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**Exploring the Antecedents of Balanced Scorecard  
Adoption as a Performance Measurement and  
Strategic Management System**

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## **Abstract**

Despite the fact that academics and management accountants have demonstrated a considerable interest in the Balanced Scorecard (BSC), we still know little about how to implement effectively this comprehensive performance measurement and management tool. This paper examines factors that affect BSC adoption, drawing on Rogers' framework of organizational innovativeness (1995) and distinguishing between the BSC as a performance measurement system (Kaplan and Norton, 1992) and as a strategic management system (Kaplan and Norton, 1996, 2001, 2006). Using empirical evidence from 40 Dutch companies, the regression analyses performed indicate that certain factors (e.g. top management involvement, influence of the finance department) play a significant role in the adoption of both types of BSC, while other factors are significant only for BSC as a strategic management system (i.e. top management involvement combined with high levels of centralization and extensive interdepartmental communication positively affect BSC adoption as a strategic management system, while formalization may hinder this type of adoption). Finally, there are some factors (e.g. centralization and product-market dynamics) that do not influence either type of BSC adoption. We discuss these findings and their managerial implications.

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## **1. Introduction**

The Balanced Scorecard (BSC) is probably one of the most important recent accounting innovations. It is supposed to enhance organizational performance by allowing top managers to better manage their companies' key organizational processes resulting in an improved competitive market position and company performance. Managers' expectations are high, explaining why there is considerable managerial and academic interest in this management tool. However, administrative innovations like the BSC typically lack detailed "product specifications", which makes interpretation and implementation difficult. Empirical research confirms that managers find them hard to use and think that their positive influence is uncertain at best (Ahn, 2001; Malmi, 2001; Kasurinen, 2002; Speckbacher, Bischof and Pfeiffer, 2003; Ittner, Larcker and Randall, 2003; Ax and Bjørnenak, 2005; Chenall, 2005). Moreover, results confirm that different interpretations of BSC exist. A better understanding of conditions that facilitate or inhibit BSC-adoption and implementation might help to improve the tool's effectiveness in managing firms strategically.

The BSC was first introduced by Kaplan and Norton in 1992 as a performance measurement system designed to provide managers with a way of translating strategy into a set of financial and non-financial measures covering different domains of the organization. Although they emphasized the need for strategy alignment, directions for alignment and implementation were limited. In 1996 the authors extended their view, formally proposing it as a strategic management tool. They described and explained how to link strategy formulation and BSC development, and thus manage a company's strategy based on sound, formal and integrated accounting principles (Kaplan and Norton, 1996, 2001, 2006). Although since its introduction several case-based studies have appeared discussing BSC adoption and implementation issues, a systematic and quantitative review of adoption characteristics of this administrative innovation is still missing (Malina and Selto, 2001; Malmi, 2001; Ax and Bjørnenak, 2005).

This paper aims to contribute to the understanding of the factors that affect BSC-adoption. Consistent with Kaplan and Norton's old specification and the more recent specification of the BSC, we distinguish between two conceptualizations of BSC: BSC as a performance measurement system (PMS) (Kaplan and Norton, 1992), and as a strategic management system (SMS) (Kaplan and Norton, 1996, 2001). We develop hypotheses regarding antecedents of adoption of the BSC in general and differential effects for these two conceptualizations of BSC in particular, drawing on Rogers' framework of organizational innovativeness (1995). We test our model and hypotheses using a sample of 40 Dutch

companies, operationalizing the degree to which their performance measurement and management systems resemble each of these two conceptualizations of BSC. The results show that certain factors play a significant role in the adoption of both BSC types, while others are only significant for the BSC as SMS.

Our study contributes to the literature in two ways. First, it contributes to the domain of accounting. Little research has been undertaken towards understanding the factors that affect BSC adoption. Moreover, most of this research is qualitative not quantitative. The aim is to help move the BSC beyond the status of a fashion in management accounting, and help managers that aim to implement the BSC in accordance with Kaplan and Norton's most recent specifications by emphasizing those adoption characteristics uniquely important for BSC as a strategic management system. Second, it adds to our understanding of the adoption of administrative innovations. Such innovations are often ill-specified allowing for multiple interpretations. Although there has been a noticeable increase in the number of adoption studies focusing on administrative innovations and their adoption characteristics, limited attention has been paid to examining variation in the form and extent of adoption itself.

The remainder of the article is organized as follows. First, we discuss the theoretical background of our study focusing on the literature of adoption of administrative innovations and developing our hypotheses developed regarding the antecedents of the two types of BSCs, including differential effects. Next, we describe the research method and present and discuss the results. Finally, we draw conclusions and discuss implications for managers.

## **2. Theoretical Background**

### **2.1 Administrative adoption research**

The literature on organizational innovativeness has paid considerable attention to explaining innovation adoption decisions using adopter and innovation characteristics (Rogers, 1995; Robertson and Gatignon, 1986). Its premise has been that organizations that adopt an innovation have characteristics that distinguish them from non-adopters. Early studies focused on technical innovations such as product and process innovations rather than administrative innovations. Recently, however, interest in administrative innovations has increased substantially. It now covers a wide range of topics, including market orientation (Jaworski and Kohli, 1993), new product development tools (Nijssen and Frambach, 2000), Total Quality Management (TQM) (Westphal, Gulati and Shortell, 1997), HRM practices (Wolfe, 1995; Murphy and Southey, 2003) and Activity-Based Costing (ABC) (Shields, 1995; Swenson, 1995;

Anderson, 1995; Gosselin, 1997; BjØrmenak, 1997; Krumwiede, 1998; Anderson and Young, 1999; Malmi, 1999). The results from these studies draw attention to several issues that are important to the domain of the adoption of innovations in general and future studies of the adoption of administrative innovations in particular. We discuss this next.

Intangibility has been found to lead to serious variation in the interpretation and use of administrative innovations. While product innovations tend to be determined by their tangible design and content, administrative innovations are multi-interpretable and particularly prone to a lack of clear description and detailed instructions (Benders and Van Veen, 2001; Kieser, 1997). For instance, under the label of TQM various forms of management systems were adopted by organizations, while still meeting many of the tool's key requirements such as customer focus, systematic quality measurement and procedures for improvement (Easton and Jarrell, 2000). Research investigating the use of the technique of brainstorming in New Product Development processes showed that, when using a very strict classification scheme, only a small number of firms used this technique. However, when the classification criteria were relaxed, over 90 percent of firms used the tool. Self-invention, unawareness of tool details, and customization explain many of the deviations from the normative descriptions of management tools (Geschka, 1978).

Closely related to this issue, is the need to distinguish between levels of adoption. Most studies on adoption of technical innovations have used a dichotomous classification of adopters versus non-adopters. The assumption is that non-adopters do not and adopters do use the innovation. However, the extent of use may vary widely between adopters. For example, the purchase of MS-Office software suggests adoption but more careful examination shows that many users forego using, for instance, the statistical options of the MS-Excel program or show large variation in level of usage. To address this issue, adoption research recently developed more detailed measures of adoption that include intensity of use. For intangible and complex administrative innovations, factoring in the level of use may be particularly important (Shih and Venkatesh, 2004).

Thus, when studying administrative innovations such as the BSC, it is important to take into account the variation in the form and level of adoption. Consistent with Kaplan and Norton (1992; 1996, 2001), we distinguish between two types of BSC adoption: the BSC as a PMS and as a SMS. In accordance with Kaplan and Norton (1992), we conceptualize the adoption of a BSC as PMS as a management's introduction of a comprehensive performance system that uses a coherent set of financial and non-financial performance measures covering all the different

perspectives that were identified by Kaplan and Norton, i.e. financial, customer, internal business process, and learning and growth orientation, but which is only loosely coupled to company strategy. Following Kaplan and Norton (1996, 2001 and 2006), we consider the adoption of the BSC as SMS as a management's adoption of a performance measurement system that covers all the different perspectives mentioned, and is closely related to company strategy and its implementation. Consistent with this conceptualization, we depict BSC as a SMS as a more elaborated and strategy-focused and aligned control concept than BSC as a PMS. The BSC as a SMS includes both the comprehensive measurement system and clear management processes and principles to ensure the alignment of the BSC performance indicators with strategy allowing for enhanced strategy effectiveness.

Next, we specify a model for studying antecedents of adoption of the BSC as a PMS and as a SMS, and possible differential effects.

## **2.2 Antecedents of BSC adoption as PMS and SMS**

To study factors that affect BSC adoption we built on Rogers' (1995) seminal framework of organizational innovativeness. Rogers (1995, p. 380) identified three sets of variables that influence a firm's likelihood to adopt an innovation: (1) leadership characteristics of the organization's management, (2) internal organizational characteristics, and (3) external company characteristics. These three sets and their relationships will be discussed next applying them to the BSC context. Although we distinguished between leadership and internal organization, the discussion will show the two to be closely related. Figure 1 gives an overview of the adoption characteristics that we anticipate would influence the adoption of the BSC as PMS and SMS, and possible differential effects.

**[Figure 1 about here]**

### **Leadership Characteristics**

Top managers generally have a dominant position in shaping an organization's strategy, organizational design, and management systems (Child 1972; Hambrick and Mason 1984). Having an influential position in the organization and being accountable for the effectiveness of the company's strategy and operations, their involvement has been found to be one of the most important determinants for the adoption of innovations in general, and the adoption and development of management tools and practices in particular (Frambach, Barkema, Nooteboom and Wedel 1998). Top management involvement may help to create commitment and generate

organizational support for an innovation, positively affecting adoption. This should also apply to the BSC.

Although important, leadership influence is restrained and influenced by many internal and external factors. A key factor is organizational structure. Centralization refers to the inverse of the amount of delegation of decision-making authority throughout an organization and the extent of participation by organizational members in decision-making (Aiken and Hage, 1968). Centralization has been argued to have an ambiguous effect on innovation adoption decisions (Zaltman, Duncan and Holbek, 1973; Damanpour, 1991). Centralization may hinder initial adoption because of organizational rigidity. However, a high level of centralization may help to create ready acceptance of the innovation by the different levels and functions of the organization once top management has accepted it, so a positive interaction between top management involvement and centralization may exist. The positive influence from top management involvement will be much more effective in a centralized than in a decentralized organization. High centralization allows for more speedy dissemination of the early adoption than is possible in decentralized organizations. Hence,

**H1:** *The level of top management involvement will be positively related to the adoption of the BSC.*

**H2:** *The level of centralization will be negatively related to the adoption of BSC.*

**H3:** *Centralization will moderate positively the effect of level of top management involvement on the adoption of the BSC.*

### **Internal characteristics of the organization**

The influence of the finance department was anticipated to impact BSC adoption. “Actors working in specific functions within the firm typically share professional or expertise-specific values created partly through common education... [Furthermore,] ...The institutional pressures compel the actors to adopt and conform to advanced practices developed outside the firm” (Laurila and Lilja, 2002, p. 575). Management accountants will have specific knowledge on how the organization might benefit from adopting and using performance measurement and management systems like the BSC. Such accounting-based systems will help them both to perform their tasks more effectively and efficiently, and to increase their power within the organization (Laurilla and Lilja 2002; Pfeffer and Salancik, 1977). Consequently, these actors are most likely to be champions of BSC adoption. If a department is powerful and can influence top management decisions it can not only more easily initiate the debate regarding an innovation,



but can probably also influence the outcome of the decision in its favour. Relating to the BSC, this implies that the more influential a finance department, the more likelihood the organization will adopt this performance measurement and management system.

An organization's level of formalization will also affect adoption decisions regarding innovations. Formalization represents the degree to which jobs within an organization are standardized. Like centralization, formalization has been argued to have ambiguous effects on innovation adoption processes (Zaltman et al., 1973). The literature shows that companies with a highly structured, formal organization are less likely to come into contact with innovations than their less formalized counterparts (Aiken and Hage, 1968; Jaworski and Kohli, 1993). Formal procedures and highly standardized processes tend to inhibit change. However, formalization together with strong influence of the finance department will have a positive influence on the adoption of the BSC, because in a formal organization the domain and jurisdiction of departments is clear and goes, more or less, unquestioned. As a result, a finance department's role regarding the maintaining and updating of accounting procedures will be respected. Provided that the BSC is considered to be an accounting tool – or at least considered as an accounting practice – formalization will legitimize the finance department's involvement and enhance its influence in the decision about adopting the instrument. Hence,

**H4:** *The level of influence of the finance department will be positively related to the adoption of the BSC.*

**H5:** *The level of formalization will be negatively related to the adoption of the BSC.*

**H6:** *Formalization will moderate the influence of influence of the finance department on the adoption of the BSC.*

The degree to which the units or departments in an organization are linked through interpersonal networks, i.e. the degree of departmental interconnectedness, also has an effect on the adoption of innovations (Kahn, 2001; Hoopes, 2001; Rogers, 1995). High levels of interconnectedness suggest high levels of communication between organizational departments, which have been found to facilitate the diffusion of new ideas among organization members. Moreover, highly connected departments are more likely to have common norms and values. Consequently, interdepartmental communication will help to get an accounting innovation like the BSC accepted and thus facilitate implementation. Hence,

**H7:** *Interdepartmental communication will be positively related to the adoption of the BSC.*

## **External characteristics of the organization**

In addition to the internal organizational characteristics, external characteristics may influence innovation adoption behaviour. A highly innovative and competitive environment can, for instance, stimulate the adoption of innovations. Innovations that fit a company's environment and help the organization align its business processes with its environment are more likely to be adopted (Meyer and Goes, 1988; Baines and Langfield-Smith, 2003). The BSC offers a performance measurement and management system that enables managers to control their organizations strategically and deal with environmental uncertainties effectively. Improved information regarding activities and their effects on company performance allows managers to monitor the progress of the strategies they have plotted, and to make decisions for improvement. Based on the BSC information they can take timely action. Empirical findings confirm a positive relationship between BSC-use and environmental turbulence (Olson and Slater, 2002). Hence,

**H8:** *The level of product-market dynamics will be positively related to the adoption of the BSC.*

## **Differential effects**

We anticipated several differential effects between BSC adoption as PMS and SMS. We will briefly review all the independent variables and discuss our thoughts on equal and differential effects. These thoughts led to the development of several additional hypotheses.

Top management support was expected to be equally important for the adoption of both types of BSC. Top managers may vary in their conceptualization and understanding of the BSC, and adopt the BSC for different reasons (Van der Meer-Kooistra and Vosselman, 2004; Westphal et al., 1997). Consequently, their support will positively influence each BSC type. Likewise no differential effect was anticipated for centralization. Centralization will inhibit the adoption of both forms of the BSC in a similar way. However, we did anticipate a differential effect for the interaction between top management involvement and centralization. We expected that BSC adoption as SMS would benefit more from top management's personal involvement in combination with a high level of centralization than BSC adoption as PMS. Centralization will enhance top management's opportunity to reach 'into' the organization strategically making its involvement more effective. Middle and lower management will also be less inclined to ignore strategic directions and arguments from top management under these circumstances and feel more inspired. Hence,

**H9a:** *The moderation effect of centralization on the relationship between top management involvement and BSC-adoption will be more important for adoption of the BSC as SMS than as PMS.*

Interdepartmental communication was expected to play a more important role in the case of the adoption of BSC as a SMS than as a PMS. Compared to a PMS type of BSC, a SMS type requires customization to a company's strategy and, therefore, careful internal coordination to reach a strategically overall meaningful structure of scorecards. Without excellent interdepartmental communications, such customization and coordination will be impossible. At the same time, interdepartmental communication is less critical for the adoption of a PMS type of BSC because its requirements for integration and strategic alignment are low relative to BSC adoption as SMS. Hence,

**H9b:** *The effect of interdepartmental communication on adoption of the BSC will be larger for adoption of the BSC as SMS than as PMS.*

The finance department's influence may also differ for both types of BSC. Because of management accountants' expertise in and responsibility for accounting-based management control and financial reporting, it is likely that their personal interpretation of the BSC will be biased towards a measurement-focused interpretation despite the fact that they may be cognitively aware of Kaplan and Norton's later conceptualization of the BSC. Consequently, the finance department's influence on adoption of the BSC may be biased in favour of BSC adoption as PMS rather than as SMS. For the same reason we suggest that the influence of the interaction between the finance department's influence and formalization on adoption of the BSC should be more important for the PMS than the SMS type of BSC.

For formalization we did not expect a differential effect. Formalization's negative effect on the adoption of innovation will work both for the PMS and SMS type of BSC. Both require breaking with currently used formal routines and practices and thus exert the same negative influence on adoption. Hence,

**H9c:** *The effect of influence of the finance department on the adoption of the BSC will be higher for adoption of the BSC as PMS than as SMS.*

**H9d:** *The moderation effect of formalization on the relationship between influence of the finance department and BSC-adoption will be higher for adoption of the BSC as PMS than as SMS.*

Finally, focusing on possible differential effects of environmental dynamics of BSC adoption as PMS and SMS, we expected environmental dynamics to be more associated with BSC adoption as SMS than as PMS. Because a SMS type of BSC will be more tuned to dealing with environmental turbulence than a PMS type of BSC, managers confronted with a turbulent and dynamic market environment will favour one over the other. The argument follows from contingency theory that suggests that companies adopt practices, routines and structures aligned with their markets. Hence,

**H9e:** *The effect of product-market dynamics will be higher for adoption of the BSC as SMS than as PMS.*

### **3. Research Method**

#### **3.1 Data Collection and sample**

We used a sample of Dutch business-to-business companies taken from a database of companies which had responded to a benchmark survey for best practices in management control conducted by Cap Gemini Ernst & Young. Only companies which were involved in performance measurement in the four areas/domains of interest of the BSC were included. In addition, to ensure the respondents' involvement in the BSC adoption process, we called each firm to identify company's suitable key informants, before mailing our pre-tested questionnaire. A summary of research findings was offered as an incentive. In total 80 companies agreed to participate. The data was collected in a single survey using a pretested questionnaire and a personalized cover letter, followed by a reminder letter and a phone call two weeks later. Of the 80 questionnaires sent out, we obtained 45 responses, representing a response rate of 56 percent. Four cases were omitted from the final analysis because its data were incomplete. A brief sample profile is presented in Table 1. The respondents were mainly management accountants and financial directors/managers (94%). Despite a bias towards capital goods companies, the sample profile was consistent with the distribution of our sampling frame.

**[Table 1 about here]**

#### **3.2 Measurement of variables**

All constructs were measured using multiple items and using Likert-type statements with five-point rating scales (1='strongly disagree'; 5='strongly agree') unless mentioned otherwise. The appendix provides an overview of the operational measures utilized for the study constructs.

*Dependent variables*

The level of adoption of a BSC as PMS was operationalized as the multiplication of the level of BSC use and the comprehensiveness of the measurements implemented. To measure comprehensive measurement use a simple formula was used. It identified to what extent information was measured in the four perspectives of the BSC, i.e. financial, customer, internal processes, and learning/growth. To establish the focus of the financial and nonfinancial performance measures used by the company, respondents were asked to divide 100 points between these perspectives. Next, the BSC use as comprehensive measurement tool was calculated utilizing the following formula:  $(100 - \sum_{i=1}^4 |\text{Score}(i) - 25|)$ . A high score reflects a situation where all four aspects are equally taken into accounting (score=+100), suggesting comprehensive measurement, whereas a low score indicates an extremely unbalanced use with 100 percent focus on a single perspective (score = -50). The assumption thus is that an equal allocation of attention over the different perspectives is most optimal (Kaplan and Norton 1992, 1996) and resembles a high general level of BSC usage as comprehensive measurement tool. Next this score was multiplied with our measure for level of PMS adoption. Four items, drawn from administrative innovation research, measured the level of adoption based on awareness and use of the BSC as PMS (Nijssen and Frambach, 2000).

The firm's level of adoption of the BSC as SMS was also operationalized for each company. Drawing on Braam and Nijssen (2004) it was conceptualized as the co-occurrence of an extensive performance measurement system and well developed company strategy. Rather than using a direct operationalization it was thus operationalized using the interaction of the companies' score for adoption of the BSC as PMS and the company's strategy defined as the pattern of choices of the organization's managers to align their business processes (including their management tools) with the environment (Johnson and Scholes, 1999; Desarbo et al., 2005). Company's strategy was measured focusing on the company's level of market proactiveness, which is the core facet of Miles and Snow's (1978) organization strategy typology (Hambrick, 1983; Segev, 1989; Hart, 1996; Christensen, 1997; Danneels, 2002).<sup>1</sup>

#### *Independent variables*

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<sup>1</sup> We validated our measure using additional company information of emphasis on low cost and product differentiation. Different strategic clusters similar to those identified by Miles and Snow (1978) were identified. They were indeed correlated with the current strategy measure. Due to too many missing values this more extensive strategy measure could not be used in the actual analyses. The validation results can be obtained from the authors.

All independent variables were measured using multiple items. Top management involvement was measured using three items referring to management's interest in and commitment to comprehensive performance management (Zaltman et al., 1973). The operationalization of the influence of the finance department was adapted from Pfeffer (1981). Centralization, formalization and interdepartmental communication were measured using two, four and three items respectively and were adapted from Covin and Slevin (1991) and Jaworski and Kohli (1993). Finally, level of product-market dynamics was measured using four items and captured the level of market and technological changes and company's response to these external developments (Miller, 1998; Mingfang and Simerly, 1998).

#### *Control variables*

Two control variables were also included in the research design, i.e. organizational size and the total number of performance measures used in periodical management reporting. Organizational size is considered a surrogate measure of several dimensions that lead to innovation adoption (Rogers, 1995). Because of economies of scale larger firms tend to adopt administrative innovations more quickly than their smaller counterparts as they have different, i.e. higher, control requirements. The number of performance measures used by the firm was controlled for to *validate* the measurement of the BSC adoption as SMS versus PMS. For the BSC adoption as SMS the strategic quality rather than the number of indicators matters (Olson and Slater, 2002), while for the BSC used as a PMS a high number of performance indicators may mask low quality of the measures used. Type of industry did not have an effect and was omitted as a control variable to keep the analyses parsimonious.

### **3.3 Statistical analysis**

The data were analysed in two stages. First, for measurement validation we used conventional methods such as exploratory factor analyses, coefficient alpha, and item-to-total correlation. To prevent multicollinearity while introducing interactions, we standardized our data. The reliability of all multiple item constructs ranged from 0.68 for influence of the finance department to 0.90 for formalization, indicating acceptable internal levels of consistency. Second, we used regression analysis to test the model. All VIF-scores in the regression analysis were below 1.8, confirming that collinearity was not a problem. In accordance with our research design and model two equations were computed: one regressed all antecedents against the organizations' BSC as PMS score while the second regression used the same antecedents but with the organizations' BSC as SMS score as the dependent variable. T-difference tests for related

samples were used to compute the significant differences in effect sizes between the coefficients of the two regressions, and thus test our differential hypotheses (H9a-e).

#### 4. Results

Table 2 summarizes the results from estimating the hypothesized adoption models shown in Figure 1.

**[Table 2 about here]**

In terms of overall model fit, the fit indices — adjusted  $R^2 = 0.40$  ( $F=3.6$ ,  $df = 9$ ,  $p<0.01$ ) for BSC adoption as PMS and adjusted  $R^2 = 0.55$  ( $F=5.7$ ,  $df = 9$ ,  $p<0.01$ ) for BSC adoption as SMS — indicate that the two regressions fitted the data adequately. The difference in adjusted  $R^2$  suggests that the independent variables better explained BSC adoption as SMS than as PMS. An explanation may be that Rogers' framework of organizational innovativeness (1995) is focused on identifying characteristics of organizations that adopt innovations to gain relative advantage, particularly to improve competitive positions and organizational performance. Because a BSC as SMS is designed to enable a company's management to keep their organization strategy-focused and to improve its strategy effectiveness, while a BSC as PMS is primarily focused on comprehensive performance-measurement usage, Roger's (1995) model may better fit BSC adoption as SMS than as PMS.

The influence of the control variable "organizational size" was significant in the regression of adoption of BSC as SMS but not for adoption as PMS, while the number of performance measures was significant in the regression of BSC adoption as PMS but not for adoption as SMS. This suggests that larger organizations are more inclined to adopt a SMS type of BSC, whereas both small and large firms use BSC as PMS. The significant coefficient for number of performance indicators, our second control variable, suggests that heavy adoption/use of the BSC as PMS involved the usage of more performance indicators in periodical management reports. The non-significant effect of number of indicators for adoption of BSC as SMS, is consistent with the notion that the strategic quality rather than the number of indicators determines the nature of this type of scorecard (Olson and Slater, 2002). These results regarding the correlation between the number of indicators and type of BSC clearly validated and supported our operationalization of the two different conceptualizations of the BSC using the same sample.

Zooming in on the direct and moderator effects (see Table 2), our results showed a significant positive effect of top management involvement on the level of BSC adoption as SMS

and PMS, while we found borderline evidence ( $p < 0.10$ ) for the influence of the finance department's positive influence on both types of BSC adoption. This means there was support for H1 and H4. Consistent with previous findings, these results suggest that high levels of top management involvement and influence of the finance department facilitated the adoption of both types of BSC.

No significant influence of centralization on either type of BSC adoption was found, providing no support for H2. However, centralization positively moderated the effect of top management involvement on the SMS type of BSC adoption, but did not significantly affect the adoption of the BSC as PMS. Partial support was therefore found for H3. Similarly, interdepartmental communication and formalization influenced the adoption of BSC as SMS positively and negatively respectively, but did not significantly affect the adoption of BSC as PMS. This suggests partial support for H5 and 7. Contrary to our predictions, the results showed no significant effects of the interaction between influence of the finance department and formalization on either type of BSC adoption. Product-market dynamics also had no effect on either type of adoption of BSC. This means that the results did not support H6 and H8.

Turning to the hypothesized differential effects between the two types of BSC adoption, two hypothesized effects were found to be significant. The interaction between top management involvement and centralization and interdepartmental communication were both more important for the adoption of BSC as SMS than as PMS. These results supported H9a and H9b, highlighting the importance of top management's involvement in centralized organizations and extensive interdepartmental communication for BSC adoption as SMS. A centralized organization allows personally involved top management to explain and communicate their vision more directly, influencing positively a BSC's customization to strategy. Consistent with Kaplan and Norton's (2001) observation that communication is "a major lever for organizational success" to create a strategy-focused organization (p.217), we found interdepartmental communication to be more important for SMS than PMS adoption.

None of the differential effects related to the influence of the finance department, i.e. its direct effect and the moderator effect of formalization, were found to be significant, so there was no support for H9c and H9d. These results suggest that the influence of the finance department influenced the adoption of the BSC but not its form, and therefore do not support the anticipated preference or bias of finance departments towards adopting a BSC as PMS. The differential effect related to product-market dynamics' influence was also not found to be significant, which suggests that there was no support for H9e.



## **5. Conclusions and Discussion**

This study aimed to contribute to our understanding of how companies adopt the BSC by specifically examining the general and differential effects of the antecedents of the adoption of the BSC as PMS and SMS. The BSC as SMS is considered a more elaborated and strategically infused control concept than the BSC as PMS. The former is characterized by careful and actual strategy alignment whereas the latter's focus is on comprehensive financial and non-financial measurement. Based on our empirical results several conclusions can be drawn and suggestions made to managers. We close by identifying some limitations of our study.

First, the adoption of both types of BSC benefited from serious top management involvement. The importance of top management involvement was to signal support for adoption and to make participants implement the tool with confidence. This result is consistent with top management's influence for adoption and use of other strategic management tools (e.g., strategic management, ERP). The finance department's influence was also important to BSC adoption. Our findings consistently confirmed that the finance department is an important advocate of BSC-adoption.

Second, several important differences in antecedents of adoption of BSC as PMS and SMS were found. The significant influence of the interaction between top management involvement and centralization on BSC as SMS, not PMS, suggests that effective top management that moves beyond simple involvement is important. The interaction with centralization probably ensured that top management's enthusiasm for the BSC reached the organization's middle management and operational levels, helping to diffuse top management's strategic vision and suggestions for BSC design in the organization effectively. Another differential effect involved interdepartmental communications. High levels of interdepartmental communication facilitated the development of divisional scorecards that can be integrated and aligned well with company strategy. Internal communication enhanced the overall strategic value of the BSC by motivating department heads to support the effort and by facilitating coordination. Formalization was also found to play a different role for adoption of BSC as PMS and SMS. While no effect was found in combination with adoption of BSC as PMS, formalization was found to have a negative effect on BSC adoption as SMS. Formal procedures and rules may hinder or even demotivate managers from customizing and aligning the BSC to strategy, thus preventing adoption and implementation of the BSC as SMS. Lack of willingness to cannibalize

currently used performance measures may also play a role. The barriers emerging from levels of formalization should be identified and managed to prevent their negative effects.

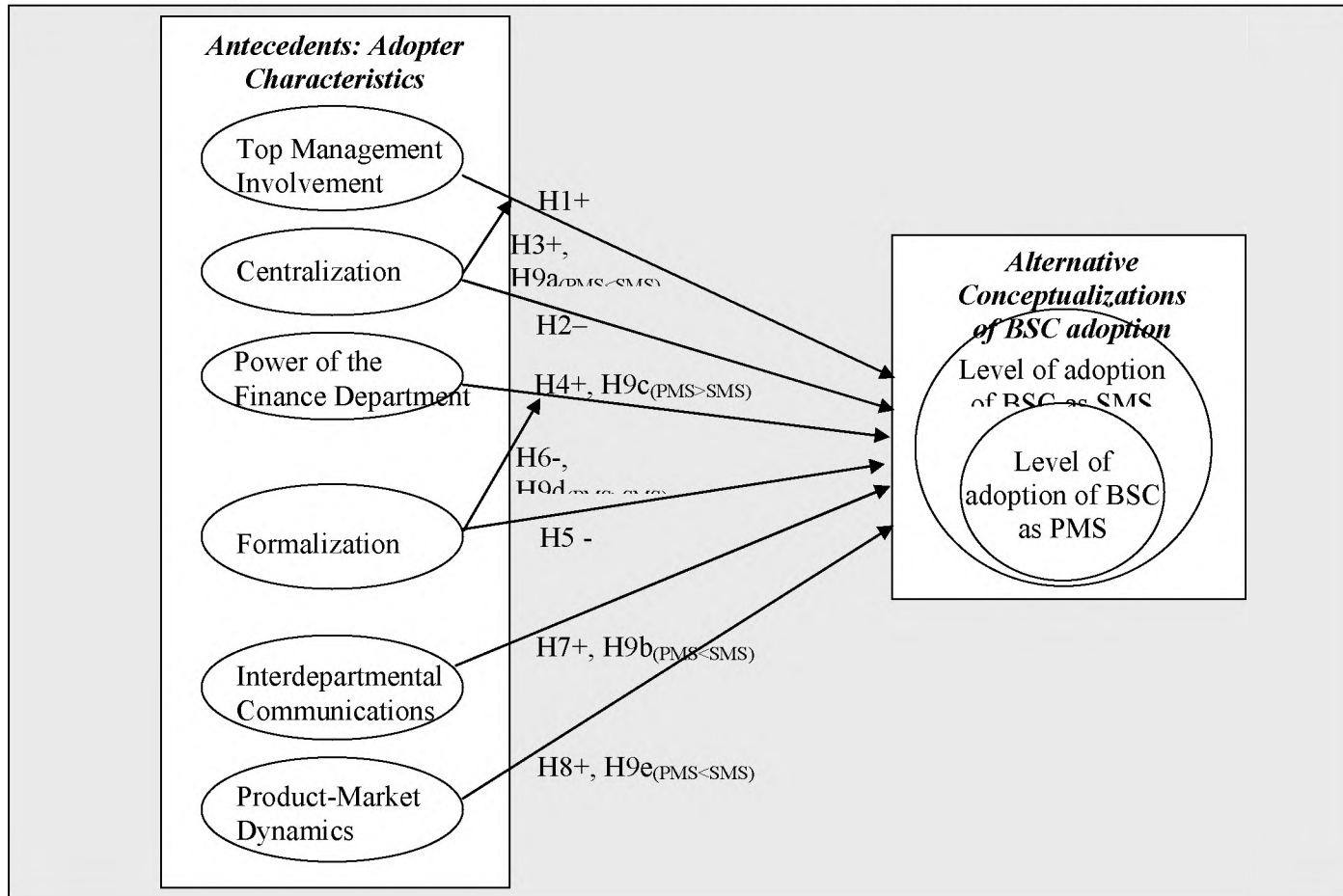
Third, consistent with previous findings, our results suggest that larger organizations gravitate toward adopting a BSC as SMS (Hoque and James, 2000; Speckbacher et al., 2003). Large firms face more span of control issues and need more comprehensive management systems to control their organizations as a result, than do their smaller counterparts. Moreover, large companies may also be better equipped to implement a complex administrative innovation like the BSC. They may have more knowledgeable top managers and accountants. Large and centralized organizations seem to have a particular advantage when it comes to adopting the BSC as SMS.

The results hold several important management implications. First, the outcomes suggest that managers who aim to adopt a BSC should determine the type of BSC they want to implement. The BSC can be used as a performance measurement system (PMS) or as an extension of a firm's strategy (SMS). Previous research suggests that using a SMS type of BSC significantly improves a company's competitive position and company performance while the effectiveness of a BSC as PMS is less certain (Speckbacher et al., 2003; Davis and Albright, 2004; Braam and Nijssen, 2004; Papalexandris, Ioannou and Prastacos, 2004). It appears likely that a BSC as PSM has become a "hygiene factor" for managing a business in most markets. A BSC as SMS may function as a true distinctive competence that helps to enhance a company's market position and performance. Consequently, from an economic perspective managers should be more interested in adopting a BSC as SMS than as PMS. Further insight into the different antecedents of adoption of BSC as SMS and PMS could prove useful and help managers' understanding of the conditions that facilitate or inhibit adoption and implementation of a strategy-focused BSC. Managers who intend to implement a BSC as PMS will benefit from the support of their finance department. Managers who want their companies to adopt and use a BSC as SMS should also focus on the effectiveness of top management's involvement and the importance of extensive internal communication. Moreover, they should realize that formalization may hinder the implementation of this strategy-focused and aligned version of the BSC.

Finally, this study, which was exploratory in nature, had several limitations. Despite the plausibility of the results, the limited sample size, the predominantly financial background of the respondents, and the use of cross sectional data to investigate the level of adoption of both BSC types simultaneously, limit the generalizability of our findings. Although the operationalization

of the two different conceptualizations of the BSC was validated using the number of performance measures, our results should be considered exploratory. Future research could test and expand the research model using larger samples and include additional organizational factors that affect the decision to adopt the BSC, for instance consider institutional motivations for adoption (Westphal et al. 1997). Case studies would be useful for looking at factors that influence the different ways in which this accounting innovation is interpreted and implemented and could provide more detailed understanding of the underlying processes involved. Finally, research should address the influence the BSC has on the relationship between departments, e.g. finance and R&D, and finance and marketing. Particularly interesting are questions as whether the BSC makes these functions more accountable and helps to create trust within the organization. Both aspects should contribute to strategic alignment resulting in a greater competitive success in the marketplace. Such insights may help to reap the benefits that Kaplan and Norton promised in their writings.

**Figure 1: The Model of Antecedents of the Levels of BSC adoption as PMS and as SMS**



**Table 1: Profile of the Respondents (all numbers are in percentages)**

<b>Respondent's function within the company</b>	<b>(%)</b>	<b>Respondent's years with company</b>	<b>(%)</b>	<b>Industry</b>	<b>(%)</b>	<b>Company Size</b>	<b>(%)</b>
Director business development	5.9	< 2	11.8	Food	12.2	< 50	2.4
Financial director	11.8	2 – 5	35.2	Natural products	14.6	50 – 500	63.4
Financial manager/ head of finance & accounting department	35.3	6 – 10	11.8	Oil, gas, chemicals	29.3	501 – 1000	22.0
Management accountant	29.4	> 10	41.2	Capital goods	43.9	> 1000	12.2
Assistant management accountant	17.6						
<b>Total</b>	<b>100.0</b>		<b>100.0</b>		<b>100.0</b>		<b>100.0</b>

**Table 2: Regression Results regarding the Antecedents of BSC Adoption as PMS and SMS**

Dependent variables:		Level of BSC Adoption						t-Difference Test
		As PMS			As SMS			
Independent variables:		Beta	t-value	p	Beta	t-value	p	$\Delta$ $\beta$ -coefficients
<b>Direct effects:</b>								
Constant			-0.8	0.45		-0.29	0.77	
Top management involvement	(H1)	0.41	2.9	0.01	0.35	2.8	0.01	
Centralization	(H2)	0.11	0.7	0.46	-0.12	-0.9	0.37	
Influence of the finance department	(H4, 9c)	0.28	1.9	0.06	0.23	1.8	0.08	
Formalization	(H5)	-0.13	-0.9	0.38	-0.26	-2.1	0.04	†
Interdepartmental communications	(H7, 9b)	0.10	0.7	0.52	0.44	3.2	0.01	‡
Product-market dynamics	(H8, 9e)	0.04	0.2	0.81	0.15	1.2	0.26	
<b>Moderator effects:</b>								
Top management influence x Centralization	(H3, 9a)	0.19	1.3	0.22	0.28	2.2	0.04	†
Influence of the finance department x Formalization	(H6, 9d)	-0.17	-1.3	0.21	0.04	0.3	0.74	
<b>Control:</b>								
Organization's size		0.26	1.7	0.10	0.41	3.1	0.01	‡
# of performance measures used in periodical reports		0.34	2.5	0.02	0.09	0.8	0.45	‡
<b>Model fit:</b>		Adj. R <sup>2</sup> = 0.40 F=3.6 (9) †			Adj. R <sup>2</sup> = 0.55 F=5.7 (9) †			

Difference test results: †: p<0.01; ‡: p<0.05

## APPENDIX

### Operational measures utilized for the study constructs

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*BSC adoption as PMS* (5 point Likert scale, Strongly Disagree-Strongly Agree; adopted from Nijssen and Frambach, 2000)

The following aspects apply to your company:

- Your organization's top management is aware of the BSC.
- Your company has experimented with BSC-type of comprehensive performance measurement systems the last couple of years.
- Your organization uses the BSC.

Please indicate the number of years your organization has been using the BSC: \_\_\_\_\_ years.

*Strategy* (5 point Likert scale, Strongly Disagree-Strongly Agree; adopted from Hambrick, 1983; Hart, 1996; Danneels, 2002)

The following aspects apply to your company:

- Emphasis on developing new products.
- State-of-the art products.
- Continuous product improvement.
- First to market when introducing new products.

*Top Management Involvement* (5 point Likert scale, Strongly Disagree-Strongly Agree; adopted from Zaltman et al., 1973)

Top Management is characterized by:

- Being very much involved in introducing performance monitoring throughout the company.
- Understanding that monitoring of the company's key processes using indicators and criteria is essential to the company's success.
- Being well informed and supporting every attempt to improve the company's performance measurement systems.

*Centralization* (5 point Likert scale, Strongly Disagree-Strongly Agree; adopted from Covin and Slevin, 1991; Jaworski and Kohli, 1993)

The company you work for is characterized by:

- A strong centralization of authority and decisions.
- Decentralized decision-making (R).

*Formalization* (5 point Likert scale, Strongly Disagree-Strongly Agree; adopted from Covin and Slevin, 1991; Jaworski and Kohli, 1993)

The company you work for is characterized by:

- A strong emphasis on a uniform and dominant management style.
  - A strong emphasis on following current procedures.
  - Tight formal control of processes using detailed control systems.
  - A strong emphasis on allowing every employee work in accordance with their function descriptions.
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## **APPENDIX (continued)**

### **Operational measures utilized for the study constructs**

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*Influence of the finance department* (5 point Likert scale, Strongly Disagree-Strongly Agree; adopted from Pfeffer, 1981)

The influence of the finance department is characterized by:

- The finance department having a lot of power in the organization compared to, for instance, marketing and production.
- The management accountant having a strong, sometimes even dominant, position in the organization.

*Interdepartmental Communications* (5 point Likert scale, Strongly Disagree-Strongly Agree; adopted from Covin and Slevin, 1991; Jaworski and Kohli, 1993)

The company's internal communications are characterized by:

- Limited access to important financial and management information (R).
- Intensive internal communications between departments.
- Excellent information exchange between departments, including intense information-sharing.

*Product-Market Dynamics* (5 point Likert scale, Strongly Disagree-Strongly Agree; adopted from Miller, 1998; Mingfang and Simerly, 1998)

The following aspects apply to your company:

- We regularly change our company's marketing in response to competitor actions (R).
- The level of technological change in our industry causes our products to become obsolete rather quickly (R).
- In our market changes in customer demand are difficult to predict (R).
- In our market competitors' behaviour is rather unpredictable (R).

*Organizational size* (actual number)

- How many people work for the company? (include part-timers and express in full-time equivalents).

*Number of performance indicators used*

- How many financial and non-financial performance indicators are included in the periodical management reports?

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(R): Indicates reversed scored item



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