shown in figure 2.

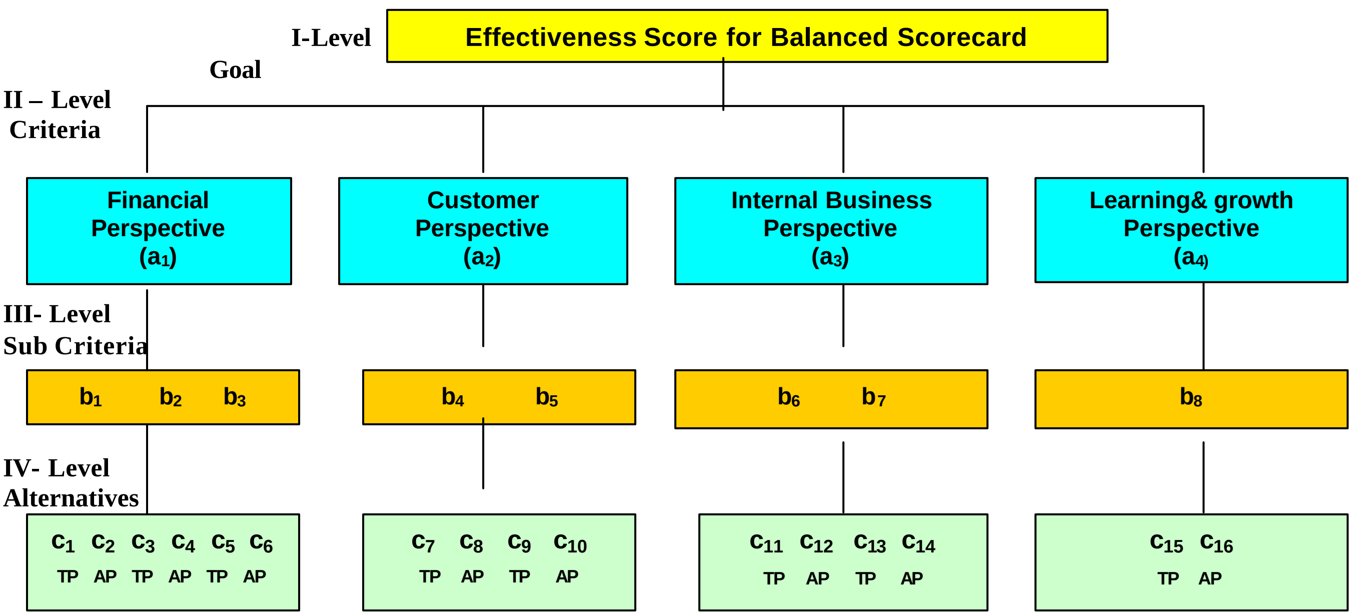


Figure 2: Framework for calculating the Balanced Score for Balanced Score Card

The Target Performance (TP) and Actual Performance (AP) were calculated using the following method:

Balanced score for Balanced scorecard (Target Performance) = a_1 $(b_1c_1+b_2c_3+b_3c_5)$ + a_2 $(b_4c_7+b_5c_9)$ +a_3 $(b_6c_{11}+b_7c_{13})$ + $a_4(b_8c_{15})$

--------- (1)

Balanced score for Balanced scorecard (Actual Performance) = a_1 $(b_1c_2+b_2c_4+b_3c_6)$ + a_2 $(b_4c_8+b_5c_{10})$ +a_3 $(b_6c_{12}+b_7c_{14})$ + $a_4(b_8c_{16})$

--------- (2)

There are four Levels in the Effectiveness Score for Balanced Scorecard Model.

Level I
The first level is the goal of the model.

Level II
This level consists of the criteria for evaluating organizational performance under the following categories:

- Financial Perspective. (a_1)
- Customer Perspective. (a_2)
- Internal Business Process Perspective. (a_3)

- Learning and Growth Perspective. (a_4)

Level III

Each Perspective may have sub criteria for measuring organizational performance. To measure each criterion or sub criteria the measures are identified. Theses had been referred to as b_{i}'s.

Level IV

For each measure identified targets are set. These target performance values are then compared with the actual performance achieved. In nutshell, the score is arrived based on the relative weightages of the items incorporated in the model, based upon the classification suggested in the Balanced Scorecard approach.

The factors of level II and level III are evaluated using the Preference theory. The relative weightage for each factor is arrived at by pair wise comparison using the preference theory. These factors are compared pair wise and 0 or 1 is assigned based on the importance of one perspective over another. In each level the factor's relative weightage is established by pair wise comparison. In the process of comparison, if the first factor is more important than the second factor, 1 for the first and 0 for the second is assigned. If the first factor is less important than the second factor, 0 for the first and 1 for the second are assigned. If both perspectives are valued equally, 1 is assigned for both perspectives. When the values are assigned, it is to be seen that results of the comparison decision are transitive. i.e., if the factor 1 is more important than factor 2 and factor 2 is more important that factor 3, then the factor 1 is more important than factor 3. The factors of level IV are grouped into financial and non-financial factors to measure the effectiveness of the organization's activity. The financial factors are cost and benefit. Non-financial factors are classified into factors related with time dimensions and other factors. The above said factors could be brought under categories, which are to be maximized, and the factors, which are to be minimized.

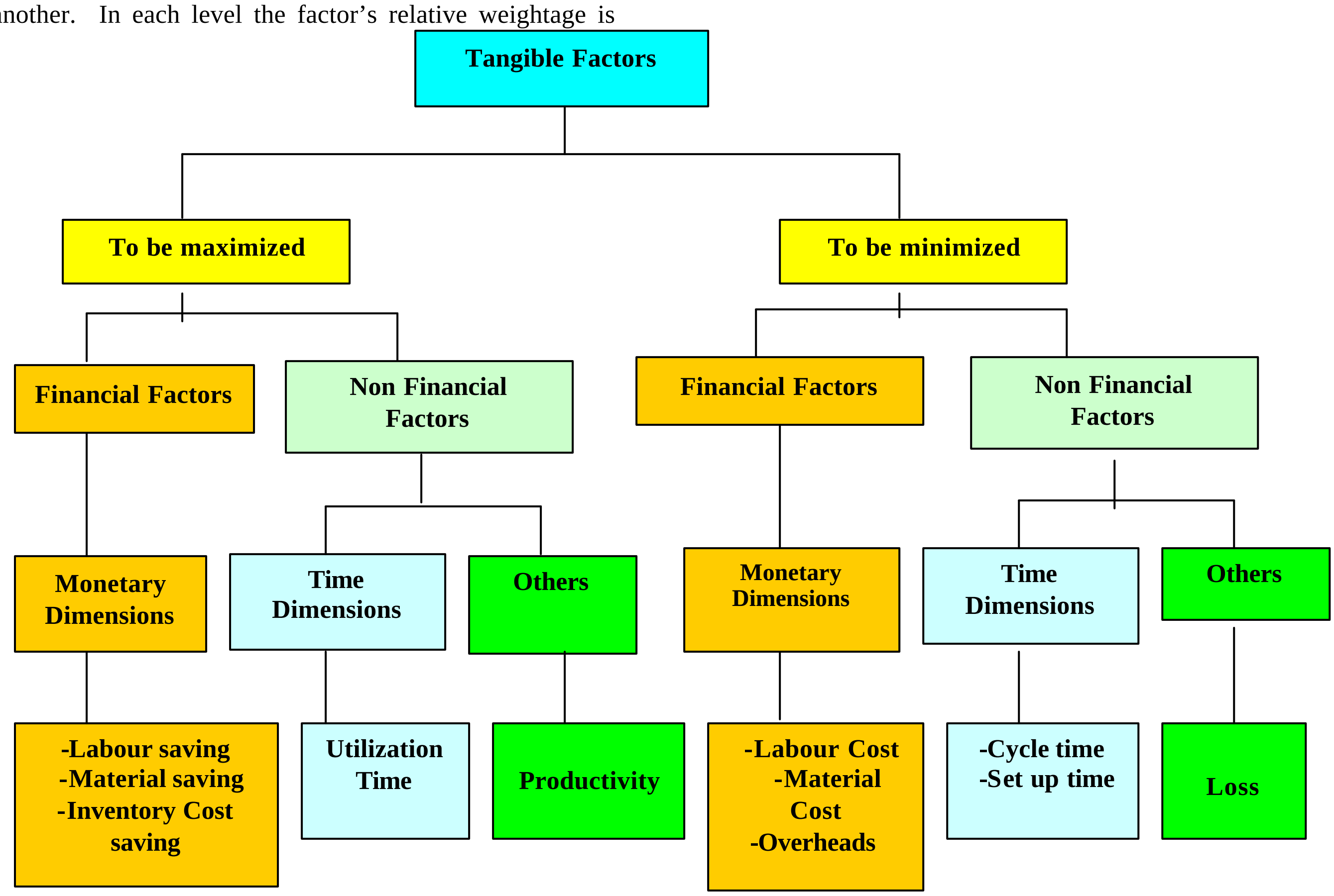


Figure 3: Framework for calculating Level IV – Alternatives

Now we can frame a general expression, considering the entire factors. The expression is framed in such a manner that the factors are converted into consistent, dimensionless indices. The sum of each index is equal to 1. This is used to evaluate the factors in order to assist to arrive at the relative weightage at the lowest level. This is the framework developed by (Ragavan, 2003).

$ES_I = BM_I$ (1/ S BM) + $[CM_I$ S $(1/CM)]^{-1}$ + BT_I (1/S BT) + $[TM_I$ S $(1/TM)]^{-1}$ + NF_I (1/S NF)

+ $[NFM_I$ /S $1/NFM]^{-1}$ --------- (3)

Where

ES_I = Effectiveness score for alternative 'I'

BM_I = Benefit in money for alternative 'I '

BT_I = Benefit in time for alternative 'I '

CM_I = Cost to be minimized for alternative 'I '

TM_I = Time to be minimized for alternative 'I '

NF_I = Non financial factors for alternative 'I 'to be maximized

NFM_I = Non financial factors for alternative 'I 'to be minimized

The relative weightage for all the factors are arrived and the Effectiveness Score for the Balanced Scorecard is arrived using equation (1) and equation (2) for sample framework given in figure 2 and 3**.** Comparing the figures of targeted performance and the actual performance we may be able to say how the company had fared.

6.0 LIMITATION OF THE RESEARCH

The level-2 and level-3 factors are evaluated using preference theory and it has certain limitations. When we compare the degree of importance of one factor over another and assign 1 for a factor and 0 for another, it means that 0 importance is attached to that factor. There is a possibility, that factor may have uniformly 0 value in all the pair wise comparisons. This results in factor getting 0 relative importance. In other words, in the decision a 0 value factor does get a role, which is not necessary.

7.0 FUTURE PROSPECT OF THE RESEARCH

To remove the above said limitation, future research may be carried out to evaluate criteria (a_i's) and the sub criteria (b_i's) by using Analytic Hierarchy Process (AHP). Even by adopting AHP, pair wise comparison can be made and different values be assigned based on the degree of importance ranging from 1-9. The reciprocal values can also be assigned based on the importance of one factor over the other. This may provide more refinement in providing adequate weightages to the relevant criteria and the sub criteria.

8.0 CONCLUSION

Knowledge management being a long term strategy, BSC helps the company to align its management processes and focuses the entire organization to implement it. Without a proper performance measuring system most organizations are not able to achieve the envisioned KM targets. BSC provides a framework for managing the implementation of KM while also allowing dynamic changes in the knowledge strategy in view of changes in the organizational strategy, competitiveness and innovation. There are many numbers of attempts made to show the efficacy of the usage of the balanced scorecard for showing better performance. While retaining all the advantages that are made available by using the balanced score card approach in providing a frame work for showing better performance, through this process of calculating the bench mark figure called "Effectiveness score" we are able to add more value for the analysis. We are able to identify those parameters whose actual performance vary from the targeted performance and find out their relative proportion of adverse or favorable contribution to the performance of the company by assigning appropriate weights for such parameters whether it is financial or non financial. Therefore we are in the position to objectively capture the reason for variations in the performance from the targeted levels in all the functional areas of the business with the use of the concepts of balanced scorecard as well as applying the extended information arising out of arriving at the "Effectiveness score for the balanced scorecard". In conclusion arriving at this score by and large is considered as a powerful approach in formulating a business excellence model. This will certainly help the users of this approach to make an objective evaluation while implementing the same in their business environment.

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