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

Nikolaos G. Theriou
Efstathios Demitriades
Prodromos Chatzoglou[1]
T.E.I. of Kavala
School of Business and Economics
Department of Business Administration
Agios Loukas
65404 Kavala - Greece
ntheriou@teikav.edu.gr, edimit@teikav.edu.gr

Abstract

The Balanced Scorecard (BSC) proposed by Kaplan and Norton 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. 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. Introduction

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)].

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

[1] Associate Professor of the Democritus University of Thrace, Production Management and Engineering Department , Email: pdchatz@hotmail.com

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)].

2. The Balanced Scorecard

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.

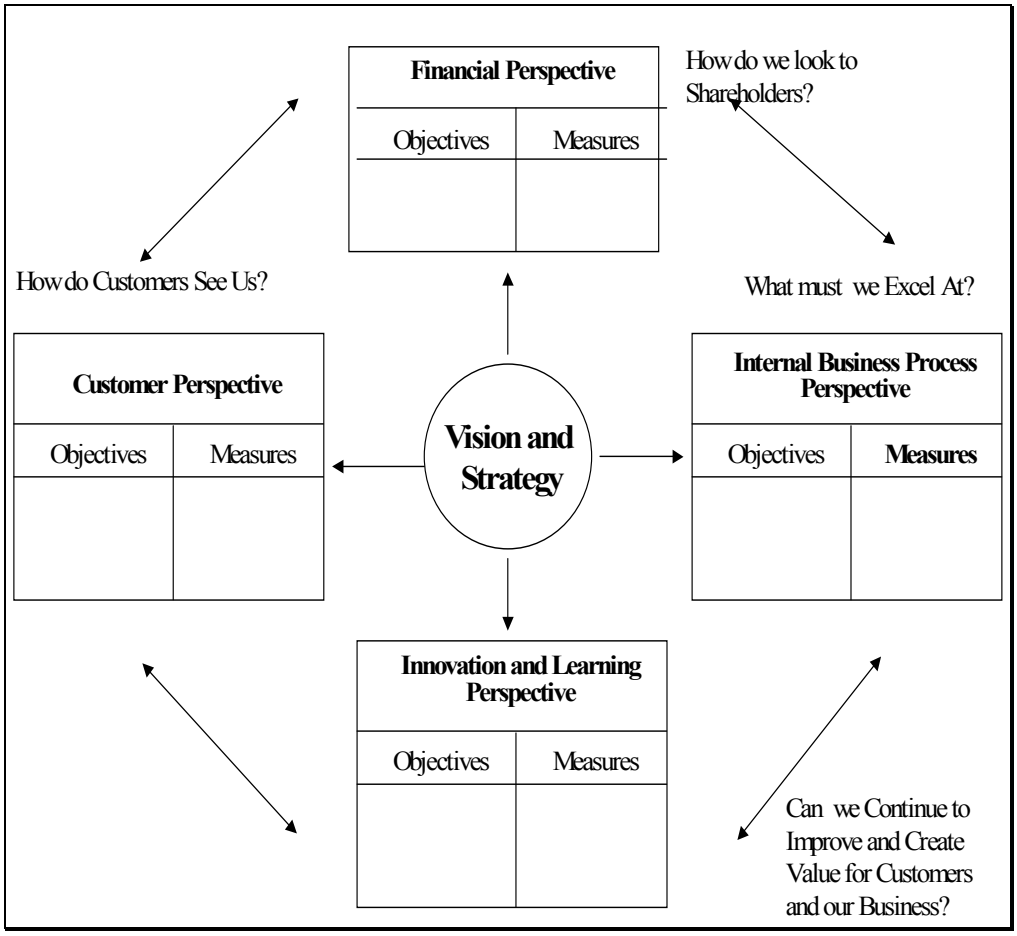

Figure 1: The Balanced Scorecard [Kaplan and Norton, (1996A)]

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.

3. The Analytic Hierarchy Process

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)}:

Table 1: The standard AHP measurement scale

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)].

4. The proposed BSC – AHP framework

4.1. The Balanced Scorecard Measures

Suwignjo, *et al.* (2000) developed an approach for the quantitative modeling of performance measurement systems. The objective of their research was to identify tools and techniques that would facilitate:

- identification of factors affecting performance and their relationships,
- structuring the factors hierarchically, and
- quantifying the effect of the factors on the overall performance.

Stage one of the approach uses the cognitive mapping technique to identify factors, which affect performance and their relationship with one another. This is a very similar approach to the 'strategy map' proposed by Kaplan and Norton (1996B; 2001) and described previously.
In stage two the cognitive maps are converted into cause and effect diagrams, which are used as a discussion tool to structure the factors that affect performance hierarchically. Structure diagrams are then used to formalise the hierarchical nature of the performance measurement system [Suwignjo, *et al.* (2000), p 233]. Finally, in stage three the Analytical Hierarchy Process is used to quantify the relationship of each factor with the others with respect to overall performance.
Sohn, *et al* (2003, p. 282) proposed a list of BSC measures, after a complete survey of relevant literature, which '*can be considered as a revision of Kaplan and Norton's original measures'*. These BSC measures consist of the four major perspectives and twenty sub-measures, five by each major measure (perspective). For example, the financial measures include revenue growth, investment, profitability, asset utilisation, and unit cost. In particular, a measure called 'knowledge sharing' is included for the learning/growth perspective.
The relative weights for each performance measure can be calculated using the Analytic Hierarchical Process (AHP) on the basis of two stepwise questions. First, six questions are asked for comparing (pairwise) the major BSC measures (financial, customer, internal process, and learning/growth). Subsequently, ten questions are asked to compare (pairwise) the five sub-performance measures under each major measure (Saaty and Vargas, 1994).
The AHP converts the pairwise comparisons into the weights. The computational procedure can be supported by a tool like Expert Choice 2000 (Expert Choice, Inc., 2000). The AHP constructs a set of pairwise comparisons as a square matrix A as follows:

$$A = \begin{bmatrix} a_{11}a_{12}.....a_{1n} \\ a_{21}a_{22}.....a_{2n} \\ ..... \\ a_{n1}a_{n2}.....a_{nn} \end{bmatrix}$$

where $\boldsymbol{a_{ij}}$ is a relative value with respect to factor $\boldsymbol{j}$ of $\boldsymbol{i}$, $\boldsymbol{a_{ij} = 1/a_{ji}}$ and $\boldsymbol{a_{ii} = 1}$.
To verify the level of logical inconsistency of matrix A, the consistency index (CI) is calculated. $\boldsymbol{\lambda_{max}}$ is the largest eigenvalue of matrix A. Saaty (1980) defines the consistent index as CI=(λ_{max} – n)/(n-1) and uses the consistency ratio (CR), which is the CI divided by the average random index from the empirical data. If the value of CR is less than 0.1, it is typically considered acceptable; larger values require the decision-maker to reduce the inconsistencies by revising judgments.

4.2. The BSC, the business level strategies, and the external environment

The usefulness of the BSC can be enhanced by aligning its measures with proposed/adopted competitive strategies. Furthermore, competitive strategies proposed/adopted by companies have a great impact on their internal environment. Different strategies require different competitive capabilities [Wernerfeld, (1984); Barney, (1991)]. These differences lie in the elements of the characteristics of the capabilities and their relative positions in each specific strategy (ranking). To build particular competitive capabilities as required by the

proposed/adopted strategy, companies must employ specific types of tangible, intangible, human, financial, organizational, and technological resources. The configuration of those entities determines the generic performance of the company. Evaluation of the alternative competitive strategies requires that the performance of the strategies on the BSC measures can be quantified and aggregated. This is not a straightforward task, since different measures are measured in different dimensions.
As the external environment of a firm changes rapidly, the selection of competitive strategy to be adopted is becoming more difficult. Consequently, the evaluation of alternative strategies must take into account the dynamics of the external environment too. We must be able to check if the BSC performance measures are influenced by external environment characteristics. Two environmental characteristics are proposed. Dynamism (often called uncertainty) means the rate the rate of change and innovation in the industry as well as the uncertainty or unpredictability of the actions of competitors and customers (Lawrence and Lorsch, 1967). Complexity (or heterogeneity) means the variations among the firm's markets that require diversity in production and marketing orientations (Khandwalla, 1972; Porter, 1980).

4.3. The BSC – AHP framework

Taking into consideration all previous remarks, the hierarchical structure of the evaluation of the performance of alternative competitive strategies of any firm could be constructed as indicated in Figure 2.
The level 0 of the structure is the overall performance of the alternative competitive strategies. The performance of the proposed/adopted competitive strategies depends on the specific external business environment (Uncertain and/or complex) as indicated by level 1 of Figure 2. Level 2 of the structure is the performance measures and sub-measures. The relative weights of these measures and sub-measures can be calculated as described in section 2.1.Based on the generic performance of competitive strategy, the performance of the alternatives can be evaluated based on these measures and sub-measures. Finally, level 3 of the structure is the alternative competitive strategies, which could be adopted, and the required capabilities necessary for their successful completion. The relative weights of the capabilities of each strategy can be calculated with the same way as the weights of the performance sub-measures:
Ten questions are asked to compare (pairwise) the five capabilities under each proposed alternative strategy. In the proposed framework we assume that each alternative competitive strategy needs five capabilities for its successful completion.

The exact number of required capabilities could be found with the use of VRIO analysis (Barney, 1997) or any other tool proposed in the literature (e.g. AHP, Hafeez *et al*, 2002).
Evaluation of these alternative strategies is carried out level by level starting from the top level down to the lower levels. The first evaluation assesses the effect of environmental factors to the overall performance of the firm.
The second evaluation assesses the relative effects of each sub-measure to its perspective, and then, of each perspective to the overall performance under a particular environmental factor.
The third evaluation assesses the relative effect of each capability to its strategy, and then, of each alternative strategy on each of the performance sub-measures and perspectives.
In this way the Analytical Hierarchy Process is used to quantify the relationship of each factor with the others with respect to overall performance.

4.4. The Measured Variables

We could employ a multiple-item method to construct a questionnaire for measuring performance indicators and the two environmental variables (Sohn *et al., 2003:289-290)*. Each item will be based on a five point Likert scale from "very low" to "very high".

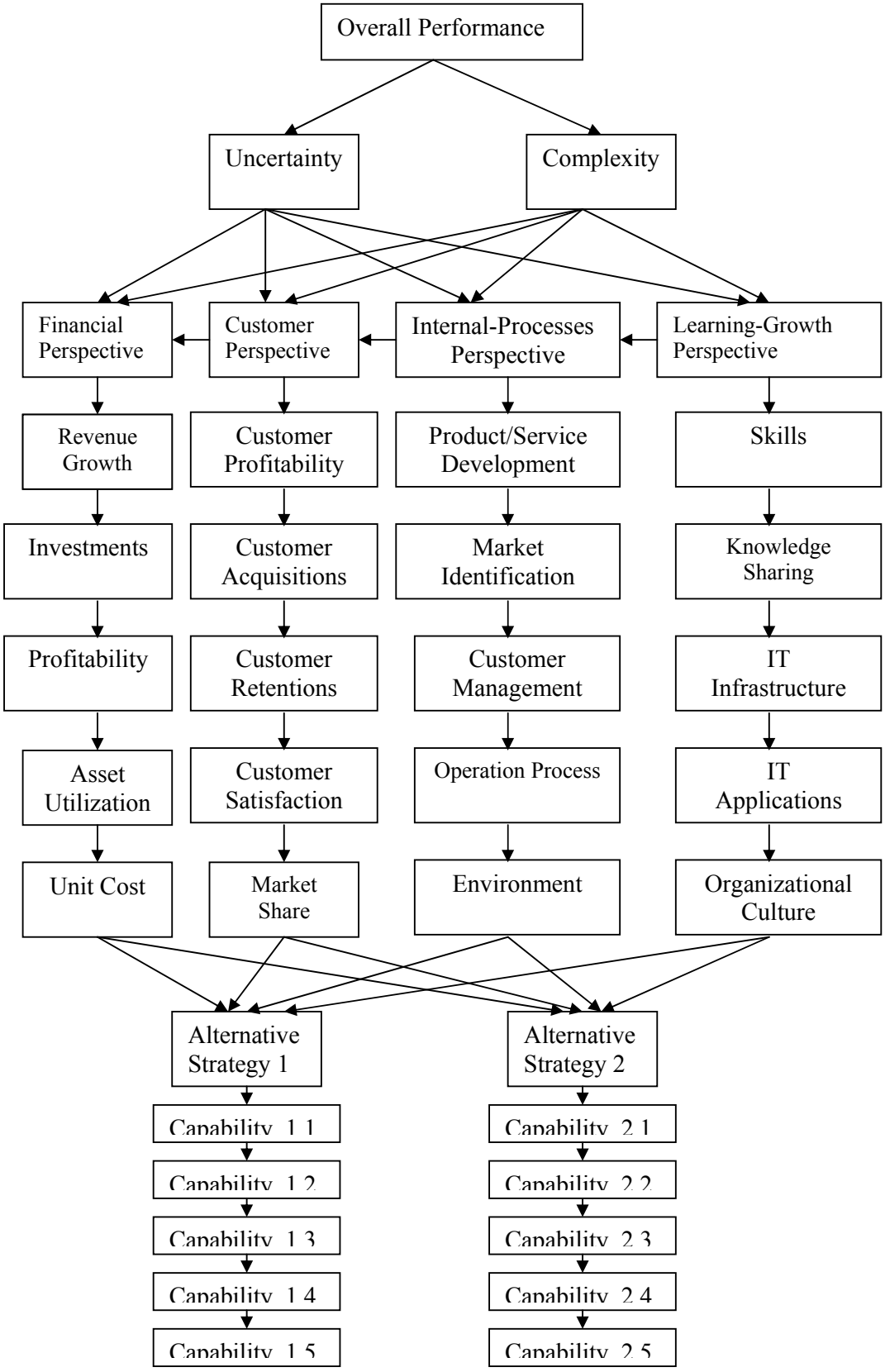

Figure 2: Hierarchical structure of competitive strategy performance evaluation

Likert scales as generally used tend to underestimate the extreme positions (Albaum, 1997). In order to find the effects of the above variables on the weighting of performance measures, data should be collected in the form of field study to the specific firm wanted to adopt the proposed framework. The respondents should be all members of the top management team and all managers responsible for each specific function of the company (finance, marketing, operations, and human resources).

5. 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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