



International Journal of Operations & Production Management

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Article information:

To cite this document:

Valerie Decoene, Werner Bruggeman, (2006) "Strategic alignment and middle-level managers' motivation in a balanced scorecard setting", International Journal of Operations & Production Management, Vol. 26 Issue: 4, pp.429-448, <https://doi.org/10.1108/01443570610650576>

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Strategic alignment and middle-level managers' motivation in a balanced scorecard setting

Strategic alignment and motivation

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Abstract

Purpose – This paper sets out to develop and illustrate a model of the relationship between strategic alignment, motivation and organizational performance in a balanced scorecard (BSC) context – a comprehensive system of strategically aligned performance measures.

Design/methodology/approach – The study develops theoretical arguments to show how the strategic alignment process of a BSC can help companies improve their organizational performance. The study develops a theory of the motivational mechanisms that intervene in the relationship between strategic alignment and organizational performance. The literature on operations management and management control are used to underpin the theoretical propositions. A theory illustration case study is described to provide evidence for the theoretical model.

Findings – Effective strategic alignment calls for the active involvement of manufacturing executives in the BSC design and implementation process. Effective strategic alignment empowers and motivates manufacturing executives. A combination of effective strategic alignment and a BSC-based compensation plan has a positive effect on the extrinsic motivation of manufacturing executives.

Research limitations/implications – The case study offers an interesting setting to illustrate the theoretical predictions. However, it is not possible to generalize the results to the population of manufacturing companies. Future research could formally test the relationship between strategic alignment, motivation and organizational performance by using a survey questionnaire in companies that use BSCs.

Originality/value – This paper studies the cascading process, a systematic approach to the creation of strategic alignment using the BSC.

Keywords Balanced scorecard, Strategic alignment, Manufacturing systems, Motivation (psychology)

Paper type Research paper

Introduction

Companies whose competitive strategy relies significantly on the manufacturing function should incorporate the manufacturing perspective as a key aspect of their corporate business strategy. In the current, increasingly competitive, business environment, the manufacturing function can only contribute to a company's success if that function has a "business-supportive" role, as opposed to a "reactive" role (Wheelwright and Hayes, 1985).

The creation of a strategic alignment between a corporate business strategy and manufacturing strategy can facilitate the formulation of a business-supportive manufacturing strategy. A corporate business strategy stipulates the broad dimensions that a business uses as a basis for gaining and/or maintaining



competitive advantage, e.g. a low cost structure or product differentiation (Porter, 1998). A manufacturing strategy is:

... a consistent pattern of decision-making in the manufacturing function which acts in support of the overall strategic direction of the business and which provides for competitive advantages (Dangayach and Deshmukh, 2001, p. 885).

In other words, a manufacturing strategy encompasses all decisions and plans to use resources in a way that enhances a company's competitive position in the market place (Swink and Way, 1995). During the process of strategic alignment, clear links between the manufacturing strategy and the corporate business strategy are created (Chenhall, 2005). Having clear links between these two strategies means that:

- (1) senior management and management of the manufacturing function agree on the goals of the company and of the manufacturing function;
- (2) the manufacturing function supports the strategic direction of the company (Papke-Shields and Malhotra, 2001); and
- (3) management can prevent the emergence of any disparity between an intended business strategy at the corporate level and a realized manufacturing strategy at the functional level (Kaplan and Norton, 1996).

This paper develops and illustrates a model of the relationship between strategic alignment, motivation and organizational performance in a balanced scorecard (BSC) context. More specifically, we demonstrate the importance of strategic alignment to the improvement of organizational performance in a BSC setting. Moreover, we investigate the cascading process, which is a specific process to create strategic alignment in a BSC setting (Kaplan and Norton, 1996).

The concept of strategic alignment has been investigated in the literature on operations management and management control. Research in operations management tends to focus more on the development of performance measurement systems and alignment techniques, whereas the literature on management control focuses on the behavioural and the motivational aspects of these systems. The present study focuses on the strategic alignment concept by integrating these two streams of research. This method meets the call of Merchant *et al.* (2003) for more cross-disciplinary research in these areas.

The present study defines the BSC, strategic alignment, and intrinsic and extrinsic motivation; develops a theoretical model based on the literature to explain the relationships between strategic alignment, motivation and organizational performance; and describes a theory illustration case. Finally, we define some research limitations and some directions for future research.

Definitions

Balanced scorecard framework

In the first of three *Harvard Business Review* articles, Kaplan and Norton (1992) introduced the BSC. Kaplan and Norton (1992, 1996, 2001) defined the BSC as a framework to facilitate the translation of the business strategy into controllable performance measures. More specifically, the BSC was labelled as a comprehensive system of strategically aligned performance measures.

The characteristic of comprehensiveness in the BSC involves the provision of performance measures in four perspectives, namely – the financial, the customer, the internal business process, and the learning and growth perspectives. Learning and growth measures indicate a company's success in developing the personnel and systems necessary for growth and product improvement in the long run. Internal business process measures indicate the level of a company's performance with respect to activities that are critical to meet customer and financial objectives. Customer-related measures indicate a company's success in attracting and retaining its targeted customers. Financial measures indicate how well a company is performing with respect to its profitability targets. The central idea behind the four perspectives of the BSC was to complement traditional financial performance measures with non-financial performance measures. Kaplan and Norton (1996) started with the premise that an exclusive reliance on financial performance measures causes organizations to sub-optimize, because financial performance measures are retrospective performance measures that reflect the results of past managerial actions. Non-financial performance measures, in contrast, are leading performance measures when they focus on long-term value creation and future organizational performance.

The characteristic of strategically aligned performance measures refers to performance measures that are closely linked with a company's specific strategy and value drivers. Thus, the BSC links performance measures and operational actions to the business strategy to motivate employees to achieve the organizational objectives (Nanni *et al.*, 1992).

Strategic alignment in a BSC-context

The provision of strategically aligned financial and non-financial performance measures is not unique to the BSC. Previous research on performance measurement in operations management has investigated the design, implementation and management of strategic performance measurement systems. A survey questionnaire in small- and medium-sized UK manufacturing companies by Neely *et al.* (1994) showed that linking performance measures to a manufacturing strategy assures consistency between decision making and manufacturing actions. Neely *et al.* (1997, 2000) formulated a structured methodology – including a performance measure record sheet – to guide practitioners in the design of strategically aligned performance measures. Bourne *et al.* (2002) discussed some frequently experienced drivers and blocking factors in the processes of implementing strategic performance measurement systems. Bourne *et al.* (2000) formulated specific processes – e.g. performance measurement review meetings – to continuously align a performance measurement system with a dynamic strategy. Kennerley and Neely (2002, 2003) developed a framework to manage a performance measurement system so that it maintains a dynamic and relevant set of performance measures that reflects changes in a company's strategic environment.

In the literature on operations management, strategic alignment is operationalized in terms of agreement on strategic priorities between the general manager and the manufacturing executive (Papke-Shields and Malhotra, 2001). Previous research had examined several factors that influenced the extent of agreement on strategic priorities, i.e. a manufacturing manager's extent of involvement and influence in business-level decision making (Papke-Shields and Malhotra, 2001), the length of the association between the general and manufacturing managers, and the organizational tenure of the manufacturing manager (Joshi *et al.*, 2003).

The BSC differs from performance measurement systems in operations management in the way in which strategic alignment is created. BSC designers use a unique management process called cascading to align performance measures with a business strategy (Kaplan and Norton, 1996). The cascading technique emphasizes the existence of strategies at different organizational levels. This technique clearly distinguishes between the business strategy at the corporate level and the manufacturing strategy at the functional level. The cascading process is a systematic approach to align the strategic business objectives to the operational performance measures and actions. During a cascading process, BSC designers assist manufacturing executives in the formulation of a manufacturing strategy that supports the corporate business strategy. Manufacturing-level BSC performance measures are then derived from the manufacturing strategy. As a result of this strategic alignment process, the manufacturing-level BSC will comprise controllable, operations-based financial and non-financial performance measures that are strategically aligned to a corporate business-supportive manufacturing strategy.

Later, we will argue that a BSC's strategic alignment process is able to make a positive impact on organizational performance.

Motivation in a BSC-context

Malina and Selto (2001) conducted a case study in one corporate setting and revealed that the BSC has a positive impact on organizational outcomes by creating positive motivation for employees who need to achieve organizational objectives.

We distinguish between intrinsic and extrinsic motivation. Managers act in an intrinsically motivated way if they perform their tasks without external inducement. Rewards from intrinsically motivating tasks include feelings of achievement and self-actualization (Kunz and Pfaff, 2002). Managers act in an extrinsically motivated way if they receive tangible rewards with a measurable, quantifiable market value in exchange for delivered task effort (Bonner and Sprinkle, 2002).

In a BSC context, intrinsically motivating tasks are the result of strategic alignment (Kaplan and Norton, 1996). However, in practice, most companies implement a BSC-based compensation plan to motivate managers extrinsically to work towards organizational objectives (Ittner and Larcker, 1998b).

Later, we will argue that intrinsic and extrinsic motivation intervenes in the relation between strategic alignment and organizational performance.

Theoretical model

Figure 1 shows our theoretical model.

The following sections outline the theoretical propositions within the model.

The effect of strategic alignment on organizational performance

We hypothesized that the strategic alignment of manufacturing processes positively affects organizational performance by:

- creating an explicit link between BSC performance measures and a corporate business strategy; and
- including more non-financial and controllable, operations-based performance measures.

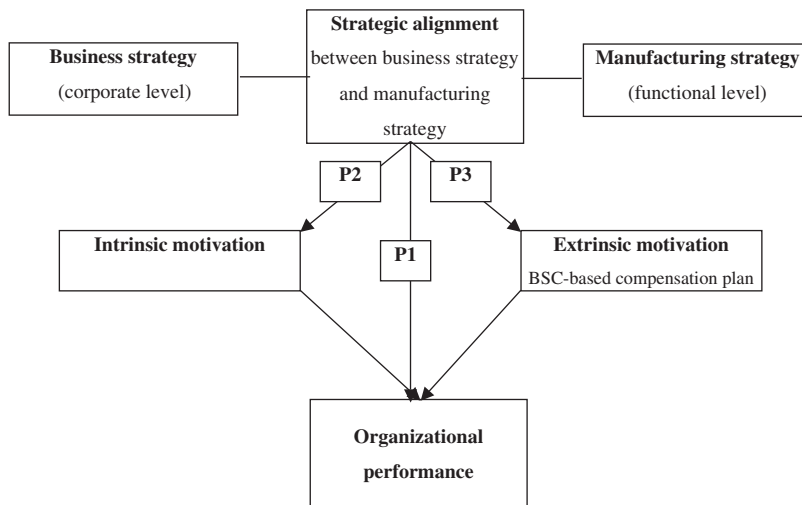


Figure 1.
Theoretical model

The effect of strategically aligned performance measures

A strategic alignment process matches performance measures with a business strategy (Epstein and Manzoni, 1998). Therefore, we first review the effects of strategically aligned performance measures. The results of a survey in 140 Australian manufacturing companies by Chenhall and Langfield-Smith (1998) revealed a positive association between a company's strategic priorities (e.g. low product price or differentiation), its management control practices (e.g. use of non-financial performance measures) and its perceived organizational performance (i.e. the respondents' perception of organizational performance relative to their major competitors). Abernethy and Lillis (1995) conducted semi-structured interviews in 42 Australian manufacturing companies to examine the impact of aligning a strategy of manufacturing flexibility and the performance measurement system on perceived organizational performance. Their study showed that an alignment had a positive effect on perceived organizational performance.

Perera *et al.* (1997) extended the study of Abernethy and Lillis (1995) by defining the manufacturing strategy more broadly (their operationalization of manufacturing strategy included flexibility, low operating costs, high product quality and dependable supply). Perera *et al.* (1997) used a survey method and a more broadly based random sample comprising 109 Australian manufacturing companies. In contrast to Abernethy and Lillis (1995), these authors found that an alignment of the manufacturing strategy and the performance measurement system had no positive effect on perceived organizational performance. Perera *et al.* (1997) attributed this to the absence of a performance-contingent compensation plan. Although this is a plausible explanation, we propose an alternative: that the performance measures were aligned to a manufacturing strategy that did not support the corporate business strategy. In other words, it is possible that linking performance measures to a manufacturing strategy will lead to improved organizational performance only if the manufacturing strategy supports the corporate business strategy effectively and efficiently.

The cascading process of a BSC explicitly seeks to link the BSC performance measures to a business-supportive manufacturing strategy. Empirical evidence shows that there is a positive effect of strategically aligned BSC performance measures on organizational performance. Ittner and Larcker (2003) point out that “not linking (non-financial) performance measures to the business strategy is one of the reasons for not benefiting from (non-financial) performance measurement” (p. 90). Davis and Albright (2004) found empirical evidence of superior financial performance by bank branches that implemented the BSC, in contrast to bank branches that did not. The authors attributed their finding to the fact that BSC-implementing bank branches had strategically aligned performance measures, in contrast to other bank branches. Braam and Nijssen (2004) conducted a questionnaire survey in Dutch business-to-business companies and found that the BSC affects organizational performance only if the performance measures are strategically aligned. Moreover, their results showed that mechanistic BSC use – i.e. the use of BSC without a clear link to corporate business strategy – even decreased organizational performance. Ittner *et al.* (2003b) investigated the performance implications of the BSC in financial services firms. Their results showed that, to achieve improved organizational performance with the BSC, it is important to align the performance measures with the strategy and to have greater measurement diversity – more financial and, particularly, more non-financial performance measures – than competitors with similar strategies.

The effect of non-financial, operations-based performance measures

BSC performance measures are derived from a business-supportive manufacturing strategy. Abernethy and Lillis (1995), Fullerton and McWatters (2002) and Perera *et al.* (1997) showed that a performance measurement system includes more non-financial and operations-based performance measures if the manufacturing strategy – e.g., of manufacturing flexibility, Just in Time, or customer focus – determines the choice of performance measures. In this section, we review the literature on the performance effects of non-financial and operations-based performance measures.

Hoque and James (2000) found that the inclusion of more non-financial performance measures in the four perspectives of the BSC was positively correlated with perceived organizational performance. Furthermore, Ittner and Larcker (1998a) and Banker *et al.* (2000) showed that non-financial performance measures – e.g. customer satisfaction – are drivers of future organizational performance. Non-financial performance measures are better predictors of future organizational performance than financial performance measures, because the former contain additional, forward-looking information that is not reflected in financial performance measures. This type of information helps employees to focus on the long-term performance consequences of their actions. As a result, the inclusion of more non-financial performance measures in the BSC is expected to lead to improved future organizational performance.

Operations-based targets motivate performance on activities of which performance is measured; in other words, operations-based targets trigger goal-directed behaviour. The establishment of operations-based targets will facilitate the provision of strategic feedback by allowing the evaluation of actual performance against the operations-based targets. Goal-directed behaviour and strategic feedback are expected to enhance organizational performance (Chenhall, 2005).

Proposition 1

As a result of the cascading process, the BSC includes strategically aligned, non-financial and operations-based performance measures. The research reviewed in this section has demonstrated a positive relationship between strategically aligned, non-financial and operations-based performance measures and organizational performance. This leads to the following proposition:

- P1.* Better strategic alignment between the business goals (corporate level) and the operational goals (functional level) as a result of a BSC's cascading process has positive effects on a company's (perceived) organizational performance.

Intrinsic motivation, strategic alignment and organizational performance

This section develops a theoretical proposition for the effects of strategic alignment, intrinsic motivation and organizational performance. First, we examine how strategic alignment processes create intrinsically motivating tasks. Then, we propose a positive relationship between strategic alignment, intrinsic motivation and organizational performance.

Strategic alignment and intrinsic motivation

Managers perceive tasks as intrinsically motivating if:

- the tasks are meaningful;
- the managers themselves have responsibility for the task outcome; and
- the tasks increase managers' opportunity for self-development, i.e. the opportunity to learn from feedback (Davis *et al.*, 1997).

In this section, we show how a BSC's strategic alignment process:

- makes managers aware of the meaningfulness of their tasks;
- gives managers responsibility for their task outcomes; and
- enables the provision of strategic feedback.

A BSC's cascading process aligns superiors' and managers' objectives (Kaplan and Norton, 1996). As such, managers who work towards their personal objectives contribute to the achievement of the organizational objectives. In other words, effective strategic alignment processes make managers aware of the meaningfulness of their work for the company.

As a result of strategic alignment processes, a manager's BSC contains strategically aligned and operations-based performance measures. However, this process does not provide managers with detailed instructions on how to achieve good results on the performance measures (Ahn, 2001). Thus, strategic alignment processes empower the managers and give them the responsibility for their task outcomes.

As a result of strategic alignment processes, aggregated corporate performance objectives are translated into operations-based performance measures. In this way, strategic alignment makes it possible to provide managers with information on the results of their actions in their own (operational) language. This feedback information can be used to make decisions and to take actions to improve organizational performance.

Proposition 2

Strategic alignment creates intrinsically motivating tasks. Stewardship theory predicts that increased internal work motivation will lead to higher levels of organizational performance (Davis *et al.*, 1997). Moreover, several studies (Baker *et al.*, 1988; Sansone and Harackiewicz, 2000) found that intrinsic motivation leads to more creative problem solving and to innovation, and consequently to higher organizational performance.

These lines of reasoning lead to the following proposition:

- P2. Strategic alignment between the corporate business strategy, the manufacturing strategy and managers' BSC increases managers' intrinsic motivation, which results in higher organizational performance.

Extrinsic motivation, strategic alignment and organizational performance

In a BSC setting, superiors induce extrinsic motivation by means of a BSC-based compensation plan. There has been little research on the impact of BSC-based compensation plans. Ittner *et al.* (2003a) showed that a subjective BSC-based compensation plan (i.e. a compensation plan that does not attach weightings to the BSC performance measures) distorted superiors' performance evaluations. Concretely, superiors' performance evaluations were affected by financial performance measures only, and not by non-financial performance measures. To our knowledge, the effect of an objective BSC-based compensation plan (i.e. a compensation plan that attaches weightings to the BSC performance measures), such as the compensation plan in our case study, has not been investigated. The literature on strategic compensation provides mixed evidence on the effects of pay-for-performance (Barkema and Gomez-Mejia, 1998); however, we expect that a BSC-based compensation plan has a positive effect on organizational performance, because it combines strategically aligned and controllable operations-based performance measures with extrinsic rewards. In the following paragraphs, we draw on agency theory and expectancy theory to describe the theoretical underpinning of the relationships between strategic alignment, extrinsic motivation and organizational performance.

Agency theory

Agency theory assumes that the interests of superiors and subordinates are divergent. Subordinates are assumed to act in their self-interest, at a certain utility loss to the superior. Superiors will try to limit their potential utility loss from subordinates' opportunistic behaviour by implementing monitoring and incentive systems (Baiman, 1990).

In the previous section, we reasoned that a BSC's strategic alignment process produces intrinsically motivating tasks for manufacturing managers. In the agency-theory literature, the issue of linking extrinsic rewards to intrinsically motivating tasks is considered to be a separate subject. According to Ryan and Deci (2000), extrinsic rewards for intrinsically motivating tasks may diminish managers' intrinsic motivation for a task. This phenomenon is widely referred to as the undermining effect of extrinsic rewards on intrinsic motivation (Baker *et al.*, 1988; Banker *et al.*, 1996; Ryan and Deci, 2000). An undermining effect of extrinsic rewards implies that managers will attribute their task motivation to the extrinsic reward, rather than to intrinsic motivation. When the extrinsic reward is removed, the manager will no longer be intrinsically motivated to expend effort on the task. Consequently, the level of post-reward organizational performance will be lower.

Kunz and Pfaff (2002) conducted a meta-analysis in agency relations to examine the antecedents of the undermining effects of extrinsic rewards on intrinsic motivation. They concluded that reductions in the level of post-reward performance occur only when all of the following conditions are met: a very high level of initial task interest, no supervision or social surveillance over the task, no room for improvement in the task and inappropriateness of the extrinsic reward. They concluded that these antecedents are not prevalent in business corporations because many jobs are not interesting enough to foster intrinsic motivation alone, because many jobs involve supervision and/or social surveillance, because many jobs involve possibilities for performance improvement, and because employees expect to be paid in exchange for their labour. Because Kunz and Pfaff (2002) stated that there is no substantive reason to fear an undermining effect of extrinsic rewards on intrinsic motivation, we predict that BSC-based compensation plans improve organizational performance.

Expectancy theory

Expectancy theory (Vroom, 1964) explains how extrinsic motivation can lead to higher organizational performance. Kreitner *et al.* (2002, p. 211) summarize the expectancy theory as follows:

The strength of a tendency to act in a certain way depends on the strength of an expectancy that the act will be followed by a given consequence (or outcome) and on the value or attractiveness of that consequence (or outcome) to the actor.

There are three key concepts in the expectancy theory: expectancy, instrumentality and valence. Expectancy represents an individuals' belief that their effort will be reflected in a performance measure. Instrumentality represents their belief that a particular outcome – for example, a monetary bonus – is contingent on their reaching a specified level of performance. Valence refers to the positive or negative value that individuals place on outcomes.

According to expectancy theory, a BSC-based compensation plan is expected to enhance organizational performance if compensation is tightly linked to performance (the instrumentality condition), if meaningful rewards are offered (the valence condition) and if managers' effort is reflected in the BSC performance measures (the expectancy condition). This last condition is facilitated in a BSC setting, because a BSC's cascading process creates more controllable, non-financial and operations-based performance measures.

Proposition 3

Agency theory and expectancy theory lead to the following proposition:

- P3.* Strategic alignment, combined with a BSC-based compensation plan, increases managers' extrinsic motivation, which results in higher levels of organizational performance.

Theory illustration case

Choice of research method

Thus far, we have developed a theoretical model to explain the relationship between strategic alignment, motivation and organizational performance. In this section,

we complement our theoretical model with a theory illustration case, to provide evidence for the plausibility of our theoretical model (Keating, 1995).

Our theoretical model states that strategic alignment is a precondition for improving organizational performance with a BSC. We argue that:

- a BSC's strategic alignment process motivates managers intrinsically to improve organizational performance; and
- the linkage of extrinsic rewards – a BSC-based compensation plan – to strategically aligned performance measures motivates managers extrinsically to improve organizational performance.

To illustrate this theoretical model, we conducted a case study in which a BSC and BSC-based compensation plan were implemented without creating strategic alignment. If there is no strategic alignment, our theory predicts that there will be uncontrollable performance measures, an absence of motivation among managers and no (perceived) improvement in organizational performance. We complemented our case study with semi-structured interviews to capture managers' perceptions with regard to our predictions. For the purposes of our research objective (theory illustration), a case study had a distinct advantage, because it enabled us to probe, which is an important technique used when conducting qualitative research (Yin, 2003). This technique allowed us to ask follow-up questions so that we were able to gain a clear and complete understanding of the answers and their organizational context.

Company details

A Danish Company (DC), whose name has been disguised at the request of the company, is a leading producer of polyolefin plastics. We conducted our analysis on a Belgian manufacturing division of the Company, comprising three manufacturing locations with a total production of 900,000 tons of polyolefin in 1999. Sales amounted to €1.1 billion. The division employed about 670 personnel.

We gained access to DC because of a business relationship between one of us and executives of the Company. In this sense, the case study has not benefited from a random sampling approach. However, the research site is attractive on objective grounds, because DC implemented a BSC and BSC-based compensation plan, without first executing a cascading process.

The data were collected through in-depth interviews. Interviewees were chosen at random among the division's personnel. The interview data were obtained from six middle-level managers who had been rewarded under the company's BSC-based compensation plan. Among the middle-level managers, there were four production-unit managers and two staff members. At the time of the interviews, the managers had at least one year of experience with the BSC and BSC-based compensation plan, and all had experienced the complete introduction of the BSC-based compensation plan. We interviewed only middle-level managers as opposed to other employees because other employees were not evaluated or rewarded based on the BSC.

Data collection

We obtained archival data – background and policy documents – from managers who administer the BSC and the BSC-based compensation plan. All interview data were obtained through in-depth interviews in August 2000, which lasted 30-90 minutes,

depending on how much each participant had to say. Both authors attended all interviews. One of us asked questions and the other took notes and captured commentary. The authors conferred immediately after each interview, to complete abbreviated notes that might have been difficult to decipher later.

The study used a semi-structured interview format and assured respondents of anonymity. The following open questions were asked during each interview.

- (1) Describe the scorecard that serves as the basis for your BSC-based bonus.
- (2) Describe DC's strategy.
- (3) Do you feel more motivated to accomplish organizational goals after the implementation of the BSC-based compensation plan?

Participants who reported a positive experience of the BSC-based compensation plan were asked the following additional question during the interview.

- (4) What aspects of the BSC and the BSC-based compensation plan are major sources of your motivation?

Participants who reported a negative experience of the BSC-based compensation plan were asked the following additional question.

- (5) What aspects of the BSC and the BSC-based compensation plan are major sources of your reduced motivation or frustration?

An important benefit of open questions is that respondents may identify factors other than those anticipated by the theoretical framework of the study, which may have influenced the effectiveness of the BSC/BSC-based compensation plan.

Strategy of the research site

A BSC translates the business strategy into controllable performance measures. Thus, first, we describe DC's business strategy. To guide its business, DC established three strategic priorities:

- (1) to act as a responsible corporate citizen;
- (2) to increase value for its owners and customers; and
- (3) to create a good working environment.

DC wants to act as a responsible corporate citizen in the plastics industry, an industry that suffers from an environmentally unfriendly image. Therefore, the company's strategy is to become a leader in issues affecting health, safety and environment. Accordingly, senior management pursues a "zero-incident" policy. This means that senior management is determined to achieve zero work-related accidents, injuries and illnesses. Besides, senior management wants to reduce plant emissions steadily. To increase value for its owners and customers, DC tries to minimize costs and to maximize productivity. DC wants to create a good working environment because it recognizes that it can succeed only through high levels of performance by its personnel.

The purpose of the BSC

The most important aim in introducing the BSC in the Belgian manufacturing division was to improve goal orientation. Before the BSC, the company listed more than 100 initiatives for goal orientation. A first attempt to improve goal orientation in

January 1998 was inspired by the European foundation for quality management model (the EFQM). The introduction of this model forced management to cluster those initiatives into fewer objectives. However, because the performance measures in the EFQM model were not strategically aligned, the company decided to implement the BSC. In the third quarter of 1998, the BSC was implemented top-down by the corporate company. From the start, DC used its BSC to evaluate and reward its managers.

The structure of the BSC

DC has arranged its measures in perspectives that reflect its own priorities and culture. The four scorecard perspectives in this company are: responsible care, manufacturing, customer and people. The responsible care perspective covers performance measures for health, safety and the environment. The manufacturing perspective covers performance measures that represent the degree of efficiency of internal business processes. The performance measures in the customer perspective measure customer satisfaction. The performance measures in the people perspective measure managers' motivation and their learning capacity.

A summary of the measures used in DC's BSC is shown in Table I.

Description of the BSC-based compensation plan

The driving concept of a BSC-based compensation plan is to pay individuals on the basis of their performance. Pay-for-performance means that at least some portion of employees' income is not guaranteed but depends on their performance results.

We use the framework of Hilton *et al.* (2003) to describe DC's BSC-based compensation plan. According to this framework, the designers of compensation plans must choose one type or quality of measure from each of the following sets:

- absolute or relative performance measures;
- financial or non-financial performance measures;
- narrow or broad responsibility of performance;
- formula-based or subjective performance evaluation and compensation;
- current or deferred rewards; and
- salary, bonus or stock rewards.

Perspective	Performance measure	Target
Responsible care	Industrial accidents	No industrial accidents
	Sick leave due to industrial accidents	No sick leave due to work-related accidents
	Factory emissions	No factory emissions
Manufacturing	Fixed costs	Minimize fixed costs
	Labour costs	Minimize labour costs
	Scrap	Minimize scrap
	Productivity	Maximize productivity
	Rework	Minimize rework
People	Sick leave	Highly motivated employees
	Training days	Multi-skilled employees
Customer	On-time delivery	Satisfied customers
	Complaint frequency	Satisfied customers

Table I.
Performance measures
in the BSC

A summary of the measures used in DC's BSC-based compensation plan is shown in Table II.

A comparison of Table I (i.e. performance measures in the BSC) and Table II (i.e. performance measures in the BSC-based compensation plan) reveals that the BSC-based compensation plan does not include the following performance measures: factory emissions, labour costs, productivity, and sick leave. Senior management excluded these performance measures from the BSC-based compensation plan because they believed that middle-level manager' decisions and actions could not affect these results.

Absolute and relative performance measures. DC uses a mix of absolute and relative performance measures. The company evaluates managers on the basis of their absolute achievement of financial and non-financial performance measures if it is possible to set appropriate absolute targets. DC evaluates managers with respect to their relative achievement of financial and non-financial performance measures if benchmarking data for comparable industries are available.

Financial and non-financial performance measures. Financial performance measures have financial targets. Non-financial performance measures are measured in non-monetary terms, and often reflect the drivers of financial performance. DC's BSC-based compensation plan includes financial performance measures (e.g. fixed costs) as well as non-financial performance measures (e.g. on-time delivery).

Broad responsibility of performance. An organization can define performance narrowly or broadly. In this regard, a manager's reward can depend on the performance of that individual, on the performance of the business unit, or on the performance of the company as a whole. At DC, rewards depend on the performance of the corporate company, and thus managers have a broad responsibility for performance.

Formula-based compensation. DC bases rewards on a formula. More specifically, DC uses a performance index parameter that is calculated according to aggregate financial and non-financial performance measures. The following formula is used to determine the performance index parameter (Figure 2).

The performance index parameter (per cent) is the sum of contributions of each performance measure. The contribution of each performance measure is the product of the weighting of each performance measure and a result factor. The result factor is calculated by a program as a function of the actual result versus the borders. DC has defined four borders. Border 1 corresponds with a degree of target realization of

Perspective	Performance measure	Target
Responsible care	Number of industrial accidents	No industrial accidents
	Sick leave (days) due to industrial accidents	No sick leave due to work-related accidents
Manufacturing	Fixed costs (million €)	Minimize fixed costs
	Number of ton rework	Minimize rework
	Number of ton scrap	Minimize scrap
Customer	Complaint frequency	Satisfied customers
	On-time delivery	Satisfied customers
People	Number of training days	Multi-skilled employees

Table II.
Performance measures
in the BSC-based
compensation plan

Figure 2.
Formula to calculate a performance index parameter

<p>Performance index parameter</p> <p>= Σ total score on each performance measure</p> <p>Total score on each performance measure</p> <p>= Result factor \times the weighting of the performance measure</p> <p>Result factor</p> <p>The result factor indicates the extent to which the target on a performance measure is realized.</p>
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70 per cent, border 2 of 90 per cent, border 3 of 110 per cent, and border 4 of 130 per cent. Figure 3 shows the relationship between the degree of target realization (the border) and the result factor.

Table III is an illustration of the calculation of the performance index parameter.

Assume that the actual result for industrial accidents is 3.5. This score is situated between borders 1 and 2 (Table III). This position corresponds with a degree of target realization between 70 and 90 per cent. The result factor amounts to 50 per cent (Figure 3). The contribution of the performance measure industrial accidents to the performance index parameter is 6 per cent (i.e. 50×12 per cent), given that the weighting for the performance measure industrial accidents is 12 per cent. If this procedure is repeated for each performance measure, the performance index parameter can be calculated.

Current rewards. Managers at DC receive a current reward based on past performance, instead of a future reward based on sustained performance.

Cash bonus. DC rewards its managers with a cash bonus at the end of each year. The bonus is calculated by multiplying the performance index parameter by the maximum percentage of yearly salary that is variable. In the year 2000, the maximum percentage of yearly salary that was variable was 7 per cent. Therefore, the bonus pay as a percentage of the yearly salary can be calculated by multiplying the performance index parameter (e.g. 25 per cent) by seven. In that year, the maximum bonus was 1.75 per cent of annual salary.

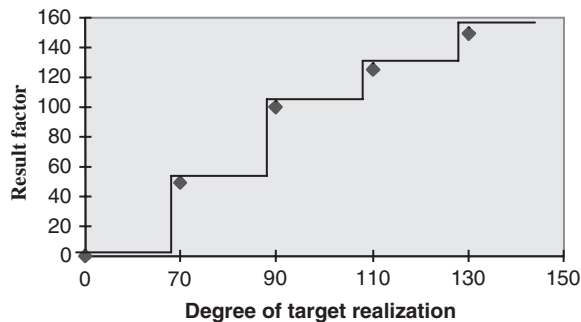


Figure 3.
Relationship between degree of target realization and result factor

KPI parameters	Weighting (per cent)	Border 1	Border 2	Border 3	Border 4	Actual result	Result factor (per cent)	Total (per cent)
Number of industrial accidents	12	4	3	2	1	3.5	50	6
Sick leave (days)	13	6	5	4	3	5.5	50	6.5
Fixed costs (million €)	13	77.5	75	72.5	70	82.5	0	0
Number of ton rework	12	90,000	80,000	70,000	60,000	80,369	50	6
Number of ton scrap	13	120,000	100,000	80,000	60,000	121,246	0	0
Complaint frequency	12	0.40	0.30	0.20	0.10	0.43	0	0
On-time delivery (per cent)	12	97	98	99	99.9	96	0	0
Number of employees taking a multi-skilling course	13	50	60	70	80	53	50	6.5
Performance index parameter (per cent) = sum of total score on each performance measure								25

Table III.
Performance index
parameter

Results and discussion

Results

At DC, there is no strategic alignment between the corporate business strategy and the manufacturing strategy, because the company implemented the manufacturing-level BSC and the BSC-based compensation plan in a top-down process.

Because there was no cascading, the corporate business objectives were not translated into operations-based objectives. Middle-level manufacturing managers perceived the performance measures in the manufacturing-level BSC as uncontrollable, because those measures were overly aggregated and expressed in terms of corporate objectives. Manufacturing managers and staff personnel were unable to conceive how their specific knowledge and abilities could contribute to improved organizational performance; consequently, they did not become aware of the practical value (meaningfulness) of their tasks. In DC, the lack of strategic alignment negatively impacted managers' intrinsic motivation to improve organizational performance.

The linking of bonus pay to the BSC performance index parameter further reduced the level of motivation. Because of a lack of cascading, the bonus pay of middle-level manufacturing managers and staff personnel was contingent on corporate performance objectives rather than on manufacturing performance objectives. In other words, the manufacturing managers were evaluated on the performance objectives for the higher organizational level. Consequently, the expectation that individual effort would be reflected in the corporate performance measure was not fulfilled. The lack of cascading also violated what would have been an instrumental relationship between the performance index parameter and the bonus pay. It was possible that middle-level managers did not earn a bonus despite the success of projects for which they were responsible. This could happen if the target on the corporate performance measure was not achieved because another business unit performed significantly below target. Because bonus pay was contingent on corporate performance, manufacturing personnel may have been penalized for the under-performance of other business units. Moreover, bonus pay (1.75 per cent of yearly salary in the year 2000 at DC) was perceived to be insufficient to extrinsically motivate personnel to achieve higher levels of organizational performance.

Apart from the lack of cascading, the interviews revealed two other reasons, not anticipated in our theoretical model, for a lack of managers' motivation to improve organizational performance. First, middle-level managers experienced the performance measures as uncontrollable because they could not influence the performance measures during the period covered by the compensation plan. For example, "days of sick leave" is a possible measure of employee satisfaction, but it may take a company some time – perhaps years – to improve this variable, which typically requires a change in corporate culture. Second, middle-level managers experienced a lack of control when the performance measures were noisy, or when the average number of events in a period was low. For example, a small business unit with a low average number of sick days can suddenly drop below target because of just one long instance of sick leave, even though overall employee satisfaction was under control during the period.

Discussion

The findings of this case study cannot be generalized to the population of manufacturing companies because the BSC design and implementation process was

company specific. However, our theoretical model and the case study results have yielded several conclusions.

Firstly, a top-down implemented, manufacturing-level BSC-based compensation plan does not create positive motivation to improve organizational performance. To create positive motivation for higher levels of organizational performance, corporate and manufacturing objectives and managers' BSC must be strategically aligned. To facilitate a strategic alignment process, manufacturing executives should be actively involved in a BSC design and implementation process.

In addition, during a BSC's cascading process, corporate-level strategic objectives are translated into functional-level performance objectives. Senior management should not issue detailed instructions on how to achieve these functional-level performance objectives. This working method will empower managers and will enable a company to take full advantage of manufacturing personnel's specific knowledge and abilities to improve organizational performance. This working method is expected to intrinsically motivate manufacturing personnel to achieve higher levels of organizational performance.

A BSC-based compensation plan will motivate manufacturing personnel extrinsically if meaningful rewards are linked to performance measures that they can influence.

Limitations and directions for future research

We conducted a case study only, and thus it is not possible to generalize the results to the population of manufacturing companies. However, this case study was in a setting that allowed us to illustrate some theoretical predictions. DC's BSC reflects the company's particular strategic priorities, and thus does not contain a financial perspective. In this case, the responsible care perspective replaces the traditional financial perspective because responsible care is the focus of DC's strategy. DC's BSC is valid because its BSC performance measures are aligned to the company's corporate business strategy and value drivers. We did not attempt objective measurement of intrinsic and extrinsic motivation; instead, we asked respondents for their perceptions regarding their motivation with respect to the BSC-based compensation plan.

Keating (1995) recommended that the next step in research involving theory illustration cases is to test the illustrated theory. To formally test the relationship between strategic alignment, motivation and organizational performance in BSC companies, a survey questionnaire is the most appropriate research methodology. It will be a challenge to define "BSC companies", because a BSC is not a generic construct; instead, companies tend to design a unique BSC that is tailored to its unique strategy. Further case-study research can refine our theoretical model. Case studies in various BSC settings can reveal more variables that intervene in or moderate the relationship between strategic alignment and organizational performance. Finally, it would be valuable to investigate how to link rewards effectively to both business unit performance (at the functional level) and corporate performance (Langfield-Smith, 1997).

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