

## **Is the BSC Really a New Performance Measurement System?**

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## **Abstract**

Performance measurement (PM) concerns data collection and sets of procedures and it helps managers to put strategy into operation. The PM actions are materialised with the use of a performance measurement system (PMS). The purpose of this study is to focus on two of the most popular and accepted PMS, the shareholder value added (SVA) and the balanced scorecard (BSC), compare them, and finally, propose a new model for measuring performance, using the Analytic Hierarchy Process (AHP) as the tool which helps the management team to select the performance or leading measures.

**Key Words:** Performance measurement systems, SVA, BSC, AHP.

## **1. Introduction**

In our days there is a big need for measuring the performance of the firms. This happens because both globalisation and today's national circumstances have increased competition in the market, which is higher than ever before, and as of this companies must be improved on a day to day basis. In addition, the cost of the information technology and other technological means that are needed to measure performance is much lower than in the previous years. Therefore, companies use the performance measurement systems (PMS) in order to support their strategy and create plans for the future by using and making various comparisons of the annual results that are related to strategy (Simons, 2000). These systems, usually contain methods of setting strategic goals and objectives (short - term or long

- term), evaluate strategies (proposed and implemented) and show which performance measures or micro value drivers need to be improved for the successful completion of the implemented strategy (ies) and the attainment of the short and , especially, long term goals and objectives (Simons, 2000). Among all these PMSs, two of them, the Shareholder Value Added (SVA) introduced by Rappaport (1981, 1998) and the Balanced Scorecard (BSC) introduced by Kaplan and Norton (1992, 1993, 1996a, 1996b), present so many similarities that this paper tries to identify by comparing them. The comparison leads to the proposal of a new PMS, which could be considered as an amalgamation of the two.

The structure of this paper is as follows: in section two there is a comparison of the two PMSs, the SVA and the BSC, section three describes the new proposed model and section four ends the paper with some important conclusions.

## **2. SVA and BSC: Comparison of the two PMSs**

First of all, the structure of the SVA PMS consists of three hierarchy levels: the first level includes the goal of the PM system, which is very specific and concerns the growth of the shareholders value added (SVA), the second includes the macro value drivers, which are the outcome measures (or lagged indicators, according to Kaplan and Norton, 1996b), and the third includes all the company's micro value drivers that affect each macro value driver separately and which are the performance measures (or leading indicators) (see Figure 1):

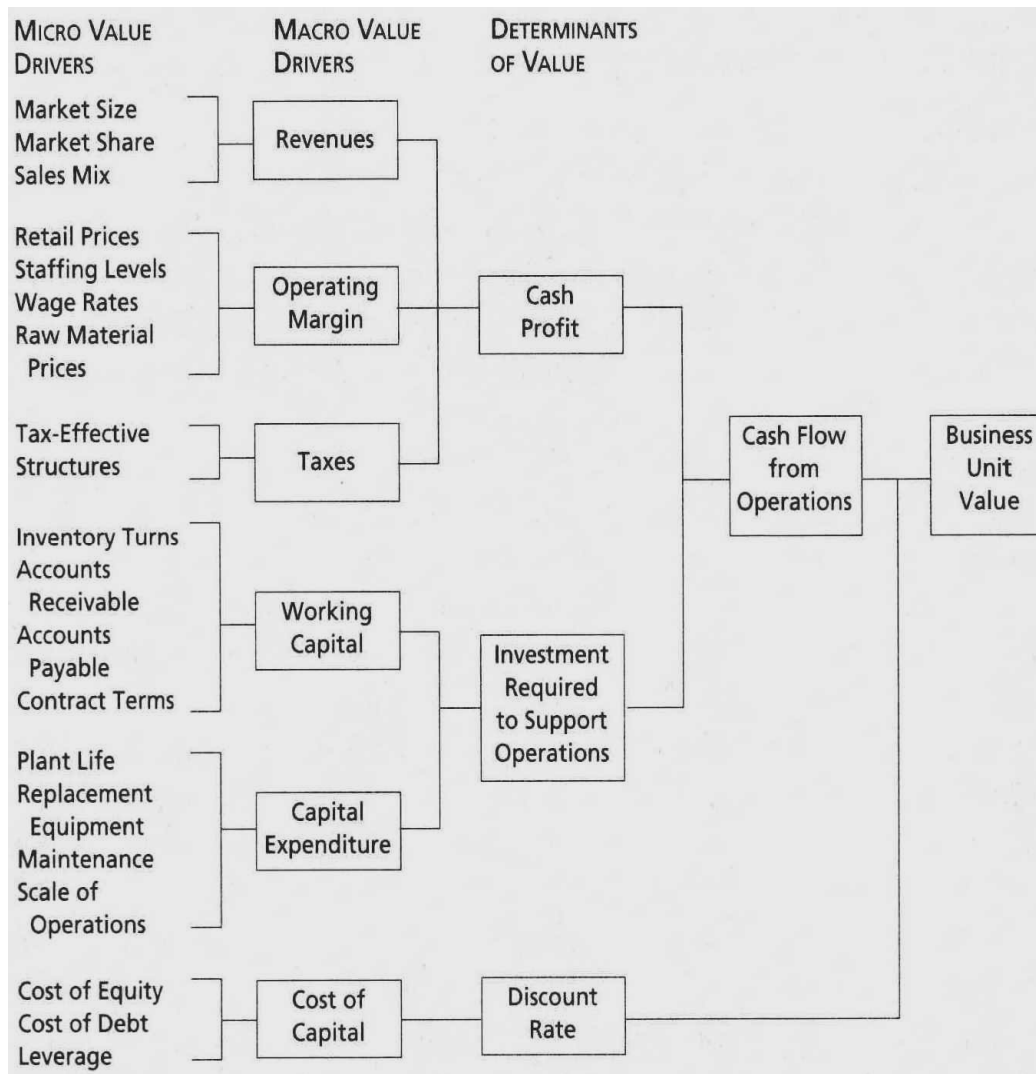
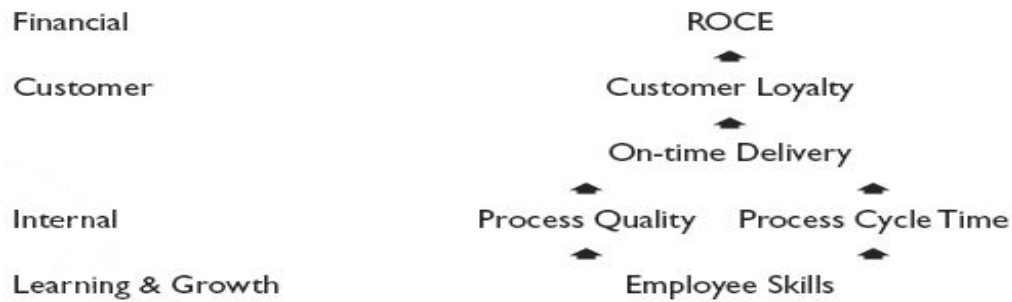


Figure 1: The SVA Model (Rappaport, 1998: 172)

On the other hand, the BSC has a very general and vague objective concerning the creation of shareholder value and consists of four perspectives: the financial, the customer, the internal business process and the innovation and learning perspective. According to Kaplan and Norton (1996b) some cause and effect relationships should exist between these four perspectives in a way that innovation and learning leads to the improvement of the internal business process, which in turn leads to customer satisfaction improvement and finally affects the financial improvement of the company:



**Figure 2::** BSC's cause and effect relationships (Kaplan and Norton, 1996: 66)

However, these relationships have not been proved either theoretically or empirically by Kaplan and Norton (Nørreklit, 2000, 2003). Moreover, Kaplan and Norton (1996b: 62-64) argue that measures from internal business process perspective guarantee and enhance the success of the financial and the customer perspective and that measures from innovation and learning perspective define the substructure that a company should put up in order to have long - term growth and development. Consequently, the BSC is logically transformed to a three - level hierarchy PM system. The goal of the system takes place in the first level. The second level consists of the financial and customer perspective and the third of the internal business process and the innovation and learning perspective. At this three - level BSC model, the second level contains the outcome measures and the third level the performance measures.

Thus, we could clearly observe that, actually, the two PM systems, SVA and BSC, have very similar hierarchical structures and their top priority is to create wealth for shareholders.

More analytically we could proceed to the following observations.

The outcome measures (macro value drivers) that Rappaport (1998: 172) uses in his model are: the revenues, the operating margin, the working

capital, the capital expenditure and the cost of capital. He also suggests an additional number of outcome measures that managers should take into consideration in their attempt to construct their company's PM system, such as the 'customer satisfaction, quality improvement, on - time new product launches, timely opening of new stores or manufacturing facilities, customer retention rates, and productivity improvements' (Rappaport, 1998: 129).

On the other hand, in the BSC's second level, as mentioned above, Kaplan and Norton (1996b) use mainly the following measures which were found in their case studies: profit margin, market growth, return on investment, customer satisfaction, customer retention, customer loyalty. Thus, in reality, the outcome measures of these two PMS are very similar, if not identical. The only exceptions are the cost of capital and taxes in the SVA system, which are 'external' variables and can not be directly controlled by the management of any company and thus could be excluded by the SVA PM system (figure 3):

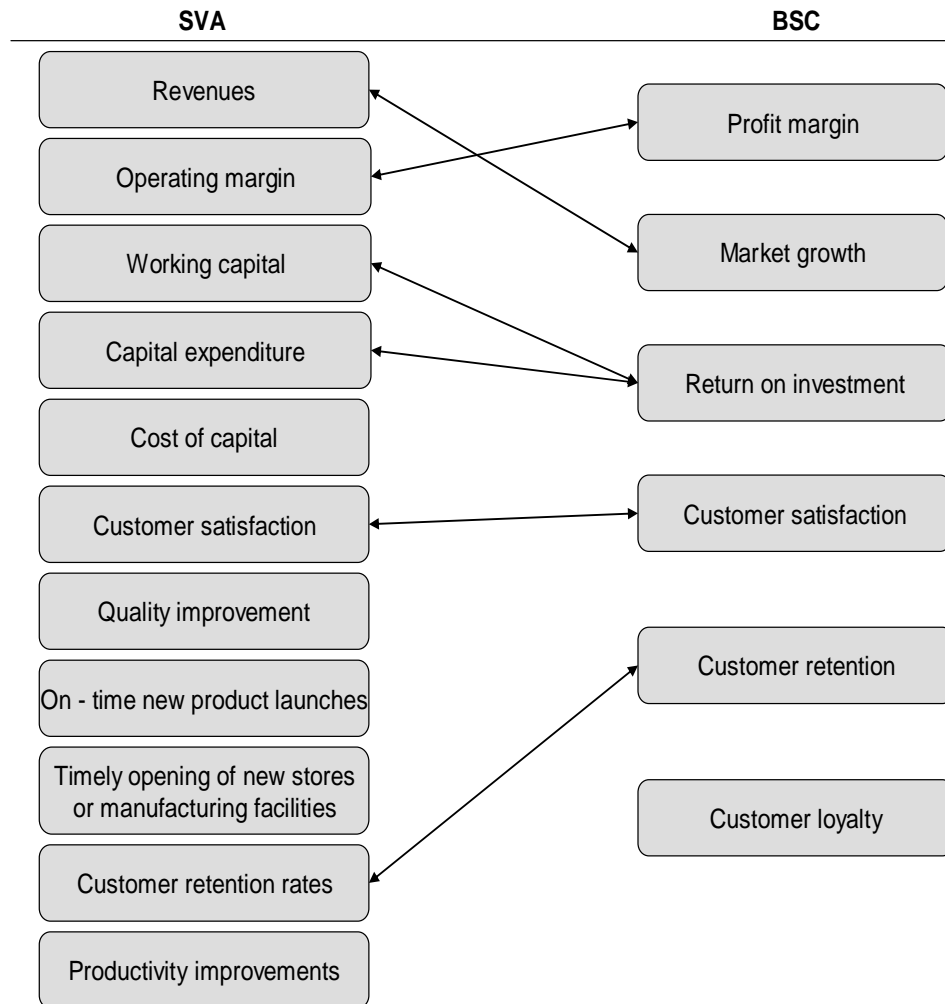


Figure 3: SVA and BSC outcome measure relationship

Concerning the performance measures of the third hierarchical level, Rappaport (1998: 172) suggested the use of the following indicators: the market size, market share, sales mix, retail prices, staffing levels, wage rates, raw material prices, inventory turns, accounts receivable, accounts payable, contract terms, plant life, replacement equipment, maintenance, scale of operations, cost of equity, cost of debt and leverage<sup>2</sup>.

<sup>2</sup> He may not propose any macro or micro value drivers for the 'innovation and learning' perspective of Kaplan and Norton but he stresses the fact that "expensed knowledge investments" have become the largest and most critical investments in many industries' (Rappaport, 1998: 63). Thus, he actually proposes the separation of capital expenditure into two parts, one for tangible investment and the other for intangible investment, which actually covers the 'innovation and learning' perspective of Kaplan and Norton.

Kaplan and Norton (1996b) used a range of internal business process and of innovation and learning perspective (third level) measures which were included in the performance measure list that Rappaport (1998) had suggested. Therefore, both SVA and BSC use also very similar performance drivers.

Moreover, Rappaport (1998) stresses the need, for managers constructing PMSs, to give attention to every stakeholder when building a PMS while Kaplan and Norton (1992, 1993, 1996a, 1996b) ignore this big need (Nørreklit, 2000, 2003).

Furthermore, Kaplan and Norton have not supported their creation, the BSC, either theoretically or mathematically-empirically (Nørreklit, 2000, 2003) and a lot of criticism still exists concerning their proposed PMS. On the other hand, the SVA model is a theoretically sound mathematical-financial model, which could be easily applied to any type of organization for planning and control (evaluation) purposes. Moreover, after a thorough search in electronic data bases, no criticisms have been found on the SVA PM system. Perhaps, the only criticism that could be attributed to the SVA model is the use of only financial-accounting measures. Moreover, Rappaport (1998) clearly identified and suggested, at least, the outcome measures (macro value drivers) that should be used, whereas Kaplan and Norton (1992, 1993, 1996a, 1996b) do not clearly identify specific outcome measures, leaving managers to make their own selection decisions (based on the followed business strategy) on both outcome and performance measures.

Consequently, we could say that SVA and BSC are much alike in a way that in some broader terms they look completely the same. However,



Rappaport has the advantage against Kaplan and Norton because (a) his ideas had been published many years before the appearance of the BSC and (b) he proves the validity of his model theoretically as well as mathematically. On the other hand, It is also true that BSC has been adopted by many companies, especially in the USA, whereas SVA has not, but our opinion is that this fact is due, mostly, to marketing-promoting and status reasons (Harvard University) rather than scientific reasons.

### **3. The proposed PM Model**

The model consists of four hierarchical levels: the goal (level one), the outcome measures (level two), the performance measures (level three) and the alternatives (level four) that an organisation wants to evaluate. In addition, it is similar to the model that Rappaport (1998) has proposed concerning the macro value drivers. Therefore, the goal of the model would be the increase of the Shareholder Value Added, which depends on the following macro value drivers (outcome measures or lagged indicators, according to Kaplan and Norton, 1996b): sales growth, operating profit margin, fixed investment requirement, working capital requirement and knowledge management (or intellectual capital) investment requirement.

Furthermore, Barsky and Nash (2003) argue that the customer satisfaction is a kind of strength for organisations and that this strength is an important profitability driver. They strongly pointed out that 'Companies with satisfied, loyal customers enjoy higher margins - and consequently, greater profits – than do businesses that fail to retain and satisfy their customers' (Barsky and Nash, 2003: 183).

Moreover, Kinney (2005) came to the same conclusion as Barsky and Nash (2003) stating that it is certainly well known in the whole business community that the satisfied customers prefer to make transactions and to buy services or products from companies that satisfy them mostly. The main advantage of this satisfaction condition is the best advertisement for a company because the satisfied customers pass this opinion of theirs to others (friends, family etc.).

However, customer satisfaction is a difficult concept to measure. Arnett *et al.* (2002) argue that the satisfied employees continue their jobs giving their best by keeping customers satisfied, eventually increasing both customer loyalty and company's profits.

Additionally, Karatepe *et al.* (2005) predicated that employee job satisfaction can boost organisations' profitability, because a satisfied employee works more efficiently and, thus, is most productive, having the sense that his / her hard work is being appreciated by the managers and the organization.

Also, Snipes *et al.* (2005) made a research connecting the employee job satisfaction with the customer satisfaction. They mentioned that the satisfied employees provide a high level of services creating satisfaction to their customers and that, managers encourage job satisfaction policies knowing that there would be a positive return in the end.

Taking into consideration the above empirical evidences, it becomes obvious that 'customer satisfaction' and 'job satisfaction' are very important value drivers, suggested, not only by Kaplan and Norton (1992, 1993, 1996a, 1996b) and Rappaport (1998), but by other researchers too, therefore, these

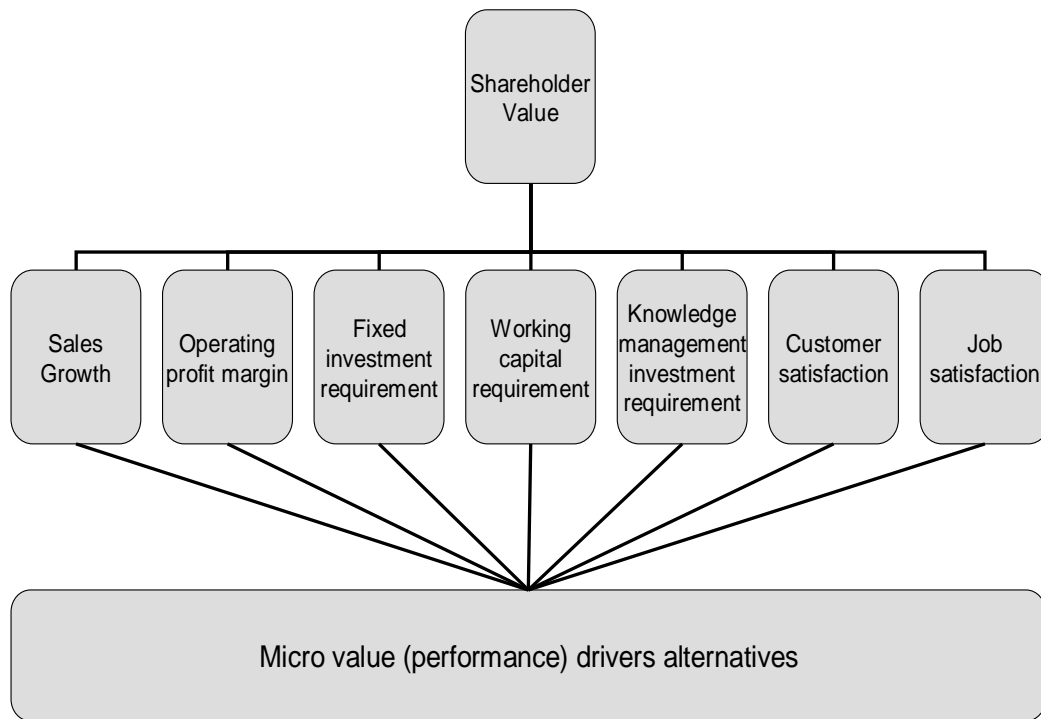
outcome measures will be included in the proposed model (see Figures 4, 5, and 6). The proposed outcome measures reflect, more or less, the common goals of many strategies, as well as similar structures across industries and companies (Kaplan and Norton, 1996b), although some researchers (Ittner and Larcker, 2003) begun to unpack some of the difficulties of both, measuring and setting targets for 'customer satisfaction'.

Now comes the most difficult part of the model, the identification of the performance measures (or leading indicators). Which one of these measures should be included in the model and which one excluded from it? Up to now, most of the researchers (including Kaplan and Norton or Rappaport) are proposing lists of performance measures that the management team of each firm should choose from. This is probably due to the fact that the drivers of performance (the performance measures) tend to be unique for a particular business unit and this is totally true. However, they do not explain how to proceed with the selection process.

The proposed PM model, based on the idea that the performance drivers, in most cases, should describe how a business process is intended to change, covers, mainly, the two perspectives (and not only) of the BSC, the internal business process and the learning and growth. This is because measures of the internal business process ensure and boost the success of the financial and the customer perspective and those from the learning and growth perspective define the substructure that a company should put up in order to have long-term growth and development (Kaplan and Norton, 1996b).

Moreover, concerning the selection process, it is proposed the adoption of an easy and quite accurate method of operational research, the Analytic

Hierarchical Process (AHP), developed and introduced by Saaty (1980, 1990) (for a more analytic presentation of AHP, see Appendix I). The AHP consists of three steps:



**Figure 4:** 1<sup>st</sup> way of micro value driver selection

First, the management team of each firm should identify as many leading indicators' alternatives (performance measures or micro value drivers) as possible (see Figure 4). Second, they should evaluate these alternatives using the AHP method, i.e., by making pairwise comparison of these alternatives with respect to each outcome measure from the upper level of the hierarchy. The priorities are pulled together through the principle of hierarchic composition to provide the overall assessment of the available alternatives. Third, they determine the key performance indicators (KPIs) through

comparison of their weight loading. A decision rule could be that any AHP importance weight value larger than 0.10 should be included as KPI of each particular outcome measure (Chen and Pan, 2004).

If the number of the alternatives is large, managers should select a subfield of performance measures for each macro value driver and then use the AHP in order to identify the most important ones for each macro value driver. This alternative process is proposed because pairwise comparison matrices, including many alternatives, will probably face 'inconsistency problems' (Bititci *et al.*, 2001). The following figure 5 shows this way of performance driver selection.

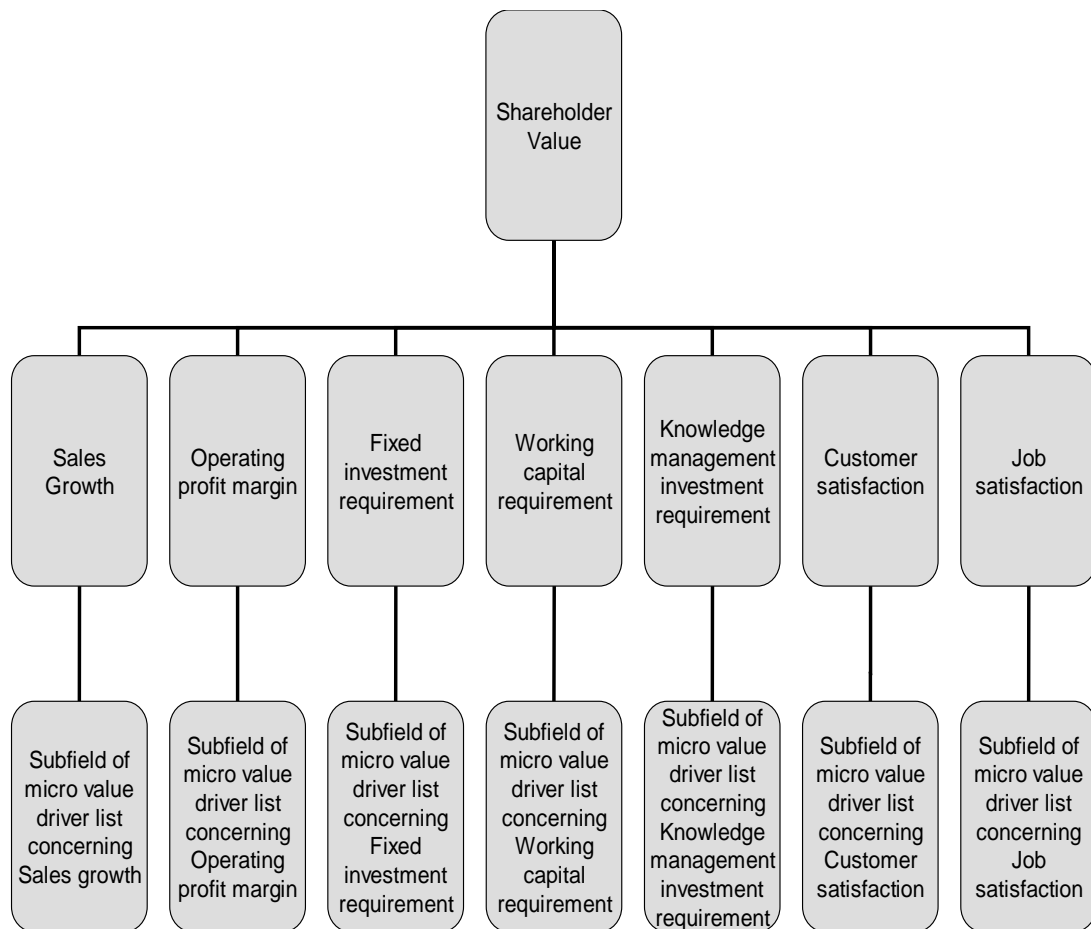
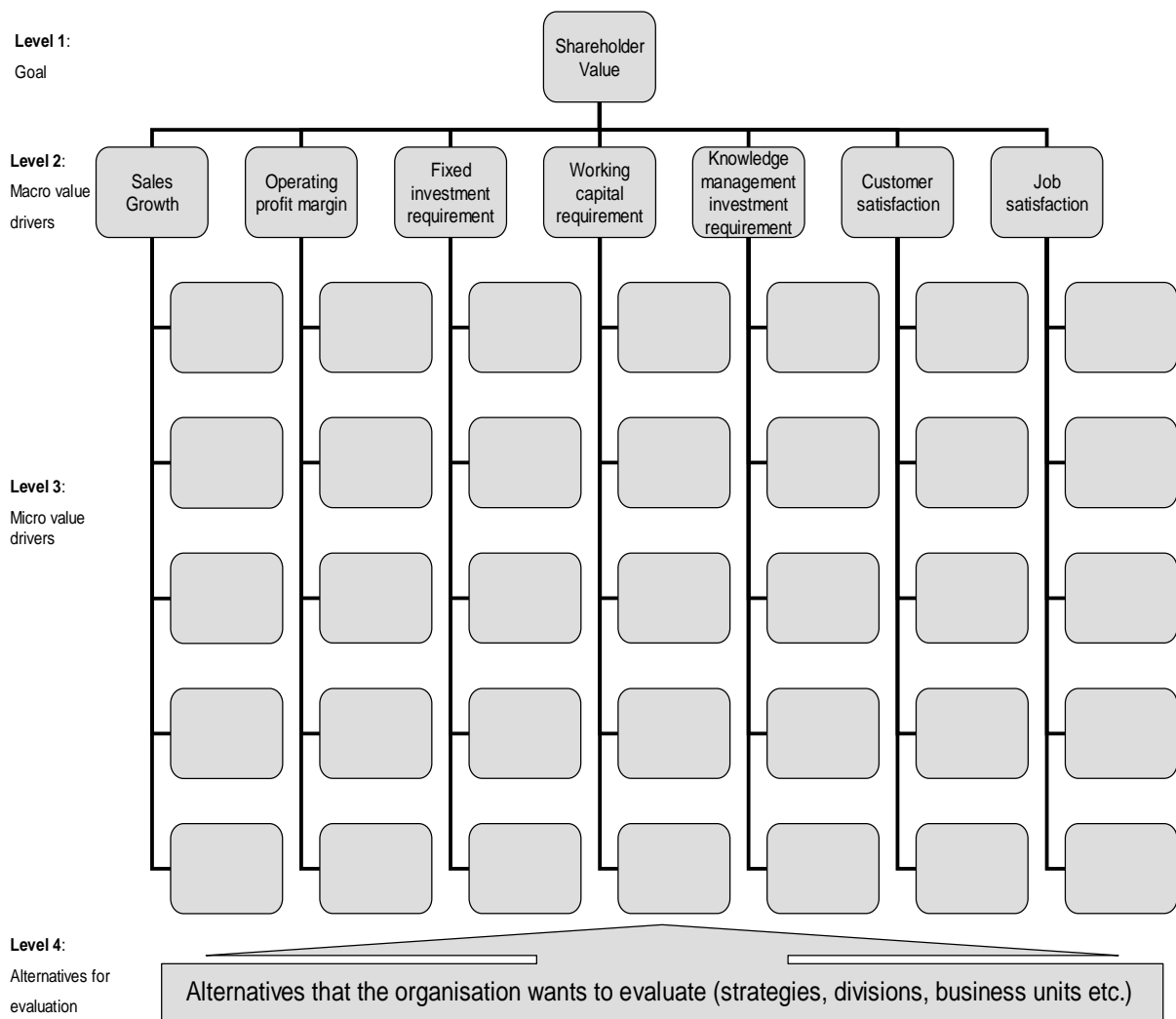


Figure 5: 2<sup>nd</sup> way of micro value driver selection

The AHP method is proposed because it is easy to use and it can handle both either qualitative or quantitative measures. The measures with the highest priority weights will be inserted as micro value drivers. At the end every macro value driver will have its own set consisting of four to six micro value drivers (the number depends on priority weights).

After the selection of the measures with the highest priority, the model will come to its final form as it is depicted in the following figure 6.



**Figure 6:** The entire model's form

The advantages of the proposed model are the following:

1. The base of the model, concerning the first (goal) and second level (outcome measures) of the hierarchy, uses the SVA mathematical framework, which is theoretically and mathematically sound, and which could be very easily put in the AHP software tool (Expert Choice).
2. The only difficulty, concerning the second level of hierarchy, is the connection of the two proposed qualitative variables of customer and job satisfaction with the other five outcome measures (macro-value drivers) as well as the goal of the company in the first level. However, this problem could be very easily overcome with the use of the AHP software tool because of its ability to handle both quantitative and qualitative measures. The same but much bigger problem would have to face in the case of constructing the BSC, where all outcome measures as well as the goal should be connected in the same way (i.e., using the AHP software tool).

#### **4. Conclusions**

Two of the most famous, suggested and used PMSs are the Shareholder Value Added (SVA) and the Balanced Scorecard (BSC). The SVA is based on mathematical formulas using only financial and accounting numbers from the financial statements of a company, concerning the macro-value drivers (or outcome measures). However, its founder proposes that managers could use both quantitative (financial-accounting) and qualitative indicators for the measurement of the micro-value drivers, which affect the macro-value drivers (outcome measures). Consequently, his proposed PMS

becomes a three - level (goal, macro-value drivers or outcome measures and micro-value drivers or performance measures) hierarchical model for measuring performance, giving specific information and guidance about the outcome and the performance measures that are going to be used.

On the other hand, BSC consists of four perspectives: the financial, the customer, the internal business process and the learning and growth perspective and uses quantitative (financial and accounting measures) as well as qualitative measures. Its authors supported the idea that there is a cause and effect relationship between these four perspectives in such a way that learning and growth lead to internal business process, internal business process leads to customer satisfaction which in its turn leads to financial results. Furthermore, they believe that in pure reality internal business process and growth and learning perspectives contain the performance measures (leading indicators) and that the customer and financial perspectives contain the outcome measures (lagged indicators). Consequently, the BSC could be transformed in reality to a three - level PM hierarchical model.

Comparing these two PMSs we could easily observe that SVA and BSC have many similarities as conceptual frameworks, concerning their structure and the variables (indicators) used, but BSC cannot provide enough confidence to managers because it is not based on any theory and mathematical reasoning and proof, especially regarding the cause and effect relationships of the proposed variables (measures). For this and many other reasons, the BSC has faced a lot of criticisms. On the other hand, the SVA model, which has been introduced many years before the BSC, uses data that



can be raised more easily, at least as far the outcome measures are concerned.

Finally, a PM model is proposed, which is mostly based on the SVA and much less on the BSC, adopting the AHP as the tool for the decision making process, i.e., the selection process of the leading indicators (the performance measures). This proposed model has the intention to provide an alternative way of measuring performance without facing the problems (or most of the problems) and the consequent risks coming out of any attempt to use the BSC.

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## **Appendix I**

### **The Analytic Hierarchy Process**

The Analytic Hierarchy Process (AHP), developed at the Wharton School of Business by Thomas Saaty (1980, 1990), 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).

In most cases the priority ranking of the various measures is not uniform across all decision makers at all levels, i.e., different constituencies (such as departments or divisions) hold different opinions as to the relative importance of the measures. When opinions differ about ranking measures is where the AHP comes into its own. Whereas something like DELPHI technique seeks resolution by iterative polling until consensus is reached, the AHP user asks constituents (via a questionnaire) to make a sequence of pairwise comparisons of the measures, and the comparisons then are analyzed via a mathematical model to establish the relative priorities of the measures (usually taking the geometric mean of the answers for each specific question), after which another algorithm is applied to establish the final

ranking of the decision objectives or alternatives (i.e., the different strategies, departments or divisions).

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 (Saaty, 1980):

**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 favour one activity over another.
5	Essential or Strong	Experience and judgment strongly favour one activity over another.
7	Demonstrated Importance	An activity is strongly favoured and its dominance is demonstrated in practice.
9	Extreme Importance	The evidence favouring one activity over another is of the highest possible order of affirmation.

The AHP is ideally suited to help resolve certain problems that arise when multiple criteria are used in performance evaluation. For example, the pairwise comparisons for measure (s) priority can be done using a ratio scale. This facilitates the incorporation of non-quantitative measures into the evaluation scheme, since it forces participants to translate all criteria into relative priority structures based on the scale. Thus, using the AHP means that non-quantitative assessments can be combined with quantitative assessments in rating a unit or an individual.

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).