A Proposed Framework For Integrating The Balanced Scorecard Into The Strategic Management Process.

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Abstract

The Balanced Scorecard (BSC) proposed by Kaplan and Norton (1992, 1993) has been accepted by the business world, worldwide, as a very promising tool for the performance measurement of an organization at the firm level. Later on, its founders described the way of using their model as an integrated system of the whole strategic planning process [Kaplan and Norton, (1996A)]. However, what it still remains vaguely explained is the operational (practical) connection of the BSC model to the strategic planning process.

The ambition of the present paper is to demonstrate a method that could easily connect directly the various performance measures (criteria) of a BSC with the stated goals and objectives of any firm. Specifically, it explains in great detail how the multicriteria method of Analytical Hierarchy Process (AHP) could practically facilitate this connection. It analyses how a firm could arrange the various performance criteria in such a way that could be capable of controlling its stated goals and objectives through the implementation of its strategy.

This paper starts with a literature review concerning the two methods, BSC and AHP, and then proceeds to the formation of the proposed framework, which actually facilitates the formal and quantitative links between the firm's stated performance criteria and its overall strategic planning process: its mission, goals, objectives, and the specific strategy it follows for the attainment of these goals and objectives.

Keywords: Balanced Scorecard, multicriteria method of AHP, performance measurement.

1. Literature review

It has become clear that the 1990's has become a staggeringly different and much more demanding era for quality - and for business in general - than was experienced throughout the 1980's [Christopher and Thore, (1993: 2-1.3)]. The reason is that the gradual momentum toward an increasingly open, globally competitive marketplace, now has an unstoppable force - not only for Europe (with the establishment of European Union, the abandoning of import tariffs and quotas, and the monetary union agreement) but throughout the world (through the new General Agreement for Trade and Tariffs-GATT and other similar international agreements). This will mean an enormous increase in the competitive pressure upon most companies in both prices as well as quality standards [Christopher and Thore, (1993: 2-1.3)].

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The fundamental business strategic impact is that, to protect its position in its home market, a company must be able to design, build and sell its domestic product lines with the potential also for supremacy in the international market place, even though there isn't yet much import competition or interest in exporting. And it must do this quickly - a huge job for many companies. The principle is that if a company can get foreign competition today, it will get it. Operating in international leadership terms is the only way for a business to grow in terms of this principle rather than be eroded by it. [Feigenbaum, (1993)].

The strategic management process does not end when the firm decides what strategy (ies) to pursue. There must be a translation of strategic thought into strategic action. Successful strategy formulation does not guarantee successful strategy implementation. David (1999: 216) says that it is always more difficult to do something (strategy implementation) than to say you are going to do it (strategy formulation). Furthermore, the best formulated and implemented strategies become obsolete as a firm's external and internal environments change. It is essential, therefore, that firms systematically review, evaluate, and control the execution of strategies. Effective performance measurement and improvement of the implemented strategies must be an integral part of the strategic management process [Kaplan and Norton, (1993: 1)]. A framework/model that supports this integrated management system will assist management and their firms to excel in both, taking proper strategic decisions and implement them effectively and efficiently. The focus of the performance measurement and improvement process should be on involving all levels of management in strategic planning, i.e., in translating strategy into action [Sink and Tuttle, (1989: 19)].

Performance measurement, in order to have validity, must derive from the strategy of the organization. It is only when this derivation of performance measures comes from the heart of the strategic focus that management can hope to employ the necessary energies for effective continuous improvement. This process provides management with the necessary information feedback system to enable a continuous improvement process, which will drive the re-examination of the strategic direction of the organization. A valid collection of strategy driven performance measures will enable a continuous feedback of customer needs, competitive costs, responsiveness, and other critical indicators of world class performance [Campi, (1993)].

The emergence of new information technologies and the opening of global markets has changed many of the fundamental assumptions of modern business. No longer can companies gain sustainable competitive advantage solely by developing tangible assets. The information-age environment for both manufacturing and service organizations requires new capabilities for competitive success. The ability of a company to mobilize and exploit its intangible assets has become decisive in creating and sustaining competitive advantage [Itami, (1987)].

Organizations face many hurdles in developing performance measurement systems that truly measure the right things. In the past, as companies invested in programs and initiatives to build their capabilities, managers relied solely on financial-accounting measures. Today, however, the financial accounting model must be expanded to incorporate the valuation of the company's intangible and intellectual assets. What is needed is a system that balances the historical accuracy of financial numbers with the drivers of future performance, while also assisting organizations in implementing their different strategies. The Balanced Scorecard (BSC) is probably the tool that answers both challenges.

In 1990, Kaplan and Norton led a research study of a dozen companies exploring new methods of performance measurement [Niven, (2002: 11)]. The impetus for the study was a growing belief that financial measures of performance were ineffective for the modern enterprise. The study companies, along with Kaplan and Norton, were convinced that a reliance on these measures was affecting their ability to create value. The group discussed a number of possible alternatives but settled on the idea of a Scorecard featuring performance measures capturing activities from throughout the organization-customer issues, internal business processes, employee activities, and of course shareholder concerns. Kaplan and Norton labeled this new tool the Balanced Scorecard and later summarized the whole concept in the first of three *Harvard Business Review* articles (1992, 1993, 1996A).

Over the next few years a number of organizations adopted the BSC and achieved immediate results. Kaplan and Norton (1996A) discovered that these organizations were not only using the BSC to complement financial measures with drivers of future performance but were also communicating their strategies through the measures they selected for their BSC. As the BSC gained prominence with organizations around the globe as a key tool in the implementation of strategy, Kaplan and Norton summarized the concept and the learning to that point in their 1996 book *The Balanced Scorecard.* Since then the BSC has been adopted by nearly half of the *Fortune* 1000 organizations and the momentum continues unabated [Niven, (2002)].

The BSC communicates the multiple, linked objectives that companies must achieve to compete based on their intangible capabilities and innovation. The BSC translates mission and strategy into goals and measures, organized into four different perspectives: financial, customer, internal business process, and learning and growth.

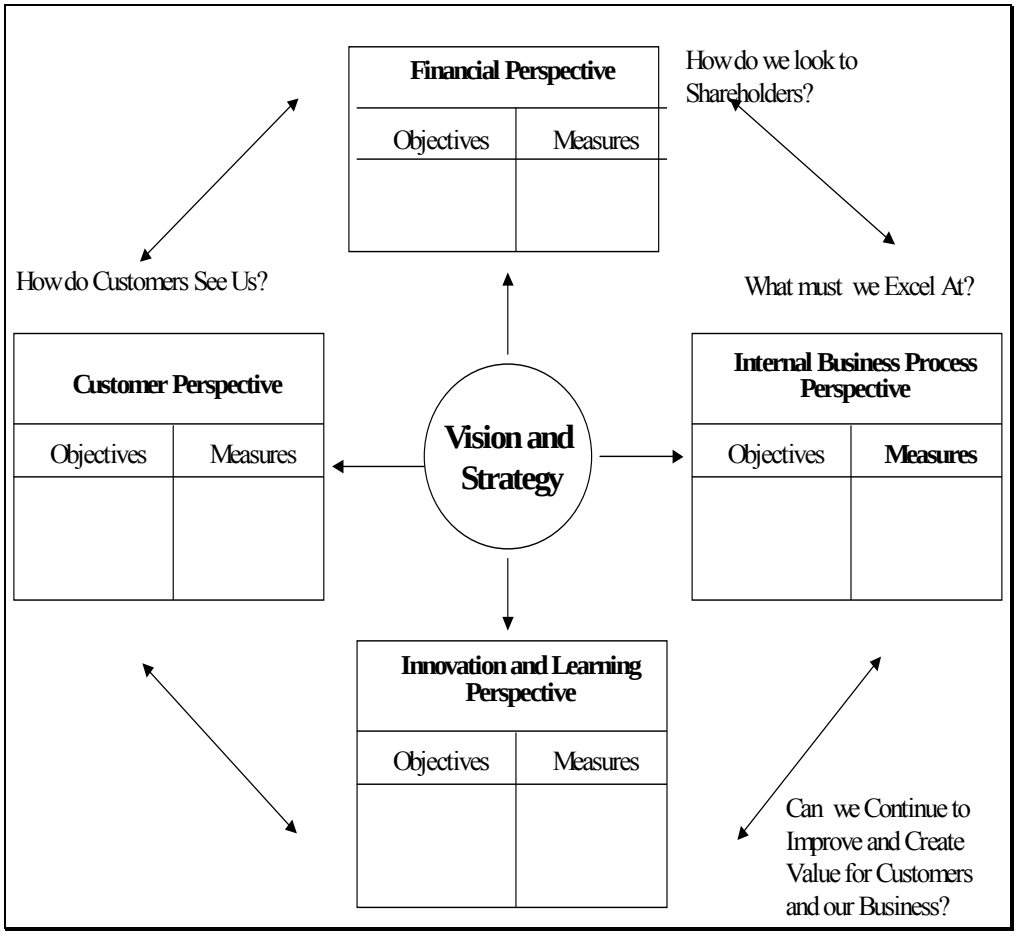

Figure 1: The Balanced Scorecard [Kaplan and Norton, (1996A)]

The BSC retains the financial performance perspective because financial measures are essential in summarizing the economic consequences of strategy implementation. In the customer perspective of the BSC, managers identify the customer and market segments in which the business desires to compete. Targeted segments could include both existing and potential customers. Then, managers develop measures to truck the business unit's ability to create satisfied and loyal customers in these targeted segments. In the internal business process perspective, managers identify the critical internal processes for which the organization must excel in implementing its strategy. The internal business processes

dimension represents the critical processes (innovation processes, operations processes, and post-sales service processes) that enable the business unit to deliver the value proportions that will attract and retain customers in targeted market segments, and satisfy shareholder expectations regarding financial returns. Thus, the internal business process measures should be focused on the internal processes that will have the greatest impact on customer satisfaction and achieving the organization's financial objectives. The fourth perspective- learning and growth- identifies the infrastructure that the organization must build to create long-term growth and improvement. The customer and internal business process perspectives identify the factors most critical for current and future success. However, businesses are unlikely to be able to meet their long-term targets for customers and internal processes using today's technologies and capabilities for delivering value to customers and shareholders. Intense global competition requires companies to continually improve their capabilities for delivering value to customers and shareholders. Organizational learning and growth come from three principal sources: people, systems, and organizational procedures. The financial, customer, and internal business process objectives will typically reveal large gaps between existing capabilities and those required to achieve targets for breakthrough performance. To close these gaps, businesses must invest in training employees, enhancing information technology and systems, and aligning organizational procedures and routines. These objectives are articulated in the learning and growth perspective of the BSC.

The multiple measures on a properly constructed BSC should consist of a linked series of goals and measures (objectives) that are both consistent and mutually reinforcing. The BSC should be viewed as the instrumentation of a single strategy. Its measures should incorporate the complex set of cause-and-effect relationships among the critical variables that describe the trajectory and the flight plan of the strategy. The linkages should incorporate both outcome measures and performance drivers.

Good measurement systems should make the relationships among goals and measures explicit so they can be managed and validated. The chain of cause and effect should cover all four perspectives of a BSC. For example, ROCE may be a scorecard measure in the financial perspective. The performance driver of this measure (outcome) could be repeated and expanded sales from existing customers, and the result of a high degree of loyalty. Customer loyalty is included on the BSC (in the customer perspective) because it is expected to have a strong influence on ROCE, but how will the organization achieve customer loyalty? Analysis of customer preferences may reveal that on-time delivery of orders is highly valued by customers. Thus, improved on-time delivery is expected to lead to higher customer loyalty, which, in turn, is expected to lead to higher financial performance. Therefore, both customer loyalty and on-time delivery are incorporated into the customer perspective.

The process continues by asking what internal processes must the company excel at to achieve exceptional on-time delivery. To achieve improved on-time delivery, the business may need to achieve short cycle-times in operating processes and high-quality internal processes, both factors that could be measures in the internal process perspective. How do organizations improve the quality and reduce the cycle-times of their internal processes? By training and improving the skills of their operating employees, an objective that would be a candidate for the learning and growth perspective. In this manner, an entire chain of cause-and-effect relationships can be established as a vertical vector through the four BSC perspectives.

A good BSC should have a mix of outcome measures and performance drivers (i.e., critical input and process measures). Outcome measures without performance drivers do not communicate how the outcomes are to be achieved. They also do not provide early warning about whether the strategy is being implemented successfully. Conversely, performance drivers based on inputs and processes alone enable the business unit to achieve short-term operational improvements. However, these measures fail to reveal whether the operational improvements have been translated into expanded business with existing and new customers, and, eventually, into enhanced financial performance. Thus, a good BSC should have an appropriate mix of outcomes (lagging indicators) and performance drivers (leading indicators) of the business unit's strategy. In this way, the BSC translates the business unit's strategy into

a linked set of measures that define the long-term strategic objectives, as well as the mechanisms for achieving those objectives.

A BSC must be used for both strategic evaluation processes, the evaluation of the alternative strategic options, during the strategic formulation process, for the selection of the best strategy, and the continuous evaluation of the implemented strategy for confirming whether or not is capable of achieving its stated goals and objectives.

The Analytic Hierarchy Process (AHP), developed at the Wharton Scholl of Business by Thomas Saaty (1980, 1996), allows decision makers to model a complex problem in a hierarchical structure showing the relationships of the goal, objectives (criteria), sub-objectives, and alternatives. Thus, a typical hierarchy consists of at least three levels, the goal(s), the objectives, and the alternatives.

AHP enables decision-makers to derive ratio scale priorities or weights as opposed to arbitrarily *assigning* them. In so doing, AHP not only supports decision-makers by enabling them to structure complexity and exercise judgment, but allows them to incorporate both objective and subjective considerations in the decision process (Forman, 1983).

It uses pairwise comparisons to assess the relative importance of the criteria in meeting the goal, and the alternatives in meeting each of the criteria. The results then are synthesized to determine the overall importance of each alternative in achieving the main (overall) goal. The pairwise comparisons are quantified using the standard one-to-nine AHP measurement scale [Doumpos and Zopounidis, (2001: 108)}:

Ratio	Term	Explanation
1	Equal Importance	Two activities contribute equally to the objective.
3	Moderate Importance	Experience and judgment slightly favor one activity over another.
5	Essential or Strong	Experience and judgment strongly favor one activity over another.
7	Demonstrated Importance	An activity is strongly favored and its dominance is demonstrated in practice.
9	Extreme Importance	The evidence favoring one activity over another is of the highest possible order of affirmation.

The AHP has been widely and successfully applied in a variety of decision-making environments [Zahedi, (1986); Golden, Wasil, and Harker, (1989); Zopounidis and Doumpos, (1997, 1998, 1999A, 1999B, 2000A, and 2000B)].

2. The proposed BSC – AHP framework

Table 1 below describes the steps required to link the performance measures of the BSC to (1) the overall mission (or overall Goal) and the objectives (or strategic challenges) of the firm, and (2) a specific strategy designed to help the firm achieve its objective es and mission. This process begins with the construction of an AHP model that directly links, as we shall analyze shortly, the firm's performance measures to its objectives and mission (step 1). After creating this linked hierarchy, we then use the AHP to determine the relative weight (or importance) of each individual performance measure to the firm's ability to succeed in its objectives and mission (step 2). The relative weights of the performance measures determined in step 2 then allow us to develop an index, which collectively uses the key performance measures to track the firm's performance (step 3).

Table 1

Step	Task
1	Construct AHP model linking company mission and objectives to BSC
2	Use AHP to determine the 'weights' or relative importance of individual key performance measures.
3	Compute the index of the performance measures to monitor overall firm's performance.

2.1 Step 1

We employ a three –level hierarchy to link the performance measures of the BSC to the firm's mission and objectives. These three levels are from top to bottom:

1. The firm's mission or overall goal
2. The firm's objectives or strategic challenges (Hamel and Prahalad, 1996: 149)
3. The key performance measures of the BSC

Following Figure 2 illustrates this hierarchy:

In the top tier, we display the goal or mission of this AHP design. In the second tier, we display the objectives of a specific strategy, and at the lower levels of the hierarchy follow the specific performance measures for each distinct perspective.

We would begin our modeling process by first asking management to evaluate the relative importance of each of these critical objectives in carrying out the firm's mission or overall goal. For example, with respect to the 'overall goal', management would be asked how much more important is increasing the objective 1 relative to objective 2. The same question would then be asked to compare the relative importance of objective 1 and objective 3. This process will continue until all six possible pairwise comparisons at the 'objectives' level have been completed. Management next would have to address the relative importance of each of the four finance measures of the BSC with respect to meeting the firm's four objectives. For example, with respect to the firm's first objective, how much more important is the firm's first finance performance measure relative to the second finance measure. Again, comparisons would be conducted for all potential unique pairs at this third level of the hierarchy (six comparisons for each of the four objectives, or 24 in total). Finally, similar pairwise comparisons would occur and questions would be asked about the relative importance of all performance measures under the rest three BSC perspectives, the customer, the internal business process, and the innovation and learning. Using the synthesis process of the AHP, the relative assessments made across the hierarchy are combined, employing a weighted average approach, to determine the relative effect of each measure in meeting the firm's mission.

2.2 Step 2

The pairwise comparisons described in step 1 can be entered and processed with a user-friendly AHP software package such as Expert Choice for windows 9.0, or Logical Decisions for Windows 5.0. Both these packages enable the user to structure hierarchies quite easily, enter all necessary judgments, and automatically compute the alternative and criteria weights. After structuring the hierarchy, they offer several modes for entering judgments, including verbal and numerical approaches. They automatically compute the weights and a measure of the consistency of judgments. They also provide the user with assistance in identifying the most inconsistent judgments. They both offer a full range of sensitivity analysis capabilities. In addition, Logical Decisions (LD), after having made the measures comparable by converting them to common units, it can combine the common units of the weights (utilities) for individual measures into utilities for the goals. The utilities provide common units that allow LD to combine several measures' performances into an estimate of a goal's performance. It also quantifies an alternative's performance on a goal in units of utility. A goal's utility is computed using a function that combines the utilities of a goal's active members (performance measures) into a utility for the goal.

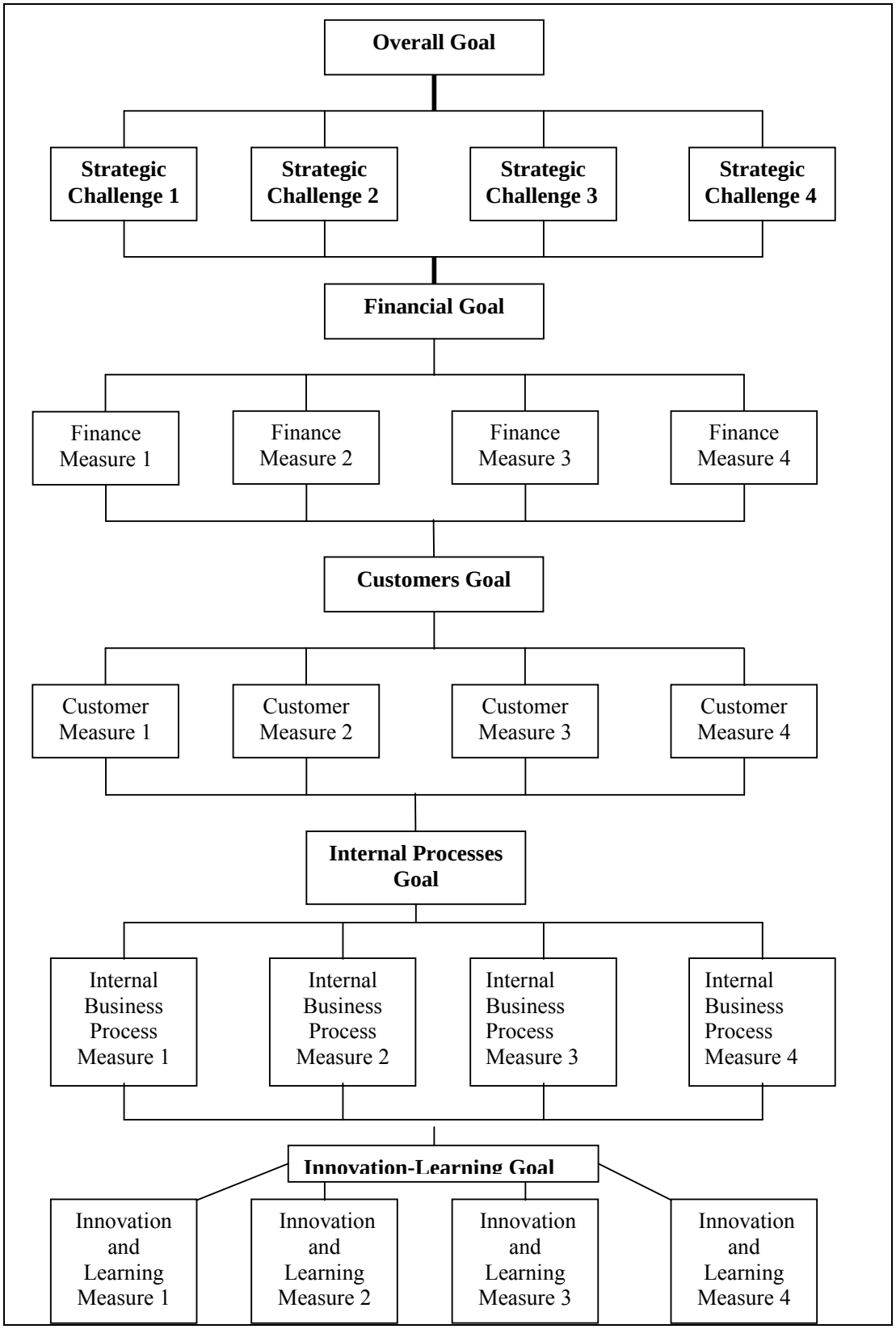

Figure 2 : The AHP – BSC Framework

The formula used to combine the utilities is a Multiple-measure Utility Function or MUF. Higher level goals can have a MUF that combines utilities for not only measures but also utilities for lower level goals computed using their own MUF's. LD allows us to decide which goals should have their own MUF. It includes each measure in our analysis in the MUF for exactly one goal. In addition, it includes goals that have their own MUF in the MUF for exactly one higher level goal. Thus, a goal that has its own MUF will combine the utilities for the measures and goals directly below it in the goals hierarchy into a utility for the goal.

Table 2 displays an example of the relative weights (utilities) of the performance measures of a BSC describing the 'Revenue Growth Strategy' (Kaplan and Norton, 1996b: 69-73) as calculated by the AHP (column 4). For example, ROI has a relative weight or importance of 8% (among all the performance measures), and Revenue Growth has a relative weight of 7%. Note that the total sum of all relative weights is 100. All these weights relate the relative importance of each performance measure to the firm's efforts to meet its overall mission. Thus, using the AHP, we managed to link quantitatively each performance measure to the overall mission of the firm.

Table 2: Evaluating the 'Revenue Growth Strategy'

Goals and Measures	**Base Value**	**Initial Points**	**Weighted Points Index (t=0)**	**Current Period's Value**	**Points**	**Weighted Points Index (t+1)**
Improve Returns (G)						
ROI (%)	10	100	8	11.4	114	9.1
SVA or EVA (000)	200000	100	9	260000	130	11.7
Broaden Revenue Mix (G)						
Revenue Mix (%)	45	100	8	46	102.2	8.2
Revenue Growth (%)	24	100	7	25.7	107.1	7.5
Increase Customer Satisfaction (G)						
Customer Satisfaction Survey (Rating)	92	100	8	92.6	100.6	8.05
Customer Retention (%)	89	100	7	86	96.6	6.75
Depth of Relation (%)	81	100	7	83.2	102.7	7.2
Create Innovative Products (G)						
Share of Segment (%)	32	100	8	33.7	105.3	8.4
Revenue from New Products (000)	35000	100	7	42000	120	8.4
Cross-Sell Ratio (number)	5	100	7	5.8	116	8.1
Develop Strategic Skills (G)						
Employee Satisfaction (Rating)	87	100	9	88	101.1	9.1
Strategic Job Coverage (%)	74	100	8	77	104	8.3

Strategic Information Availability (%)	45	100	7	52	115.5	8.1
TOTAL	**Baseline**	**Index:**	**100**	**Performance**	**Index:**	**108.9**

2.3 Step 3

The relative weights for each performance measure constructed in step 2 facilitate the development of an index to track the firm's progress in carrying out its mission: As we know the relative weight of each performance measure (or goal) to the firm's overall goal or mission, we can assess the relative effect of the change in a performance measure from one period to the next on the firm's overall performance. By tracking each performance measure individually from period to period, and then collectively quantifying the relative effect of the change in each performance measure, we can construct an index to monitor the firm's progress against its mission. Table 2 displays the baseline for the firm's overall performance measure index (column 4). The values of each performance measure in the initial time t=0 (for, example, last quarter of year 2002) provide the baseline values for the index. Each measure initially receives 100 points. The relative weight of each measure (column 4 in %) multiplied by the initial point value (column 3) yields the baseline weighted point value, shown in column 4 (for example, ROI has a weight of 8%, if multiplied by 100 gives an index number of 8). The second column shows the value of each performance measure in the current quarter (e.g., ROI=10%). We determine the points for each measure by multiplying the ratio of 'the measure's current quarter value (column 5) divided by its baseline value (column 1)' by 100, and then we calculate the weighted points for each measure (column 7) by multiplying its relative weight (column 4) by its current points (column 6). For example for ROI we have: (11.4/10)*100=114 points, thus the weighted points index (or Performance Index) for ROI=8*114% =9.1.

We notice that the total Performance Index's value is 108.9. If we contrast this value with the value of the baseline index, 100, we notice a relative contribution of 8.9% of the implemented strategy to the firm's overall goal. Over time, the change and rate of change of the performance index provides a quantitative perspective on overall progress from period to period. We could construct separate performance indexes for each goal, so as to identify the relative importance of each BSC perspective to the perspective of the next higher level and finally to the overall goal or mission.

3. Conclusion

We have tried to develop a framework of linking the performance measures of the BSC to a firm's overall mission, strategic challenges, objectives, and business strategy with the adoption of the AHP decision-making method. We began with a brief description of the strategic management and planning process and we noted the need of a performance measurement and improvement method capable of evaluating, on a continuous basis, the implemented business strategy. As such a method we proposed the BSC model developed by Kaplan and Norton (1992, 1993).

We stressed the point that the BSC is much more than a collection of critical indicators (measures) organized into several different perspectives. These measures should consist of a linked series of objectives and measures that are both consistent and mutually reinforcing. A properly constructed BSC should tell the story of the business unit's strategy. It should make the relationships among objectives and measures in the various perspectives explicit so that they can be managed and validated. The chain of cause and effect should pervade all four perspectives. Moreover, a BSC should contain both generic measures or outcomes and performance drivers. Generic measures reflect the common goals of many strategies, as well as similar structures across industries and companies. On the other hand, the performance

drivers are the measures that tend to be unique for each business unit. Outcome measures without performance drivers do not communicate how the outcomes are to be achieved. Conversely, performance drivers without outcome measures may enable the firm to achieve short-term operational improvements, but will fail to reveal whether these improvements have been translated into expanded business with existing and new customers, and eventually into enhanced financial performance.

Further, we demonstrated that using the AHP, it is possible to link quantitatively the performance measures of a BSC to a firm's mission and strategy. In particular, we showed how a firm can employ this method to weight the relative importance of its performance measures in terms of its overall mission and strategy. With this quantitative link, we were able to develop a composite index of the firm's performance measures. This index facilitates the measurement of the firm's progress in pursuing its overall goal and in tracking the effectiveness of a particular business strategy. We believe this critical capability enhances the value of the BSC and, thus, increases the likelihood that management will use the BSC as a decision-support tool on an ongoing basis.

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