



The balance on the balanced scorecard— a critical analysis of some of its assumptions

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In recent years academic scholars have given increasing attention to the importance of strategic measurement systems including both non-financial and financial measures. One of the approaches adopted is that of the balanced scorecard. It is distinct from other strategic measurement systems in that it is more than an *ad hoc* collection of financial and non-financial measures. It contains outcome measures and the performance drivers of outcomes, linked together in cause-and-effect relationships, and thus aims to be a feed-forward control system. Furthermore, the balanced scorecard is intended not only as a strategic measurement system but also as a strategic control system which can align departmental and personal goals to overall strategy. This paper first examines the extent to which there is a cause-and-effect relationship among the four areas of measurement suggested (the financial, customer, internal-business-process and learning and growth perspectives). The paper then examines whether the balanced scorecard can link strategy to operational metrics which managers can understand and influence. Finally, it discusses and suggests some improvements to the balanced scorecard.

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1. Introduction

1.1. Background

In recent years, increasing criticism has been levelled against the financial measures of accounting systems (Emmanuel and Otley, 1995). The criticism has, in part, focused on their historic nature, which ensures that they reveal a great deal about the company's past actions but nothing about its future alertness (Merchant, 1985; Chakravarthy, 1986; Schoenfeld, 1986; Dearden, 1987; AICPA, 1994; Kaplan and Norton, 1996). Accounting figures do not emphasize the elements which will lead to good or poor future financial results. One of the problems with accounting figures is that the financial consequences of the uncompleted chains of action extend beyond the time of measurement. For instance, the performance measures of accounting systems ignore the financial value of a company's intangible assets such as research in

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progress, human resources and the goodwill as well as the bad-will which the company has built. The problem may even be aggravated if the company is in a situation in which it feels forced to pursue short-term financial results rather than the organization's long-term goals (Dearden, 1969; Hopwood, 1972, 1973; Vancil, 1979; Kaplan, 1984; Merchant, 1985; Johnson and Kaplan, 1987; Demirag, 1998). Dearden (1969), for instance, shows that because new investments are detrimental to the short-term return on investment, owing to asset valuation and depreciation policy, managers may be reluctant to make such investments even if the investments are in the financial interest of the company. Furthermore, managers may refuse to invest in growth and innovation potential so that they can present acceptable short-term results. While possibly improving short-term profitability, such actions may lead to low efficiency and loss of customer loyalty and satisfaction, which may render the company vulnerable to competitor attacks. Such issues imply that the accounting systems are an insufficient decision-making and assessment tool. In order to reduce the problem involved, strategic measures are required which indicate the company's future earnings potential.

In addition, attention has focused on strategy implementation, which causes problems in many firms (Kiechel, 1984; Mintzberg, 1994; Simons, 1995), the risk being that the strategic plan remains remote from the company's day-to-day actions. In terms of the concepts developed in Mintzberg (1987), there may be a gap between the strategy expressed in the activities planned and the strategy expressed in the pattern of actions actually undertaken. Reducing this gap requires appropriate tools: change management, organizational learning and staff-controlled processes of change are probably necessary. Processes and actions can not take place in a vacuum, however. At various levels, relevant strategic measures have to be introduced which can control and coordinate staff decisions and actions at these levels. The aggregate financial measures of the accounting system are not sufficient to ensure goal congruence between staff decisions and actions (Parker, 1979; Merchant, 1985; Maciariello and Kirby, 1994).

These two interrelated problems have led to the development of a large number of strategic measuring tools which involve not only financial but also non-financial measures. Non-financial measures are not a new phenomenon, however. General Electric, for example, made use of non-financial measures in the 1950s. They identified eight areas of measurement and applied all of them in the assessment of each division (Anthony *et al.*, 1989, p. 125). Similarly, a number of theorists have pointed to the relevance of non-financial measures (Hopwood, 1973; Argyris, 1977; Parker, 1979; Anthony *et al.*, 1984; Merchant, 1985; Schoenfeld, 1986; Eccles, 1991; Maciariello and Kirby, 1994). Non-financial measurement systems have generally been characterized by loosely coupled local systems guided by local needs and with no integration of the company's strategic objectives or any balancing of local and company considerations (Merchant, 1985; Mouritsen *et al.*, 1995/96). The efforts made in recent years, however, have been directed at constructing a system of non-financial measures linked to strategy (McNair *et al.*, 1990; Beischel and Smith, 1991; Grady, 1991; Kaplan and Norton, 1992; Euske *et al.*, 1993; Kaplan and Norton, 1996). Grady (1991), for example, shows that the strategic objective of a company ought to be broken down into critical success factors and critical actions. McNair *et al.* (1990) introduces a performance pyramid in which the vision of the

group is broken down into financial and non-financial measures at lower levels. Both systems introduce measures and targets for those measures.

The balanced scorecard (Kaplan and Norton, 1996*a*) is another model which integrates financial and non-financial strategic measures. It is distinct from other strategic measurement systems in that it contains outcome measures and the performance drivers of outcomes, linked together in cause-and-effect relationships (Kaplan and Norton, 1996*a*, p. 31; Kaplan and Norton, 1996*b*, p. 53), making the performance measurement system a feed-forward control system (de Haas and Kleingeld, 1999). Furthermore, the balanced scorecard should be able to align departmental and personal goals to overall strategy (Kaplan and Norton, 1996*a*, p. 10). The balanced scorecard is a high-profile model which has attracted much attention from both practitioners and academics. Therefore, it is worth asking whether this is a valid model for obtaining the results promised. The question is important because invalid assumptions in a feed-forward control system will cause anticipation of performance indicators which are faulty, resulting in dysfunctional organizational behaviour and sub-optimal performance (de Haas and Kleingeld, 1999, p. 244). The aim of this paper is to evaluate the balanced scorecard, investigating and clarifying some of its key assumptions. The following section introduces some of the main ideas and purposes of the balanced scorecard and concludes with formulating the research questions to be answered and making explicit the methodology applied in answering them.

1.2. Research questions and methodology

The balanced scorecard relies on the concept of strategy developed in Porter (1980, 1985) (Kaplan and Norton, 1996*a*, p. 37). Porter argues that the essence of formulating a competitive strategy lies in relating a company to the competitive forces in the industry in which it competes. Therefore the strategy has to be based on the market segments to be served, and it should then be followed by the identification of the internal business processes which the firm needs to excel in if it is to deliver on its value propositions to the customers in the market segments targeted. Thus, the competitive strategy of a firm should be driven by its environment and not by its core competencies (Prahalad and Hamel, 1990, pp. 79–91) or resources (Collis and Montgomery, 1995, pp. 118–128), which, quite the contrary, should be adapted to the environment.

The scorecard translates the vision and strategy of a business unit into objectives and measures in four different areas: the financial, customer, internal-business-process and learning and growth perspectives. *The financial perspective* identifies how the company wishes to be viewed by its shareholders. *The customer perspective* determines how the company wishes to be viewed by its customers. *The internal-business-process perspective* describes the business processes at which the company has to be particularly adept in order to satisfy its shareholders and customers. *The organizational learning and growth perspective* involves the changes and improvements which the company needs to realize if it is to make its vision come true (Kaplan and Norton, 1996*a*, pp. 30–31).

The crux of the balanced scorecard is the linking together of the measures of the four areas in a causal chain which passes through all four perspectives. Thus Kaplan and Norton (1996*b*, pp. 53–79) emphasize that non-financial strategic objectives

should not consist of an arbitrary collection of measures, instead, they should involve a balanced representation of financial and non-financial measures:

‘Many managers believe they are using a Balanced Scorecard, when they supplement traditional financial measures with generic, non-financial measures about customers, processes, and employees. But the best Balanced Scorecards are more than *ad hoc* collections of financial and non-financial measures.... A scorecard should contain outcome measures and the performance drivers of those outcomes, linked together in cause and effect relationships’ (Kaplan and Norton, 1996*b*, p. 4).

Kaplan and Norton (1996*a*, p. 31) assume the following causal relationship: *measures of organizational learning and growth* → *measures of internal business processes* → *measures of the customer perspective* → *financial measures*. The measures of organizational learning and growth are therefore the drivers of the measures of the internal business processes. The measures of these processes are in turn the drivers of the measures of the customer perspective, while these measures are the drivers of the financial measures. A good balanced scorecard should have a mix of outcome measures (lag indicators) and performance drivers (lead indicators), see Table 1. An example of a lag indicator is increased turnover, while order execution time is a lead indicator. Each strategic area should have both lead and lag indicators, yielding two directional cause-and-effect chains: lead and lag indicators apply horizontally within the areas and vertically between areas. The causal paths from the measure indicators on the scorecard should be linked to financial objectives. This procedure implies that strategy is translated into a set of hypotheses about cause and effect (Kaplan and Norton, 1996*a*, p. 30; Kaplan and Norton, 1996*b*, p. 65).

The assumption that there is a cause-and-effect relationship is essential because it allows the measurements in non-financial areas to be used to predict future financial performance. Thus the claim is that financial measures say something about past performance while non-financial measures are the drivers of future performance (Kaplan and Norton, 1996*a*, p. 8). This sounds promising as it would solve the problem of the historical nature of accounting data. The validity of the model relies, however, on the assumption that the cause-and-effect relationship exists between the areas of measurement suggested. This gives rise to the first of two research questions: is there a causal relationship between the areas of measurement suggested? The answer to this question is important because to the individual firm it is a risky model for the simple reason that any proof of the relationship at the level of the individual firm can at best be demonstrated ‘after the fact’, i.e. when (non)-achievement of the financial result has occurred (de Haas and Kleingeld, 1999, p. 244). In addition, it is also important because, as will be seen, it defines the technique which a company has to use when it decides which actions are to be considered the drivers of future financial performance.

Kaplan and Norton (1996*a*) further point out that the balanced scorecard is not just a strategic measurement system but also a strategic control system which may be used to:

- clarify and gain consensus about strategy;
- align departmental and personal goals to strategy;
- link strategic objectives to long-term targets and annual budgets;

Table 1
Metro Bank's balanced scorecard (Kaplan and Norton, 1996a, p. 155)

Strategic objectives	Strategic measurements (lag indicators)	Strategic measurements (lead indicators)
<i>Financial</i>		
Improve returns	Return-on-investment	
Broaden revenue mix	Revenue growth	Revenue mix
Reduce cost structure	Deposit service cost change	
<i>Customer</i>		
Increase customer satisfaction with our products and people	Share of segment	Depth of relationship
Increase satisfaction 'after the sale'	Customer retention	Satisfaction survey
<i>Internal</i>		
Understand our customers		
Creative Innovative products	New product revenue	Product development cycle
Cross-sell products	Cross-sell ratio	Hours with customers
Shift customers to cost-effective channels	Channel mix change	
Minimize operational problems		
Responsive service	Service error rate Request fulfilment time	
<i>Learning</i>		
Develop strategic skills		Strategic job coverage ration
Provide strategic information	Employee satisfactio	Strategic information availability ratio
Align personal goals	Revenue per employee	Personal goals alignment

- identify and align strategic initiatives; and
- obtain feedback to learn about and improve strategy (Kaplan and Norton, 1996 a, p. 19).

In total, the scorecard is a tool whose purpose is to align the strategy expressed in the actions actually undertaken to the strategy expressed in the plan. This should be obtained by integrating the balanced scorecard into the existing control system when the scorecard has been constructed (see Table 2).

Consequently, the balanced scorecard should also be able to handle the problem of strategy implementation. However, we will also examine this claim, which takes us to our second research question: is the balanced scorecard a valid strategic management control tool?

In what follows, this paper investigates the research questions raised, analyzing some of the key assumptions and relationships of the balanced scorecard. The methodology used is analytical (Wilson, 1969, 1986). The analytical approach is aimed at increasing the level of clarity and precision in the meaning of the concepts used in the model. This is necessary not only for the purpose of evaluating the model but also in order to make the model useful and to develop it. Thus the aim of this paper is to contribute to increasing the level of clarity and precision in the concepts used in the balanced scorecard and, in addition, to suggest more valid concepts.

Table 2

The balanced scorecard as a strategic control framework (Kaplan and Norton, 1996a, p. 11)

(1) Clarifying and translating the vision and strategy	Clarifying the vision
	Gaining consensus
(2) Communicating and linking	Communicating and educating
	Setting goals and decomposing
	Linking rewards to performance measures
(3) Planning and target setting	Setting targets
	Aligning strategic initiatives
	Allocating resources
	Establishing milestones
(4) Strategic feedback and learning	Articulating the shared vision
	Supplying strategic feedback
	Facilitating strategy review and learning

The outline of the paper is as follows: *Part 2* discusses the extent to which causal relationships exist among the measures. *Part 3* discusses whether using the balanced scorecard can result in the control success promised, i.e. whether using it can lead to alignment between the strategy planned and the strategy expressed in the actions actually undertaken. On the basis of the analysis, *part 4* concludes that the business relations and assumptions which underlie the balanced scorecard are problematic, and adjustments to the model are suggested. The paper does not argue against the need for applying non-financial measures.

2. Analysis of the cause-and-effect chain

The cause-and-effect chain is central to the balanced scorecard. The chain distinguishes the model from other approaches. Kaplan and Norton (1996a) do not define the cause-and-effect relationship as they use it, but Hume's criteria for a cause-and-effect relationship are usually assumed within the theory of science (Edwards, 1972, vol. 2, p. 63; Stigen, 1986, vol. 2, p. 533; Slife and Williams, 1995, pp. 98–100; Føllesdal *et al.*, 1997, p. 155), and they will similarly be assumed here. The criteria are the following: X precedes Y in time; the observation of an event X necessarily, or highly probably, implies the subsequent observation of another event Y; and the two events can be observed close to each other in time and space.

In a cause-and-effect relationship, events X and Y are logically independent (Edwards, 1972, vol. 2, p. 63; Føllesdal *et al.*, 1997, p. 155). This means that we can not rationally infer Y from X but can only do so empirically. In this sense there is a logical relationship involved in two and two making four, in bachelors being unmarried men, and in a triangle being a shape with three angles; but there is a cause-and-effect relationship between smoking and lung cancer and between chocolate consumption and life expectancy. Logical relationships are part of the concepts of a language, but cause-and-effect relationships are part of the structures of the empirical world and can be shown empirically. Logic, on the other hand, cannot be verified, or determined empirically. For example, asking people whether two and two make four

is not a test showing whether it is true that they make four but one showing whether the respondents can do arithmetic. So, if 100 percent of the respondents answer that two and two make three, the answer does not become three, and, similarly, if 100 percent of the respondents answer that two and two make four, this does not constitute empirical evidence.

Accounting models and net-present-value calculation methods are logical models serving the purpose of creating financial rationality in an organization. They are based on logical arguments and not on empirical observations of company structures and relationships. Accounting models can be logically, but not empirically, proved or rejected. Thus the correctness of financial results cannot be proved through empirical observations precisely because the financial results can only be reached through the use of an accounting calculus.

The relationship between two phenomena cannot be both logical and causal. Consequently, it is important for the management of a company to know the relationship among events because this determines whether the effect of an action will necessarily, or highly probably, occur, or whether the consequences have to be assessed on the basis of a financial calculus. In addition, the relationship determines whether decisions on which action will be most financially successful should be based on statistical analysis only or on an accounting calculus.

On this basis, Kaplan and Norton's (1996 *a,b*) description of cause-and-effect relationships among measures from the four perspectives is problematic. This will be elucidated below, Section 2.1 providing an analysis of the time dimension of the scorecard (does X precede Y in time?) while Sections 2.2 and 2.3 investigate the relationship between measures (are X and Y logically independent, and does the observation of X necessarily entail the observation of Y?). Section 2.4 concludes the analysis.

2.1. The time dimension

If a cause-and-effect relationship requires a time lag between cause and effect, then it is problematic that the time dimension is not part of the scorecard. Because it measures cause and effect at the same time without considering any time lag, it has no time dimension. It is true that Kaplan and Norton (1996 *a*, pp. 224–249) state that the strategic objectives have to be broken down into budgetary targets to be reached over time and to be followed up on, but it is still a static section which does not solve the time lag problem.

Nevertheless, the effect of the measures will occur at different points of time because the effects of the different areas involve different time scales. While the introduction of more efficient processes may yield more satisfied customers within a period of 3 months, innovation may not affect the financial results until a few years have passed. The effect of some efforts will be almost immediate and that of others very slow.

One argument for not measuring at different points of time could be that the time lag between an effort and its effect is very short. If this is the case, however, then the balanced scorecard ceases to be relevant since the full consequences of a company's actions would appear from its accounting figures.

Because numerous factors may influence the result, it may be difficult to determine when the financial effect of an action will occur or what the impact of the effect will be. The financial effect of internal-business-process improvement, for example,

depends on the amount of slack in the company's internal business processes. Quality, for instance, may be viewed as a slack-creating mechanism: quality performance may be improving when productivity gradually improves without a corresponding reduction of the budget taking place. In such a situation the cost savings would disappear. In the case of excess demand, a minor cut in quality performance may similarly permit the handling of an additional workload. However, if a temporal database of performance measures were established on a balanced scorecard, then, after a while, it might be used to investigate and identify relationships between actions and their effects over time on factors such as cost, output quantity and quality.

Measuring the effect of an action related to new and complex activities is particularly problematic since it is difficult or impossible to establish performance measures for activities with which the organization has no or very little experience. Therefore, measuring effects is particularly difficult in companies which constantly have to adapt to new situations and in which innovation is important to their competitiveness (Schoenfeld, 1991, p. 91).

The lacking time lag obscures both the difference and the relationship between operations and development. The coordination of operations is of a statistical nature, the setting of the firm's working conditions being seen as given; the coordination of development, on the other hand, is of a dynamic nature, which takes into consideration possible changes in the working conditions of the firm.

2.2. *The relationship between measures*

The relationship between measures on the balanced scorecard is ambiguously described in Kaplan and Norton (1996*a*). On the one hand, the authors claim causality: a financial result is necessarily, or highly probably, occurring if a given cause exists (Kaplan and Norton, 1996*a*, p. 70). On the other hand, their description involves arguments and concepts which show that actions have to be assessed on the basis of financial reasoning, the use of activity-based costing being aimed at ensuring that given activities are financially profitable (Kaplan and Norton, 1996*a*, p. 71). In sum, the model suffers from a lack of clarity.

The question is which of the relationships among the areas actually hold. Is it the case that learning and growth → efficient internal business processes → a high level of customer satisfaction → good financial results? In order to limit the analysis, we will concentrate on the last two links. Here Kaplan and Norton (1996*a*, p. 67) suggest that *generic* relationships are involved between the measures of the two areas. We may therefore ask whether it is the case, as Kaplan and Norton state, that if a company delivers much value and quality to its customers, then the customers will be loyal and profits will necessarily, or highly probably, roll in? Kaplan and Norton base this on Jones and Sasser (1995), who write:

'This high level of satisfaction will lead to greatly increased customer loyalty. And increased customer loyalty is the single most important driver of long term financial performance. Separate research has validated these beliefs' (Jones and Sasser, 1995, p. 90).

That Jones and Sasser (1995) find considerable covariation between a high level of customer satisfaction and loyalty is not surprising as these concepts express approxi-

mately the same idea. A loyal customer is satisfied while a less loyal customer is less satisfied. The relationship is, in essence, part of the concepts and therefore logical.

The separate research which Jones and Sasser (1995) refer to in support of their assumption that a causal relationship exists between customer loyalty and profitability is an investigation by Reichheld and Sasser (1990). Using four case studies, they show how much profit a customer generates over time. The earnings increase over the 5-year period investigated. They have found this *trend* in over 100 companies (Reichheld and Sasser, 1990), which is their basis for claiming that loyal customers are the most profitable ones. However, they do not provide information showing how strong the *trend* is, and whether it holds for all customers and all firms, but they provide the explanation why loyal customers are profitable, some of the reasons being that attracting new customers involves initial costs; loyal customers provide free marketing; and loyal customers are willing to pay more for a product in which they have confidence. They ignore the kind of customer which is loyal, placing small orders, buying customized products at low prices, and which is not profitable (Kaplan and Cooper, 1998, p. 191). Loyal customers may even be a problem if they are elderly customers:

'Some have elderly customers, but they are not the ones which win the order. For example, a general manager of one of our subsidiaries had mostly elderly customers. I asked him to aim at new customers. He did not want to. So I was forced to find a new one' (An anonymous group manager, Nørreklit, 1999).

If a company has nothing but profitable loyal customers, the explanation may be that its management control system works well.

Reichheld and Sasser (1990) seem to define loyal customers as the group of customers which involve low costs and give high prices. Therefore, the definition is inherently concerned with profitable customers. Similarly, when Kaplan and Norton point out that a large market share with highly profitable customers is the driver behind a good financial result, then the relationship to which they point is a logical one. It is inherent in the concepts that a profitable turnover produces a financially profitable result. Seeing the relationship as a causal one, as Kaplan and Norton (1996a, p. 70) do, is therefore misleading.

Other empirical investigations have shown the existence of a relationship between a high level of customer satisfaction and return: a high level of customer satisfaction yields a high return. Buzell and Gale (1987, pp. 103–135), for example, show that the profitability of a company improves with increasingly positive customer assessment of the company's products and services relative to those of the competition. Their results, however, are based on statements made by the companies themselves, only occasionally tested on customers, and corrected only if this seemed appropriate (Buzell and Gale, 1987, p. 105). Of course, it is a reasonable assumption that a company with good earnings believes that its customers consider its products better than those of the competition. Besides, the direction of the causality is questionable: it may point the other way. It is highly probable that good results will cause company employees to make positive statements when presenting their customers' views.

The causality between quality and financial results has been rejected on an empirical basis. Kaplan and Norton (1996a, pp. 150–151), for example, refer to the financial problems which some of the recent winners of the Baldrige prize have come up against. Similarly, Turney (1992) shows that some companies invest too heavily in

quality. This is what, among other things, has made Kaplan and Norton point to the importance of using a financial calculus. In so doing, they refute their own claim that a cause-and-effect relationship is involved. The lack of causality between quality and financial results is confirmed by Ittner and Larcker (1998, p. 218). They stated that fewer than 55 percent of the vice presidents in charge of quality in major U.S. firms could directly relate their quality measures to operational, productivity or revenue improvements, only 29 percent could relate them to accounting returns, and no more than 12 percent could relate them to stock return. This is remarkable in view of the fact that 75 percent of them felt pressure to demonstrate the financial consequences of their quality initiatives.

The following quotation from the manager of a strategic business unit may serve to illustrate some of the problems related to satisfaction analyses:

'I don't believe in customer satisfaction analyses. We would be told that our prices are too high and our quality too low. It is important to keep an eye on customers which disappear, of course, but there may be a reason for it. For example, we will not try to keep a customer which squeezes us too hard' (An anonymous group manager, Nørreklit, 1999).

The cause-and-effect relationship may also be criticized on the basis of a neo-classical economic analysis. The consequence of a high level of customer satisfaction leading to a solid financial result would be that the optimal price is not optimal since a price which is lower than the optimal price would yield a higher level of customer satisfaction than the optimal price. The reason for this is that in neo-classical economics the price which the customer is willing to pay for a product expresses the utility of the product to the customer and hence the value of the product to the customer. The area of the triangle delimited by the price line and the demand curve expresses the excess value which customers are willing to pay for, but for which they do not pay. The product utility received by the customers is higher than the market value of the products, which means that, in economic terms, there is a *consumers' surplus*. A consumers' surplus also expresses customer satisfaction since it seems reasonable to assume that the more utility customers receive relative to what they pay the more satisfied they will be.

From a neo-classical perspective, the relationship between customer satisfaction and financial results is a logical one and not a cause-and-effect relationship. Business economics assumes that a transaction will only take place if the value to the customer is higher than the price and if the firm's marginal costs are lower than its marginal revenue. Therefore, any transaction with the customer is conditioned by customer satisfaction. It follows that profits are conditioned by customer satisfaction and that they are not its cause.

A counterargument to the above reasoning might be that the model is a short-term one. In the short term, a firm may use the non-optimal price and create a higher level of satisfaction in the short term, while building an image and a market share in the long term. The image may improve the utility to customers, and the market share may make it possible for the firm to reduce its costs, i.e. the firm may cut its short-term earnings in order to increase long-term earnings. However, in order to assess whether this is profitable, it is still necessary to use a financial calculus. The profitability is neither a necessary outcome nor a highly probable one.

In sum, any profitability derived from customer satisfaction or customer loyalty is

neither a necessary outcome nor a highly probable one. It is a question of a financial calculus. We may say that customers that are not satisfied do not lead to financial success. However, this does not allow us to conclude that satisfied customers lead to financial success. We may likewise say that customers that are not loyal are expensive, but it does not follow that loyal customers are inexpensive. Such a conclusion would be a logical fallacy. Similarly, although we know that if it is raining, then the streets will be wet, we cannot conversely conclude that if the streets are wet, then it is raining. Statistics cannot show that something is a logical fallacy. For example, financially successful firms only sell to satisfied customers that are profitable. Otherwise, the firms themselves would not be profitable. It is important to be very careful when drawing conclusions on the basis of covariation between factors. It is a well-known truth in the field of statistics that one cannot conclude from covariation that there is a causal relationship. The above analysis shows that the balanced scorecard makes invalid assumptions about causal relationships, leading to the anticipation of performance indicators which are faulty, thus resulting in dysfunctional organizational behaviour and sub-optimized performance (de Haas and Kleingeld, 1999). We need further theoretical considerations about the various relationships.

As regards satisfaction analyses, the literature on the subject still provides no proper theoretical discussion of the timing required and the conditions to be met if a high level of satisfaction is to yield a financial result. It is possible to infer, on the basis of neo-classical economics for example, that if a firm improves the quality of its products without increasing its costs, then, other things being equal, the demand curve for the product will shift upward without costs changing. So the firm will produce more utility and increase its market share and its profits. In addition, it may be inferred that products with price-elastic demand will be more sensitive to small changes in customers' utility since a relatively large number of customers will have a low consumers' surplus. This indicates how difficult it is to create customer loyalty. Neo-classical economics may even explain why some studies show that a link between customer satisfaction and subsequent accounting and stock market performance vary across industries (Ittner and Larcker, 1998, p. 224). The models described above being very simple and partial, more advanced analyses are needed.

2.3. The interdependence of the four perspectives

Other arguments likewise indicate that there is no causal relationship between measures from the four perspectives. Instead, the arguments indicate that the perspectives are interdependent. The influence between measures is not unidirectional in the sense that learning and growth are the drivers of internal business processes, which are the drivers of customer satisfaction, which in turn is the driver of financial results. The development process, for example, depends on the financial results; the possibility of providing the capital needed for the necessary investments being limited by unsatisfactory financial results. In order to be able to invest in research and development, firms need satisfactory financial results, but they likewise need research and development in order to be able to produce satisfactory financial results. The reasoning is circular. So instead of a cause-and-effect relationship, the relationship between the areas is more likely to be one of interdependence. Donaldson (1984, pp. 59–78), for example, shows that the relationship between the growth and debt-equity ratio is one of interdependence.

Something similar holds for the relationship between customer satisfaction and company image. Kaplan and Norton (1996*a*) list company image as part of the customer value proposition—the part which creates customer satisfaction and loyalty. A key element in the generation of an image, however, is precisely customer satisfaction and loyalty. Again the reasoning is circular.

Likewise, the internal business processes and the customer value proposition are also interdependent. Production processes, for example, may become inefficient if sellers make customers too satisfied by promising them short delivery times and custom-specific product adaptation; or company results may be poor because the company invests too heavily in demanding customers. In sum, this means that if production is to be efficient, then the customer value proposition needs to be adapted to production and production needs to be adapted to the customer value proposition.

Kaplan and Norton (1996*a*, p. 37) notice that instead of applying Porter's view of strategy, firms may choose a view of strategy which builds on their core competences: their strategy planning would then first define their core competences and on that basis define their market segments. According to Kaplan and Norton, this would not affect the balanced scorecard, which is merely a strategy implementation tool. Nevertheless, as a necessary consequence of such a process, the cause-and-effect chain will be reversed, which is bound to have considerable influence on the balance of the scorecard.

2.4. *Conclusion on the analysis of the cause-and-effect chain*

On the basis of the above analyses, we may conclude that the causality claimed to hold between perspectives is problematic. Specifically, the cause-and-effect relationship is problematic since claiming that some factors are necessarily profitable is problematic unless this follows logically from the concepts involved. To be able to assess profitability, a financial calculus has to be used. This is true both *ex ante* and *ex post*. In fact, some Swedish companies which have implemented a system similar to the balanced scorecard do not seem to have put emphasis on the causal relationship (Olive *et al.*, 1997). In addition, Kaplan and Norton (1996*a*) themselves are theoretically unclear about the issue, arguing both for a logical and a causal relationship.

A possible counterargument against the above criticism of the assumption that a causal relationship is involved is that Kaplan and Norton have a different conception of cause-and-effect relationships. It might be assumed that in fact they intend to refer to finality relationships. A finality relationship occurs when human actions, wishes and views are related to each other. A finality relationship is involved when: (i) a person believes a given action to be a means—the best means—to an end; and (ii) the end and this view actually cause the action (Føllesdal *et al.*, 1997, pp. 170–71). Actions are performed because they are adapted to the views and wishes of a person. Thus, a reciprocal relationship is involved between ends and means. The action is not a reflex but is due to human volition. In order to reach an end, it may be necessary to move away from it at first. For example, a satisfactory financial result may be obtained by first supplying a good product at low prices, making customers very satisfied and gaining a market share and an image, and then later reducing the level of satisfaction by raising prices. Any particular means is just one out of several which may be used to reach the end, and each means may have numerous other effects (Arbnor and Bjerke, 1994, p. 176). This implies that, unlike in the case of

causal relationships, no general law exists from which actions are derived, so claiming finality is more unambiguous than invoking causality. A finality relationship does not assume the existence of a general law from which it follows that actions will lead to good financial results. Assessing financial consequences requires a financial calculus.

There are indeed indications that Kaplan and Norton want to refer to finality and not to causality. In one of Kaplan and Norton's figures, the arrows point in both directions (1996*a*, p. 9), indicating assumed finality. Nevertheless, in both text and figures, an assumption of causality plays a dominant role, relationships among events being assumed to be unidirectional (Kaplan and Norton, 1996*a*, pp. 31, 72, 111, 113, 129, 152 and 160). So, in this respect, too, the text is ambiguous. And even though Kaplan and Norton may sometimes intend to refer to finality, the idea of cause and effect pervades the balanced scorecard. Giving up the assumption that cause-and-effect relationships are involved has major consequences for their entire argumentation and for the techniques suggested for the balanced scorecard, which may not be valid. Finality is fundamentally different from cause-and-effect relationships (Mattessich, 1995). The consequence of assuming finality is that the relationships among the various perspectives become more ambiguous and less simple—complexity increases and many of the techniques suggested for the balanced scorecard will be impracticable. Furthermore, if Kaplan and Norton are assuming finality instead of causality, then the balanced scorecard is no different from many other approaches. Altogether, the power of the instrument to make statements and to serve the purposes of management control will be greatly reduced.

Another argument which may be levelled against the balanced scorecard model is that it is based on empiricism. Kaplan and Norton (1996*a*) refer to case studies which are highly complex. The complexity is, in fact, an indication that the gap between the empirical world and the theory developed in the balanced scorecard, and will aggravate the problems under consideration. The seriousness of the gap may of course in part be the result of insufficient attention being paid to how to translate the empirical world of case studies into theory (see Kaplan, 1998, in which the innovation action research method is described).

3. Analysis of the strategic control model

As mentioned previously, the balanced scorecard is a strategic control tool. The question is whether it serves its purpose well. The answer depends on whether the scorecard methods are realistic. We will assume that this requires: (i) the strategic control to be based on relevant information; and (ii) the gap between the planned and existing strategic patterns of action to be bridged. In order to throw some light on the issue, this section examines how the scorecard handles the relationship with external stakeholders and with developments in the environment (Section 3.1), and how it handles the commitment to internal stakeholders (Section 3.2). Section 3.3 concludes the analysis.

3.1. *The relationship with external stakeholders and the environment*

The reason why the scorecard redefines vision and strategy as measures from the four

perspectives is an implicit wish to balance the company's activities with its stakeholders (Atkinson *et al.*, 1997). However, not all stakeholders have been included, some of the excluded ones being suppliers and public authorities, which may be important to several firms. Similarly, institutional stakeholders have been left out, as has the importance of business networks. Kaplan and Norton (1996*a*, p. 34) emphasize that it is not decisive whether all stakeholders have been included. At present, they have not come across firms which use fewer perspectives than the four included on the scorecard, but further perspectives may be needed (Kaplan and Norton, 1996*a*, p. 34). They do not discuss, however, how additional perspectives should be placed in the cause and effect chain.

It is even more problematic that the scorecard does not monitor the competition or technological developments. During the planning stage the measure variables may be benchmarked against those of the competition, but the scorecard does not presuppose any continuous observation of competitors' actions and results or the monitoring of technological developments, which means that the focus of the model is static rather than dynamic. The model does not take into consideration any strategic uncertainty in terms of the risk involved in events which may threaten or invalidate present strategy. IBM's margin on mainframes, for example, was large, but the company lost an exploding market due to a fairly sudden event. The balanced scorecard risks being too rigid because it measures what is required to set a strategy without asking what may block or shock the strategy. Asking what has to be done well in order to realize the planned strategy is not sufficient. Rather, it is important also to ask what assumptions and external shocks may prevent the realization of the company's vision (Simons, 1995).

Recognizing possible future shocks requires at the least that methods are applied which allow the company to monitor the competition and technological developments. In short, the balanced scorecard takes strategic momentum control into consideration, but not strategic leap control (Schoenfeld, 1991, p. 85). It is true that leap control is difficult, but it is necessary to bear in mind that control tools suffer from limitations. The solution recommended in Simons (1995, p. 92) is that the top management, on the one hand, encourages employees to undertake a continuous search process to uncover external shocks and opportunities and, on the other, creates a network through which information is mediated. For this purpose, the management may use an interactive control system which is to focus the attention of and force a dialogue in the organization. The system is to produce the right conditions for debate and to motivate employees to gather information outside of the usual routines and channels (Simons, 1995, p. 96).

Kaplan and Norton (1996*a*, pp. 251–252) are aware that ideas for a new strategy may arise at lower echelons in the organization. It is necessary for managers at all levels to consider whether the strategy is tenable. This is why Kaplan and Norton recommend that the measures of the balanced scorecard form the basis of interactive control and double-loop learning. However, this does not seem clearly compatible with the control method of the balanced scorecard, which is described as a highly mechanical and hierarchically top-down method. Both the formulation of measures and the breakdown and distribution of these to teams and individual employees is hierarchically top-down. The basis of the model is that the company strategy has been correctly formulated by the management (Mouritsen *et al.*, 1995/96). They assume that the plan is the right one.

3.2. *The relationship with the management and employees*

The top-down control points to another problematic area of the balanced scorecard: the relationship with internal stakeholders. To be effective, the model has to be rooted in the management and the organization. Swedish investigations (Olve *et al.*, 1997) show that when the scorecard fails, some of the essential barriers to its becoming a success are a lack of any firm rooting in the management and the players. The management needs to contribute resources and the project needs to be rooted in the organization if the scorecard is to be successfully implemented (Olve *et al.*, 1997). Precisely in order to focus attention on the organizational problems, Maisel (1992) has built a balanced scorecard which focuses on the human perspective instead of on growth and learning.

The control and implementation procedure of the balanced scorecard does not ensure this rooting. First of all, the managerial rooting may pose problems. Such rooting requires the scorecard to fit the concepts and relationships which the management use when the company formulates its strategy and vision. It has to be part of the management's language, any unilateral technical solution may mean that relevance is lost. It has to offer support to the managers when they try to understand business situations, plan or control, and when they solve problems (Jönsson, 1998).

The balanced scorecard should not be a straitjacket inhibiting the management's strategic thinking (Kaplan and Norton, 1996 *a*, pp. 37–38). Nevertheless, the balanced scorecard may be very different from the strategic model in terms of which the management thinks, which will make it difficult to get the model rooted in the management. If the finance and accounts department is behind the initiative and if the initiative arouses little interest with the management, then it may be difficult for it to gain any impact. The following statement illustrates this:

'There are other kinds of control than the one we use now. But that [i.e. the balanced scorecard] simply is not the right thing for me. I cannot make statements that I do not believe in. I am afraid of destroying our culture. That cannot be built again' (An anonymous group manager, Nørreklit, 1999).

In addition, it may be difficult to get the scorecard rooted in the employees. As mentioned previously, the method which Kaplan and Norton (1996 *a*, pp. 8–15, 199–223) point to for the purpose of implementing the balanced scorecard is hierarchical and top-down. It disregards any implementation problems and winning support for the system is considered unproblematic (Mouritsen *et al.*, 1995/96). Local conditions have been defined by the top management and local units cannot act on their own; they are dumb and react rather than act (Mouritsen *et al.*, 1995/96).

In order to make employees act instead of reacting, it is important to be in touch with their *internal commitment* and not just their *external commitment* (Argyris and Kaplan, 1994, p. 91). Individuals with external commitment are ones who primarily find the motivation for their own energy and attention in variables outside themselves (such as managers' orders or requests, organizational incentives and rewards). Individuals with internal commitment are ones who primarily find such motivation in variables within themselves. External commitment is important for the establishment of organizational rules and for communicating the kind of behaviour that is desirable and will be rewarded. This is insufficient, however, if the wish is to have individuals in the organization who are active and creative problem-solvers: this requires internal

commitment, i.e. employees who see themselves as responsible and activating individuals. External commitment, on the other hand, means that the employees find the motivation for their actions in rules and in the demands made by others (Argyris and Kaplan, 1994).

Due to its top-down strategy, the balanced scorecard will primarily create external commitment. A quotation from a manager of a strategic business unit which considered introducing the balanced scorecard may serve to illustrate this:

'There are 25 of us. Some are fat, some thin, some aggressive, others calm. Being different is a real advantage. Some serve to balance the division, others are spearheads in the division. If such elements are to be reported to the group management, then you need a bureaucrat. What makes the job interesting is the independence involved. I see this as my firm. If the administrative centre were to send me a bunch of regulations, I'd leave. The individual manager needs freedom of action, otherwise you want bureaucrats and not businesspeople' (An anonymous subsidiary manager, Nørreklit, 1999).

If the focus on external commitment is too high, then this motivates employees to focus their attention on what is measured (Holloway *et al.*, 1995). The employees will try to reach good results in the areas measured, but this will be to the detriment of other elements which may be important, too. It should be noted, however, that this problem is even greater if, as has traditionally been the case, only financial measures are used. In fact, Kaplan and Norton (1996 *a*) point to the risk of manipulation. They state, for example, that delivery efficiency may increase if the terms of delivery are extended and that the time to market a product may improve if the product design is slightly modified. The solution which they suggest is that the scorecard should be supplemented with diagnostic measures. Such a solution would similarly be oriented towards external commitment.

The issue of organizational rooting arises because, like the traditional accounting and control literature (Parker, 1979), Kaplan and Norton (1996 *a*) assume goal congruence in organizations and they also assume that the top management defines the congruent goals. Investigations have shown that firms are like a coalition in which the top management is merely one party and in which a whole number of aspirations are juggled and balanced (Parker, 1979). Not the firm itself, but its employees act. The behaviour of its employees is determined by both environmental and personal elements, and their behaviour is a function of their cognition, perception, beliefs and knowledge. In addition, rewards and goals are often complex phenomena (Parker, 1979). A different solution might be to build the balanced scorecard in such a way that it is rooted in the employees' internal commitment (Nørreklit and Schoenfeld, 1996).

Rooting it in the internal commitment may contribute to ensuring that the measures are realisable. Apart from the input resources needed, a method is required which shows which actions will enable employees to attain the results envisaged. So describing the specifications of a new house and placing the materials and resources needed at the disposal of the employees is not sufficient. A method is needed (Nørreklit and Schoenfeld, 1996). This is why the measures need to be organizationally rooted in something realisable. If they are not, the scorecard will not be successful.

In addition to being rooted in employee commitment and something realisable, the

scorecard needs to be rooted in the language of the employees (Jönsson, 1998; Nørreklit and Schoenfeld, 1998). A key objective of the balanced scorecard is to communicate strategy to all parts of the organization. The extent to which this succeeds will depend on whether the performance measures reflect the strategy and on how the performance measures are interpreted by the employees. The advantages of the performance measures lie in the fact that they are concrete, the disadvantages lie in their being reduced entities. The reduction occurs when the propositions of the strategy are reduced to items on the balanced scorecard. In spite of this reduction, the balanced scorecard may sometimes reveal more about the strategy of a company than the strategic plan itself, simply because the usual way of communicating strategy and vision may be so futile that no one catches the message. It is not even certain that just because a given expression is used, then the lower levels will catch the same meaning (Føllesdal *et al.*, 1997). To know the meaning of a concept, it is important to know the language game. Language is a social phenomenon which creates our mutual human reality. In order to participate in the language game, it is important to know the rules of the game and their purpose (Wittgenstein, 1953). Our words are not used on the basis of exact definitions. This means that the meaning of an expression may differ with the social or cultural group in which the language game takes place. This is why it is important to use an interactive method when building the balanced scorecard, so that both language and comprehension may develop in the process (Nørreklit and Schoenfeld, 1998).

3.3. Conclusion on the analysis of the strategic control model

We may now conclude that Kaplan and Norton's control model is a hierarchical top-down model and that it is not easily rooted in a dynamic environment or in the organization. If the balanced scorecard is to become more realistic, then its control methods need to be adjusted. The control processes should be more interactive during strategy formulation, during the building of the scorecard and during the subsequent implementation.

It might be argued that an interactive control method may seem confused and chaotic. However, order and stability do not necessarily contrast with interaction among the players, instead, interaction may be a condition for order and stability:

'Two strands in the control literature have been identified. The first is managerial in orientation, takes cybernetics as its fundamental theoretical framework, and results in perceptions for controls that will establish organizational order and stability. The second is pluralistic in orientation, regards control as emerging from the interaction of actors in situation and results in observations that are concerned to promote adoption and learning. It could be argued that these two perspectives are conflicting, but it is probably more helpful to consider them as complementary' (Emmanuel and Otley, 1995, p. 7).

4. Conclusion and suggestions

4.1. Conclusion

The balanced scorecard is a tool which systematically expands the measurement areas traditionally involved in accounting. It thus aims to contribute to reducing the problems involved in using only financial measures for the purposes of control. It is

not just intended as a measurement system, however; it is also a control system. It inserts non-financial measurements in a strategic control framework so that they are not merely loosely coupled local systems, but linked together in a causal chain which passes through the entire company. It may contribute to sharpening communication in the company in that it is not restricted to financial measures but also includes non-financial ones, which provides a more comprehensive picture of the company. Therefore, it is a way of changing communication about strategy since this will no longer be restricted to financial measures. This aspect is both very interesting and relevant. The preceding analysis shows, however, that the balanced scorecard has problems with some of its key assumptions and relationships.

First, there is not a causal but rather a logical relationship among the areas analyzed. Customer satisfaction does not necessarily yield good financial results. Assessing the financial consequences of increased customer satisfaction or quality improvements requires a financial calculus. Chains of action which yield a high level of customer value at low costs lead to good financial results. This is not a question of causality, it is logic since it is inherent in the concepts. Therefore, the balanced scorecard makes invalid assumptions, which may lead to the anticipation of performance indicators which are faulty, resulting in sub-optimal performance. Second, the balanced scorecard is not a valid strategic management tool, mainly because it does not ensure any organizational rooting, but also because it has problems ensuring environmental rooting. Consequently, a gap must be expected between the strategy expressed in the actions actually undertaken and the strategy planned. We therefore conclude that the balanced scorecard needs to be adjusted and developed. Below, we suggest some changes to, and development of, the scorecard. It is not our aim to outline a comprehensive empirically tested control system but only to suggest some theoretical directions that may be worth considering for the purpose of reducing some of the present problems of the balanced scorecard.

4.2. Suggestions

As has been argued above, the use of accounting data and a financial calculus in one form or another is necessary but these are not sufficient instruments when various acts and activities in a company have to be assessed. Accounting data and a financial calculus are necessary as long as financial measures are central to constituting the reality of companies. A financial calculus is likewise required for the purpose of assessing the financial consequences of factors such as increased customer satisfaction or quality improvements. The calculus may show, among other things, which products or customers will be profitable to the firm and which input factors and processes incur the costs related to the corresponding products or services. Activity-based costing analyses may identify the products and types of customers which are the most profitable to the firm and the costs, cost drivers and customer value which result from different policies (cf., e.g. Turney, 1991; Kaplan and Cooper, 1998). This provides the firm with information which it may use when deciding on price and policy adjustments and on changes to, or the reorganization of, processes and input factors, which will change the earnings and cost structure of the firm. This means that the analyses may be used in the strategic planning process for the purpose of defining the firm's strategy and policies, which may subsequently be translated into financial and non-financial measures on the balanced scorecard. Case studies of firms may be useful in illustrating the cost-consuming policies and processes in a given

firm. Other firms may learn from them, but it should be noted that no policy is necessarily profitable. Profitability depends on price and on the cost structure of the firm in question.

Furthermore, instead of viewing the relationship as a causal one between non-financial measurements, it may be useful to establish coherence (Edwards, 1972, vol. 6, pp. 146–148; Nørreklit and Schoenfeld, 1996; Collis and Montgomery, 1997; de Haas and Kleingeld, 1999) between measurements. Given the aim of obtaining certain results, coherence focuses on whether the relevant phenomena match or complement each other. For example, an action is coherent if the actions used and the means are appropriate with respect to the intended end. Thus one condition for obtaining an end is that of having access to input factors with a potential to realize the end and, in the case of managers or employees, it is a condition that they have access to methods which allow them to control the input factors and, in turn, to obtain the end intended. If there is lack of coherence, then the conditions for reaching the targets are insufficient or not optimal. The lack of coherence may be so significant that a result is not obtainable. Our ability to judge coherence and, in turn, to predict results depends on sufficient knowledge of both the means and the ends. Consequently insufficient knowledge of means and ends reduces the possibility of predicting and safeguarding results and therefore also involves a higher level of uncertainty (Thompson, 1967).

A coherence analysis may be carried out at two levels: (i) the level of strategy formulation, involving the analysis of the overall coherence among areas (Nørreklit and Schoenfeld, 1996; Collis and Montgomery, 1997); and (ii) the level of activities, involving the analysis of the extent of coherence between resources and performance measures in the individual groups of activities (Nørreklit and Schoenfeld, 1996; de Haas and Kleingeld, 1999). Emphasizing the importance of emerging strategy, de Haas and Kleingeld (1999) do not consider it necessary for a company to have an *a priori* business strategy before designing a coherent set of performance measurements. They argue that the design of performance indicators can work as a catalyst for strategy formulation. Although not disagreeing with this point of view, this paper will suggest two interrelated procedures: a strategy formulation procedure and a performance measurement formulation procedure. Our assumption is that, in order to construct coherent performance measurements, resources and strategy should be decided on in an approximately coherent way. We further assume that good management preserves openness and space in which to operate, while still keeping the direction of the company in focus so as to avoid being driven by circumstances (Emmanuel and Otley, 1995).

When strategy and performance measurements are formulated, it is important that a strategic dialogue (Simons, 1995; Nørreklit and Schoenfeld, 1996; de Haas and Kleingeld, 1999) takes place since this is an important tool in the process of uncovering or influencing perceptions or actions. The dialogue is a dialectic process between two or more interlocutors, during which both parties pose questions and receive answers, the aim being to increase either party's awareness and understanding (Nørreklit *et al.*, 1986). This may contribute to bridging differences of perception and understanding so that goal congruence increases. Although communication through language breaks down, it also provides opportunities (Crossley, 1996). Thus, on the one hand, the dialogue can be used by management to encourage employees to undertake a continuous search process to uncover external shocks and opportuni-

ties and, on the other hand, it can be used to create a network through which information is mediated. It can also be used to uncover internal commitments and to develop the rules of the language game in the company. The dialogue should be part of a management style which implies that top managers continuously gather information relevant to the strategic control of the company and also continuously influence the employees in the direction intended. Consequently, this process is not limited to a certain period but takes place throughout the year. The dialogue may even be part of the style of the controller in the effort of moving away from a scorekeeper role to becoming a strategic management accountant (Scapens, 1998) and an integrative player. The strategic dialogue is also important in connection with the formulation of the performance measures linked to the resources and internal commitments of the various groups or so-called constituencies (de Haas and Kleingeld, 1999). It makes it possible to ensure that the actors in individual activities or constituencies have the internal commitment to reach the ends by the given means. If problems or opportunities are uncovered during performance measurement, this may contribute to strategy formulation. In what follows, we will first illustrate how coherence may be established in strategy formulation and then how it may be established in the performance measurement of different activities.

A coherent strategy is one in which the properties of the different areas of strategic focus (finance, market requirements, technology, internal business processes, etc.)¹ are integrated and harmonized, allowing the ends planned to be achieved through the working together of the properties of the different areas of focus. If any dissonance or imbalance is too marked, the financial results will not be as good as the results potentially realisable. In the case of a going concern, coherence evaluation involves monitoring the relationship among the resources of the company with a view to ensuring the continued existence of the firm. However, ensuring its continued existence involves constantly establishing coherent areas. Therefore coherence control at the strategic level needs to include both the present situation, in which finances, market requirements, technology and internal business processes have to be coherent, and a future situation, in which these same areas of strategic focus have to be coherent. The present potential of the strategic areas constitutes the means of obtaining the strategic areas of the future, i.e. of obtaining the end intended. Thus, ensuring coherence involves both synchronic and diachronic coordination of coherence. Therefore, a time dimension has to be integrated into the analysis. It may further be the case that dissonance and imbalances are a prerequisite of development. If so, then any imbalance needs to be controlled by being balanced only over time. For each area, a temporarily coherent variable has to be formulated for performance measurements. Thus the implementation of a coherent set of performance measurements should be based on a coherent strategy.

The analysis of strategy coherence may involve dimensions of a quantitative, logico-qualitative or financial nature. A quantitative analysis may, for example, show whether there is coherence between the production capacity of a firm and its market potential, while a logico-qualitative analysis may show whether there is coherence between the competences of the development department and the future competence requirements of the market. It may further be expedient, for the purpose of evaluating coherence with the area of internal business processes, to consider the conflicts

¹ The generic areas of the coherence analysis will depend on the strategic perspective used in the company.

and problems raised during the strategic dialogue (Simons, 1995; Nørreklit and Schoenfeld, 1996; de Haas and Kleingeld, 1999). This allows strategy to be linked to emerging strategy. Inspiration for coherence evaluation may be derived from various theories. Porter's three strategic archetypes, for example—overall cost leadership, differentiation and focus (1984)—may contribute to an evaluation framework. It may actually be claimed that Porter also emphasizes the importance of coherence in saying, 'The firm stuck in the middle has almost guaranteed low profitability' (Porter, 1980, p. 41). Other possible sources of inspiration are the archetypes described by Mintzberg (1973) and Miles and Snow (1978). Long-term profit and cash-flow budgets are useful tools when financial coherence is to be evaluated. Yet another source is Donaldson's model (1984) of balanced growth. These models are of course very simplified illustrations. Therefore further theoretical development is necessary (see Nørreklit and Schoenfeld, 1996).

Coherence control at the activity level concerns the linking of the goals and resources of each process to the overall goals of the company in such a way that they are coherent (Nørreklit and Schoenfeld, 1996). They have to be coherent from a number of perspectives: (i) vertically, hierarchically determined, i.e. through the power system representing the top management point of view; (ii) vertically, organizationally determined, i.e. the goal system of the activities must be constructed on the basis of the point of view of the personnel; (iii) horizontally, organizationally determined, i.e. the goal system in interdependent activities should be constructed so that they mutually support each other. Thus, de Haas and Kleingeld (1999, pp. 240–241) define coherence as: 'an attribute to a PM (performance measurement) system, which causes performance by the group acting upon that system to contribute to the performance of other interdependent groups and, thereby, to contribute to the performance of the organizational entity as a whole'. Influenced by total quality management, Haas and Kleingeld suggest a design method which may be entirely feasible in the design of a coherent performance measurement system. On their view, a company is composed of multiple constituencies. The vertical top-down perspective of the company is seen as a relation of interdependence in which the performance of the agent constituency contributes to the performance of the principal constituency. The horizontal perspective of the company is similarly seen as a relation of interdependence but one in which the performance of the supplier constituency contributes to the performance of the customer constituency. de Haas and Kleingeld (1999) suggest that the process is organized in such a way that the agent and the supplier participate as hinges or linking pins in the design effort of the principals and the customer, respectively. The design process is initiated from the top. However, the interaction among the various constituencies involved takes place as a strategic dialogue. This gives the agents and suppliers a bottom-up opportunity to contribute to the design of the performance measurements.

Furthermore, de Haas and Kleingeld (1999) make a distinction between result-oriented performance indicators and process-oriented ones. Result indicators are used for feedback control. Process indicators are used to monitor whether throughput processes are executed in a way which will contribute to the achievement of the targets for related indicators. Therefore, they can be used for feed-forward control. This performance measurement system is constructed in such a way that the result indicator of an agent is the process indicator of the principal. So observing process indicators at low levels makes it possible to anticipate the distortion of future results.

If, in addition, observations are extended to include a record of the conditions of the input factors of the constituencies and of the behaviour of competitors, then this may yield substantial, although not sufficient, knowledge of future results.

We may now conclude that predicting future performance is, in many cases, a highly complex issue involving numerous aspects. An evaluation system which does not integrate all relevant variables cannot be expected to show valid results. A causal relationship along the lines suggested by Kaplan and Norton (1996*a*) is clearly not valid. Instead, models are needed which deepen our understanding of how business performance is created, and to this end management accounting research has to make its contribution (Schoenfeld, 1986). Evaluation will always be partly subjective, however, and to some extent depend on the intuition of the top management because not only past results but also the impact of future opportunities should form part of the performance picture—and, the future being uncertain, they will have to make subjective assumptions.

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References

- The AICPA Special Committee on Financial Reporting, 1994. *Improving Business Reporting—A Costumer Focus: Meeting the Information Needs of Investors and Creditors*, American Institute of Certified Public Accountants, NY: 9.
- Anthony, R. N., Dearden, J. and Bedford, N. M., 1984. *Management Control Systems*, IL, Irwin.
- Anthony, R. N., Dearden, J. and Bedford, N. M., 1989. *Management Control Systems*, IL, Irwin.
- Arbner, I. and Bjerke, B., 1994. *Företagsekonomisk Metodlära*, Studentlitteratur, Lund, Sweden.
- Argyris, C., 1977. Organizational learning and management information systems, *Accounting, Organizations and Society*, 113–123.
- Argyris, C. and Kaplan, R. S., 1994. Implementing new knowledge: the case of activity-based costing, *Accounting Horizons*, 8(3), 83–105.
- Atkinson, A. A., Banker, R. D., Kaplan, R. S. and Young, S. M., 1997. *Management Accounting*, NJ, Prentice Hall.
- Beischel, M. E. and Smith, F. R., 1991. Linking the shop floor to the top floor, *Journal of Management Accounting*, October, 25–29.
- Buzell, R. D. and Gale, B. T., 1987. *The PIMS Principles: Linking Strategy to Performance*, NY, New York Press.
- Chakravarthy, B. S., 1986. Measuring strategic performance, *Strategic Management Journal*, 7, 437–458.
- Collis, D. J. and Montgomery, C. A., 1995. Competing on resources: strategy in the 1990s, *Harvard Business Review*, July–August, 118–128.
- Collis, D. J. and Montgomery, C. A., 1997. *Corporate Strategy: Resources and the Scope of the Firm*, IL, Irwin.
- Crossley, N., 1996. *Intersubjectivity—The Fabric of Social Becoming*, London, SAGE Publications.
- Dearden, J., 1969. The case against ROI control, *Harvard Business Review*, May–June, 124–135.
- Dearden, J., 1987. Measuring profit center managers, *Harvard Business Review*, September–October, 84–88.

- Demirag, I. S., 1998. Short-Term Performance Pressures, Corporate Governance, and Accountability: An Overview, in Demirag, I. S. (ed.) *Corporate Governance, Accountability, and Pressures to Perform An International Study*, Connecticut, JAI Press Inc., pp. 7–24.
- Donaldson, G., 1984. *Managing Corporate Wealth*, NY, Praeger.
- Eccles, R. G., 1991. The performance measurement manifesto, *Harvard Business Review*, January–February, 131–137.
- Edwards, P., 1972. *The Encyclopaedia of Philosophy*, Volumes 1–8, U.S., Macmillian Publishing Co., Inc. and The Free Press.
- Emmanuel, C. and Otley, D., 1995. *Readings in Accounting for Management Control*, Chapman and Hall.
- Euske, K. J., Lebas, M. J. and McNair, C. J., 1993. *Best Practises in World Class Organizations*, CAM-I, R-93-CMS-01, February.
- Føllesdal, D., Walløe, L. and Elster, J., 1997. *Argumentasjonsteori, Språk Og Vitenskapsfilosofi*, Oslo, Universitetsforlaget.
- Grady, M. W., 1991. Performance measurement: implementing strategy, *Management Accounting*, June, 49–53.
- de Haas, M. and Kleingeld, A., 1999. Multilevel design of performance measurement systems: enhancing strategic dialogue throughout the organization, *Management Accounting Research*, 10, 233–261.
- Holloway, J., Lewis, J. and Mallory, G., 1995. *Performance Measurement and Evaluation*, London, Sage Publications.
- Hopwood, A. G., 1972. An empirical study of the role of accounting data in performance evaluation, empirical research in accounting, *Supplement to Journal of Accounting Research*, 10, 156–182.
- Hopwood, A. G., 1973. *Accounting and Human Behaviour*, New Jersey, Prentice-Hall.
- Ittner, C. D. and Larcker, D. F., 1998. Innovations in performance measurement: trends and research implications, *Journal of Management Accounting Research*, 10, 205–239.
- Johnson, H. T. and Kaplan, R. S., 1987. *Relevance Lost, The Rise and Fall of Management Accounting*, Boston, MA, Harvard Business School Press.
- Jones, T. O. and Sasser, W. E., 1995. Why satisfied customers defect, *Harvard Business Review*, November–December, 88–99.
- Jönsson, S. R., 1998. Management accounting research to managerial work, *Accounting, Organizations and Society*, 23(4), 411–434.
- Kaplan, R. S., 1984. The evolution of management accounting, *The Accounting Review*, July, 390–418.
- Kaplan, R. S., 1998. Innovation action research: creating new management theory and practice, *Journal of Management Accounting Research*, 10, 89–118.
- Kaplan, R. S. and Cooper, R., 1998. *Cost and Effect-Using Integrated Cost Systems to Drive Profitability and Performance*, Boston, Harvard Business School Press.
- Kaplan, R. S. and Norton, D. P., 1992. The balanced scorecard as a strategic management system, *Harvard Business Review*, January–February, 61–66.
- Kaplan, R. S. and Norton, D. P., 1996 a. *The Balanced Scorecard-Translating Strategy into Action*, Boston, Harvard Business School Press.
- Kaplan, R. S. and Norton, D. P., 1996 b. Linking the balanced scorecard to strategy, *California Management Review*, Fall, 4, 53–79.
- Kiechel, W., 1984. Snipping at strategic planning, *Planning Review*, May, 8–11.
- Maciariello, J. A. and Kirby, C. J., 1994. *Management Control Systems*, N.J., Prentice Hall.
- McNair, C. J., Lynch, R. L. and Cross, K. L., 1990. Do financial and nonfinancial measures have to agree?, *Management Accounting*, November, 28–39.
- Maisel, L. S., 1992. Performance measurement: the balanced scorecard approach, *Journal of Cost Management*, Summer, 47–52.
- Mattessich, R., 1995. Conditional-normative accounting methodology: incorporating value judgements and means-end relations of applied science, *Accounting, Organizations and Society*, 20, 259–285.
- Merchant, K., 1985. *Control in Business Organizations*, MA, Harvard Graduate School of Business.

- Miles, R. E. and Snow, C. C., 1978. *Organizational Strategy, Structure and Process*, N.Y., McGraw-Hill.
- Mintzberg, H., 1973. Strategy making in three modes, *California Management Review*, Winter, 44–53.
- Mintzberg, H., 1987. The strategy concept I: five P's for strategy, *California Management Review*, 3(1) Fall, 11–23.
- Mintzberg, H., 1994. *The Rise and Fall of Strategic Planning*, New York, Prentice Hall.
- Mouritsen, J., Høholt, J. and Jørgensen, A. A. V., 1995/96. De nye og de gamle ikke-finansielle nøgletal, *Økonomistyring and Informatik*, 387–409.
- Nørreklit, H., 1999. *En Case Om at Implementere The Balanced Scorecard*, working paper, Århus, The Århus School of Business.
- Nørreklit, H. and Schoenfeld, H. M., 1998. *Controlling Multinational Companies an Attempt to Analyze some Unresolved Issues*, Aarhus, The Aarhus School of Business.
- Nørreklit, L. and Schoenfeld, H. M., 1996. *Resources of the Firm, Creating, Controlling and Accounting*, Copenhagen, DJØF Publishing.
- Nørreklit, L., Pedersen, S. L., Prangsgaard, B. and Tuft, K., 1986. *Aktørmotoden*, Aalborg, Poseidon.
- Olve, N. G., Roy, J. and Wetter, M., 1997. *Balanced Scorecard—I Svensk Praktik*, Sweden, Liber AB.
- Parker, L. D., 1979. Divisional performance measurement: beyond an exclusive profit test, *Accounting and Business Research*, Autumn, 309–319.
- Porter, M. E., 1980. *Competitive Strategy: Techniques For Analyzing Industries and Competitors*, New York, Free Press.
- Porter, M. E., 1985. *Competitive Advantage: Creating and Sustaining Superior Performance*, New York, Free Press.
- Prahalad, C. K. and Hamel, G., 1990. The core competence of the corporation, *Harvard Business Review*, May–June, 79–91.
- Reichheld, F. F. and Sasser, W. E., 1990. Zero defections: quality comes to services, *Harvard Business Review*, September–October, 105–111.
- Scapens, R. W., 1998. Management accounting and strategic control: implications for management accounting research, *Bedrijfskunde*, 70, 11–17.
- Schoenfeld, H. M., 1986. The Present State of Performance Evaluation in Multinational, in Holzer, H. P. and Schoenfeld, H. -M. (eds) *Managerial Accounting and Analysis in Multinational Enterprises*, Berlin, Walter de Gruyter, pp. 217–252.
- Schoenfeld, H. M., 1991. Companies Managerial Accounting and Control in Multinational Companies: State of the Art and Unresolved Issues, in Sørensen P. E. (ed.) *New Perspectives in Management Accounting*, Aarhus, The Aarhus School of Business, pp. 57–106.
- Simons, R., 1995. *Levers of Control*, Boston, Harvard Business School Press.
- Slife, B. D. and Williams, R. N., 1995. *What's Behind the Research? Discovering Hidden Assumptions in the Behavioral Sciences*, London, Sage Publications.
- Stigen, A., 1986. *Tenkningens historie*, Oslo, Gyldendals Norsk Forlag.
- Thompson, J. D., 1967. *Organizations in Action*, N.Y., McGraw-Hill.
- Turney, P., 1991. *Common Cents—The ABC Performance Breakthrough*, OR, Cost Technology.
- Turney, P., 1992. Activity-Based Management: Making the Investment in Quality Count, Paper presented at a Research conference in Modern Cost Management; American Accounting Association, Albuquerque, New Mexico.
- Vancil, R. F., 1979. *Decentralization: Management Ambiguity by Design*, IL, Dow Jones-Irwin.
- Wilson, S., 1969. *Thinking with Concepts*, Cambridge, U.K., Cambridge University Press.
- Wilson, S., 1986. *What Philosophy Can Do*, Hong Kong, Macmillan.
- Wittgenstein, L., 1953. *Philosophical Investigations*, Oxford, Basil Blackwell, Oxford.