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Adoption of management accounting innovations: Organizational culture compatibility and perceived outcomes

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ABSTRACT

Although the introduction of a number of successful management accounting innovations over the past few decades has generated a vast amount of research, we have limited knowledge about how the diffusion of innovations is affected by the interplay between characteristics of adopters and characteristics of innovations. The study presented in this paper contributes to the literature that examines the adoption of innovations at the firm level of analysis. We develop and test an adoption model which draws on two recently introduced ideas about innovation adoption—the notion of compatibility between organizational culture and the values and beliefs embedded in innovations, and the perspective that early and late adopters might both be motivated to adopt based on expected economic and social gains and losses. In synthesising these models, we assume that a diffusing innovation that is compatible with a firm's values and beliefs is adopted early if it is perceived as delivering adequate gains while the innovation is rejected if it is not perceived as doing so, and that a diffusing innovation that is incompatible with a firm's values and beliefs is adopted late if it is perceived as reducing the likelihood of incurring losses while the innovation is rejected if it is perceived as not doing so. Hypotheses are generated and tested using data provided by a web-based survey of Swedish manufacturing firms on the diffusion of the balanced scorecard across those firms. In most respects, the pattern of results this study finds supports our model and assumptions.

1. Introduction

Research on the supply and demand of administrative innovations has emerged as fundamental in many fields. The introduction of management accounting innovations (MAIs), such as activity-based costing, the balanced scorecard, strategic management accounting, target costing, and the beyond budgeting approach, has produced an impressive body of research (e.g. Ansari et al., 2007; Gosselin, 2007; Langfield-Smith, 2008; Zawawi and Hoque, 2010; Hoque, 2014). The prevailing focus of such research has been on identifying general contextual factors and firm characteristics that influence the adoption of innovations at the firm level (e.g. Cadez and Guilding, 2008; Abdel-Kader and Luther, 2008; Baird et al., 2004; Brown et al., 2004). Another research direction draws on the new-institutional perspective on diffusion (DiMaggio and Powell, 1983; Tolbert and Zucker, 1983). Management accounting researchers have typically used the management fashion variant of new-institutional theory (Abrahamson, 1991, 1996; Abrahamson and Fairchild, 1999; Abrahamson and Rosenkopf, 1993). Studies have reported how MAI adoption motivations vary through successive phases of the diffusion trajectory (Malmi, 1999, 2001; Malmi and Ikäheimo, 2003).

Recent decades have, however, witnessed the emergence of a debate about the application of new-institutional theory in the area of diffusion (e.g. Staw and Epstein, 2000; Lounsbury, 2008; Colyvas and Jonsson, 2011; Chandler, 2014). The influential two-stage model of diffusion (Tolbert and Zucker, 1983) has been criticized for oversimplifying behaviour in organizations because it ignores the fact that economic logic is institutionally determined (Lounsbury, 2007) and because it makes unrealistic assumptions about management, whereby "early adopters are motivated by technical considerations and later adopters engage in mindless imitation fuelled by anxiety-driven pressures to conform" (Lounsbury, 2008). Recently, two models that were designed to overcome some of the problems with new-institutional theory have been introduced in the literature.

Presenting one such model, Love and Cebon (2008) argue that adoption behaviour is connected to organizational culture but,

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contrary to universal contextual models, theirs highlights the notion of compatibility (fit) between organizational culture and the values and beliefs embedded in an innovation that is being considered for adoption. They also demonstrate empirically a positive relationship between compatibility and innovation adoption rates, but observe that the influence of compatibility declines as diffusion unfolds over time. The study makes an important contribution to the field by presenting compatibility as a factor explaining early versus late innovation adoption. In presenting the other model, Kennedy and Fiss (2009) rethink the two-stage model's relationship between adoption motivations and timing. Contrary to the conventional model, their model suggests that adoption in the early stage is related to opportunity framing and the motivation to achieve gains (both economic and social), while adoption in the later stage is related to threat framing and the motivation to avoid losses (again both economic and social). Kennedy and Fiss (2009) argue that, therefore, economic and social motivations complement rather than conflict with each other.[1] The approach addresses the criticism of the conventional two-stage model that economic and social motivations to adopt are separated in space and time. The model makes an important contribution by highlighting the interplay between economic and social considerations in adoption decision-making over the diffusion trajectory.

The overarching objective of the present study is to contribute to our understanding of the adoption of MAIs at the firm level of analysis. We attempt to do so by integrating insights from these recently introduced theoretical approaches, with the goal of providing scholars with a model that explains the dynamic interplay between organizational culture, the values and beliefs embedded in an innovation, and motivations for adoption over the course of the diffusion process.[2] Looking at these variables and their interplay would provide a fuller understanding of innovation adoption decision-making in a collectivity than has previously been recognized, with the potential to offer an enhanced understanding of why certain firms are early adopters and others are late adopters, how adoption motivations for early and late adopters differ, and why certain firms are non-adopters.

Hypotheses are developed and tested using data from a web-based survey of Swedish manufacturing business units on the diffusion of the balanced scorecard (BSC) during the time period 1992–2008. In most respects, the pattern of results this study finds supports our model and assumptions.

The remainder of the paper is organised as follows. The next section presents the study's theory and hypotheses. The research method is described in Section 3. Section 4 covers the data analysis and results. In the concluding section, we discuss the results, highlight our research contributions, note the study's limitations, and present suggestions for further research.

2. Theory and development of hypotheses

In this section, we present the theoretical ideas on which our study draws. First, we discuss the link between organizational culture and management innovations. Second, we briefly review the current debate about the validity of the new-institutional two-stage model of diffusion, and we present recent ideas within institutional analysis which cast new light on the two-stage model and the relationship between adoption motivations and timing. Finally, based on the previous sub-sections, we develop hypotheses regarding innovation adoption.

2.1. Compatibility—a link between organizational culture and management innovations

The 1980s witnessed the emergence of organizational culture as an important concept in the analysis of organizations. Today, the concept is firmly established and has been linked to a number of organizational activities and outcomes, including success and failure, innovativeness, creativity, change implementation, restructuring, and learning. There is no consensus in the literature on a definition of organizational culture. However, the majority of definitions highlight notions such as shared values, beliefs, and assumptions among organizational members (Schein, 1985; Kotter and Heskett, 1992; Detert et al., 2000; Jung et al., 2009; Bligh and Hatch, 2011).[3] From this perspective, organizational culture "deeply affects how organizational members interpret social objects and practices, what goals members develop, and what strategies members enact to link the objects and practices to the goals" (Love and Cebon, 2008).

The general idea that organizational culture fit is an important factor influencing behaviour and outcomes in organizations has been established in the literature for decades (Kotter and Heskett, 1992; Jung et al., 2009; Bligh and Hatch, 2011). In this study, we are especially interested in the notion of compatibility (fit) between organizational culture and management innovations. An innovation is compatible with an organization's culture when "the values and beliefs that are normatively desirable for effective use of the practice are similar to relevant shared values and beliefs of organizational participants" (Love and Cebon, 2008). Thus, compatibility refers to a relationship between a firm and an innovation (and is, thus, not a characteristic of the firm alone). The notion of compatibility applied in this study is based on a framework that was developed by Detert et al. (2000). Their framework gives particular importance to Schein's (1985) view of culture, mainly his values and beliefs dimension. Henceforth, we refer to compatible firms when organizational culture and the values and beliefs associated with an innovation are similar to or complement one another and to incompatible firms when organizational culture and the values and beliefs associated with an innovation are dissimilar.

Prior research suggests that compatibility is linked to the diffusion process. The view that changes in practices that conflict with existing cultural values and beliefs are likely to meet resistance among organizational members is widely accepted in the organizational culture literature. Studies suggest that new practice implementation occurs more easily and is more successful, and that the continued and successful use of an innovation is more likely, when organizational culture fits with the values and beliefs that are embedded in administrative innovations (Detert et al., 2000; Kirkman and Shapiro, 2001; Lozeau et al., 2002). To our knowledge, only one study has empirically examined the influence of compatibility on innovation adoption. Love and Cebon (2008) examined the adoption of best manufacturing practices, such as TQM, benchmarking, customer focus, and continuous improvement, among 1161 manufacturing sites in Australia and New Zealand. They found that adoption rates are directly related to the

[1] Kennedy and Fiss (2009) are not the first to argue that economic and social motivations for adoption complement each other rather than conflict. Abrahamson and colleagues (e.g. Abrahamson, 1991; Abrahamson and Rosenkopf, 1993) discussed this idea in the 1990s.

[2] The link between organizational culture and management accounting has generally been overlooked in previous research (Chenhall, 2003; Henri 2006). However, a few studies have investigated the link between organizational culture and the adoption of MAIs (Baird et al., 2004; Baird, 2007). These studies see organizational culture as a general characteristic of the firm, thereby representing the view that some cultures are generally more adoption-oriented than others. As discussed above, this view of the link opposes the view of the present study (Love and Cebon, 2008).

[3] Many definitions of organizational culture also include artefacts, which are tangible organizational structures and processes, e.g., dress codes, furniture, symbols, organizational structures, and stories.

compatibility of the organizational culture of adopting firms with the values and beliefs associated with best manufacturing practices. However, they also reported dynamic interaction between these factors over the course of the diffusion process. They found that the influence of organizational culture is stronger among early adopters and that the influence of compatibility on adoption declines over time. The authors suggested that, as innovations become institutionalised at the field level, the influence of compatibility on adoption decisions is progressively 'pressed out'. Love and Cebon (2008) conjectured, but did not empirically show, that the decreased influence of compatibility could be linked to imitative behaviour, institutionalization of the innovation, and theorisation by knowledge entrepreneurs, i.e., actors on the supply side of the diffusion process.

The idea of a dynamic relationship between organizational culture and innovation characteristics, and of how this relationship relates to adoption motivation and timing, clearly provides a novel perspective on adoption. This reasoning signifies a more complex relationship between firm characteristics and adoption than has been tested in previous management accounting research, which typically assumes a static, direct relationship, and may help to explain the weak findings in previous management accounting research pertaining to links between contextual factors and the adoption of innovations (Brown et al., 2004; Al-Omiri and Drury, 2007). Although the compatibility idea makes a constructive contribution to the literature, it also raises questions about the diffusion process. The Love and Cebon (2008) model implies that compatibility between organizational culture and the values and beliefs associated with an innovation guides a firm to adopt the innovation (i.e., merely because the innovation does not conflict with the organizational culture of the firm). However, the model is unable to explain why some compatible firms reject innovations at an early stage, why some incompatible firms reject innovations in late stages, and why some innovations are widely adopted while others are not. Indeed, the model seems to suggest a process in which firms in a collectivity in general adopt a diffusing innovation. The model, thus, implicitly assumes convergence and homogeneity of management practices. We suggest that the model be developed further to add to the understanding of heterogeneity and variation in management practices (Lounsbury, 2007; Kennedy and Fiss, 2009). We address this issue in Section 2.3.

2.2. Rethinking the role of economic and social considerations in adoption decision-making

Even though the two-stage model constitutes a cornerstone of institutional analysis of the diffusion of innovations (DiMaggio and Powell, 1983; Tolbert and Zucker, 1983), the validity of the model for explaining diffusion processes has been debated in recent decades. Some researchers have noted that most of the evidence for the substitution of legitimacy for efficiency as a driver of adoption among later adopters relies on indirect testing of adoption motivations rather than more direct assessments (e.g., Donaldson, 1995; Scott 1995; Kennedy and Fiss, 2009), and even that evidence provides "more support for the absence of technical or economic determinants of adoption than for institutional processes" (Scott, 1995, p. 88). Others have pointed to the fact that a number of studies have failed to provide support for the two-stage model's idea of there being a difference in adoption motivations for early versus later adopters (Staw and Epstein, 2000), and that the model's pattern of adoption can be explained by multiple, even conflicting, circumstances (Colyvas and Jonsson, 2011), including social learning (later adopters know more about what works–and does not–than earlier adopters and need to experiment with innovations to a lesser extent) (Levitt and March, 1988), and the creation of standards (influential principles that guide new adoption behaviour) (Jacobsson, 2000).

Research that addresses problems and opportunities with the two-stage model and moves the new-institutional perspective on diffusion into new directions has begun to emerge in the literature (e.g. Lounsbury, 2007; Kennedy and Fiss, 2009; Ansari et al., 2010; Shiplov et al., 2010; Fiss et al., 2012). In an emerging research area scholars are rethinking the conventional two-stage model's relationship between adoption motivations and timing. Kennedy and Fiss (2009) have made an interesting contribution to this literature. Drawing on micro-organizational behaviour and psychology-based research that links organizational change to the framing of interpretations of situations as either opportunities for gains or threats of losses (e.g., Dutton and Jackson, 1987; George et al., 2006), they develop a model that explains how these interpretations influence decision-makers' cognition and motivation in adoption decisions. In early stages of the diffusion process, the adoption of an innovation is framed as an opportunity and decision-makers, therefore, assess the prospect of achieving gains. While adopters in the conventional two-stage model are interested only in achieving economic gains, Kennedy and Fiss suggest that the gains sought may also be social. For example, an early adopter could be motivated by the idea of distinguishing itself from other firms or maintaining a higher status than competing firms. Early adopters take a risk by adopting an innovation but, as the diffusion process progresses, the process of institutionalization changes the picture of risk and non-adoption becomes risky, for two reasons: (1) early adopters perceive adoption as beneficial and non-adopters perceive it as bringing a threat of lost competitiveness (the economic argument) and (2) non-adopters perceive a threat of lost legitimacy (the social argument). Hence, late adopters are motivated to adopt in order to avoid potential losses from non-adoption.

The framework suggested by Kennedy and Fiss (2009) should appeal to the opponents of the conventional two-stage model because it overcomes some of the weaknesses associated with the model, such as the separation of economic and social motives for adoption and a sharp distinction between rational and mimicking adoption behaviour. However, Kennedy and Fiss (2009) also highlight a gap in their analysis. In their model, adoption timing (early or late) is assumed to explain adoption motivations (to achieve gains or avoid losses), yet *the timing of adoption* remains unexplained. What do early adopters have in common—except that they are early adopters? And what do late adopters have in common—except that they are late adopters? In our view, extending the model when introducing this issue would clearly add to our understanding of diffusion processes. We address this in the next section.

2.3. Model and hypotheses

On the basis of the above discussion, we develop and test a model that synthesizes the frameworks suggested by Love and Cebon (2008) and Kennedy and Fiss (2009).

In the present study, we assume that recognition of an innovation by a firm is contingent on compatibility, which means that high compatibility leads to early recognition and low compatibility leads to late recognition. When an innovation is recognized at a relatively early phase in the diffusion trajectory, it will be perceived as an opportunity to achieve gains but will be adopted only if decision-makers believe that the innovation has the potential to do so. Likewise, an innovation that is recognized relatively late in the diffusion process will be perceived as a way to avoid losses but will be adopted only provided that decision-makers believe the innovation has the potential to do so. Next, we will transform our general conceptual model into three hypotheses.

Love and Cebon (2008) report that compatible firms generally adopt an innovation earlier than incompatible firms. The

literature provides some support for this observation. First, compatible firms are better prepared to recognize and understand the potential benefits of an innovation in a phase when the innovation has recently been introduced in a collectivity. For example, Cohen and Levinthal (1990) argue that absorptive capacity, i.e., prior experience with related knowledge (including basic skills and "a common language"), facilitates recognition and assimilation (integration) of the value of new information. Ocasio (1997) argues, similarly, that firms are selective in their perception and whatever receives their attention must be consistent with a set of norms and values that implicitly guide members when they interpret organizational reality, indicate what constitutes appropriate behaviour, and define success (Ocasio, 1997). Second, compatible firms are more inclined to adopt at an early stage because they are more confident in implementing a practice when it corresponds (fits) with their beliefs and values (Love and Cebon, 2008). For example, because the BSC stresses the importance of analysing cause-and-effect relationships, BSC implementation is more likely to occur in a firm where hard data are considered essential for decision-making purposes compared with a firm in which tacit knowledge is highly valued. It follows that (1) most compatible firms recognize and make innovation adoption decisions in the early stage of the process and (2) most incompatible firms are ignorant of the innovation or they perceive that the innovation conflicts with their shared values and beliefs and therefore do not, or decide not to, adopt at an early stage. As noted above, Love and Cebon (2008) demonstrate that compatibility is strongly correlated with innovation adoption only in the early stages of the diffusion process, but that the relationship weakens as the diffusion process progresses. This means that incompatible firms may also adopt innovations but that in such cases adoption takes place in the later stages of the diffusion process. They explain that late adopters do so in response to institutional pressures at the field level.

In the present study, we suggest an associated explanation of this adoption pattern. In later stages of the diffusion process, when the innovation is widely adopted and a theorized and "stereotyped" version of the innovation is recognized also among incompatible firms (Strang and Meyer, 1993), non-adopters compare themselves with compatible firms (adopters) and, if they perceive that their relative competitiveness or legitimacy is threatened (or has already been damaged), they may link this situation to the non-use of the innovation. If this is the situation, the innovation is adopted in an attempt to avoid (or limit) losses (Abrahamson and Rosenkopf, 1993; Kennedy and Fiss, 2009). To summarize, compatible firms recognize innovations and decide on adoption (or rejection) relatively early in the diffusion process, while incompatible (adopting) firms recognize non-adoption as a problem when they perceive possible harmful effects (i.e., losses) from rejecting an innovation. Evidently, this can happen only when compatible firms have already adopted the innovation. Based on this reasoning, we test the following hypothesis:

H1. Early adopters of an innovation are compatible firms, but as the diffusion progresses, the proportion of compatible adopters declines.

The idea that all or most early adopters are compatible firms does not, however, imply that compatible firms generally adopt innovations. We suggest that decision-makers in compatible firms are motivated by the prospect of achieving future economic and social gains to a higher degree than decision-makers in incompatible firms, for two reasons. First, compatible firms are more capable than incompatible firms of assessing the effects of implementing an innovation. Not only does absorptive capacity (Cohen and Levinthal, 1990) enable early recognition of new information, it also makes it possible to apply it to commercial ends.[4] Second, because compatible firms decide on adoption relatively early (H1), an innovation is framed as an opportunity, i.e., it signifies that an adopter may perform better relative to competitors. Since compatible firms are motivated to adopt by opportunities to achieve gains, the potential for gains should play an important role in adoption decision-making for these firms. We expect that the decision to adopt an innovation will be taken only if the perceived level of gains from adoption is adequate (and rejected if the level is inadequate). If this reasoning is correct, the decision to adopt an innovation among compatible firms will be positively related to the level of perceived gains from adoption. The situation for incompatible firms is quite different. Decisions to adopt occur relatively late when the perceived prospect of achieving gains from adoption has decreased and an innovation has turned into a perceived threat of incurring losses because the innovation has been adopted by other firms in the collectivity (Kennedy and Fiss, 2009). Thus, when an innovation is adopted at a late stage this should be seen as a response to a perceived threat rather than as an attempt to achieve gains. Consequently, the prospect of achieving gains will have little effect on adoption decisions among later adopters. Accordingly, we propose the following hypothesis:

H2. Compatibility interacts positively with the perceived opportunity of achieving gains on the decision to adopt an innovation.

Due to the inherent dynamism of the diffusion process, the situation for adopters and non-adopters of an innovation changes over time. Early adopters reap the benefits from adoption—they perform better than before and appear more prestigious (Abrahamson, 1991; Abrahamson and Rosenkopf, 1993). Non-adopters, on the other hand, may perceive the legitimacy of an innovation as a threat of incurring losses, and thus adopt the innovation in an attempt to avoid losses. This reasoning follows the conventional two-stage model, which posits that late adopters are primarily driven by social motives (i.e., they want to increase their legitimacy among important stakeholders). Kennedy and Fiss (2009) supplement this picture by arguing that late adopters may also be motivated by economic considerations, and demonstrate that late adopters may be motivated by the threat of incurring both economic and social losses. Because incompatible firms in general have not adopted an innovation in the early stages of the diffusion process (H1), they will be in the position outlined above. We suggest, however, that the situation is not identical for incompatible firms in general. Some incompatible firms may not foresee a threat of losing competitiveness or legitimacy due to non-adoption. We suggest that when firms experience intense competition they will perceive a threat of incurring losses from non-adoption. If competition is intense, this implies that even small losses (economic or social) become critical and adoption will, thus, be the likely decision-making outcome. Overall, we propose that the higher the level of competitive intensity the greater the likelihood of adoption among incompatible firms.

Several studies have found that the level of competition in the marketplace is an important driver of innovation adoption (e.g., Cagwin and Bouwman, 2002; Dekker and Smidt, 2003; Gosselin, 2007). Some studies argue that the higher the level of competition the greater the likelihood of adoption. This study argues that this relationship should be stronger for incompatible adopting firms

[4] This does not imply that future gains are calculated by technically rational managers. Gains represent any perceived improvements in future performance (Kennedy and Fiss, 2009) and their meanings are culturally rooted (Lounsbury, 2007). Furthermore, the capability of assessing gains is primarily not a characteristic of management (rationale or mimicry) but rather is contextually dependent—gains are considered when innovations are compatible with organizational culture.

than for compatible firms. Certainly, compatible firms may be motivated by competition and they may also assess an innovation from that perspective, but adoption will take place only if implementation of the innovation is projected to deliver gains. Thus, adoption is not an automatic response to competition. Nevertheless, when competition is intense enough incompatible firms adopt an innovation, not with possible gains in mind, but in response to a perceived threat of incurring losses. Accordingly, we propose the following hypothesis:

H3. Incompatibility interacts positively with the intensity of competition to influence the decision to adopt an innovation.

Hypotheses 2 and 3 both explain adoption as an effect of interaction between compatibility and adoption motivation. When an innovation is compatible with a firm's organizational culture, the innovation will be adopted if the perceived level of gains from adoption is adequate (H2). When an innovation is incompatible with a firm's organizational culture, the innovation will still be adopted provided that the level of intensity of competition, and thus the perceived risk of incurring losses by ignoring the innovation, is intense enough (H3). The two interaction effects on adoption are depicted in Fig. 1.

3. Method

This study explores the diffusion of the BSC across Swedish manufacturing business units during the time period 1992–2008. There are three reasons for choosing the BSC as an example of an MAI in this study. First, it is a conceptually relatively well-defined idea with an apparent introduction date.[5] Certainly, the BSC has similarities with other models such as the French tableau de bord (Bourguignon et al., 2004) and the performance pyramid (Lynch and Cross, 1991). However, these models seem to have had little, if any, impact on management accounting practice in Sweden (Kald and Nilsson, 2000). Models introduced after the introduction of the BSC also have similarities with the BSC. The intellectual capital model (Edvinsson and Malone, 1997) is probably the most distinctive example. However, even though that model has Swedish origins, it, too, seems to have had little impact on Swedish management accounting practice (Olve and Petri, 2004; Arwidi and Jönsson, 2010). Also, from a supply-side perspective, the intellectual capital model has been marketed in Sweden without strong connections to the BSC. A second reason for choosing the BSC is that many studies indicate that it is widespread in practice (e.g., Speckbacher et al., 2003; Olve and Petri, 2004; De Geuser et al., 2009). Widespread use of an MAI is an essential requirement in a study of patterns of adoption over time. Finally, the BSC has existed for a long period of time—more than 20 years. Although it is difficult to specify the appropriate time period in a retrospective study of this type, an 18-year period was considered to be reasonable. With a longer period of time, there is a risk that the respondents do not remember when or under what circumstances the BSC was adopted. With a shorter period of time, there would be a risk that conceptually distinct stages of the diffusion process would not be included in the analysis.

3.1. Data collection

We collect our data using a web-based survey approach. Several benefits are associated with web-based survey methods (compared with traditional mail survey methods), including reduced implementation and processing time and costs, enhanced questionnaire design, faster data collection, and a higher response rate (Cobanoglu et al., 2001; Kiernan et al., 2005). The web questionnaire was designed with tracks of questions. As questions were answered, the respondents were automatically directed to the next relevant question based on their responses to that question. This arrangement meant that non-relevant questions were bounced, minimising the number of questions to be answered, which likely has a positive effect on the study's response rate.

The chosen unit of analysis was the business unit because management accounting practices could differ across units within a given firm (Brown et al., 2004) and contextual factors could differ between business units (Al-Omiri and Drury, 2007). The sampling frame is composed of Swedish business units that operate in manufacturing. The sampling frame is restricted to one industry because this restriction enables implicit control of potentially confounding variables that could arise from employing a multi-industry sampling frame (Davila, 2000; Ittner et al., 2003). Although restricting the sample to a single industry limits the generalisability of the findings to other industries, a single industry study produces higher internal validity compared with a multi-industry study (Davila, 2000; Ittner et al., 2003).

A sample composed of 300 firms was randomly drawn from the PARAD database, which is a company register containing information about Sweden's entire business sector. Because of a potential size effect, only business units that employed a minimum of 200 employees were targeted. A total of 196 business units answered the questionnaire, which represented a response rate of 65.3%. It appeared that 15 business units had submitted questionnaires with missing data and 16 business units had fewer than 200 employees. These units were excluded from the sample. Hence, 165 questionnaires were used in the final analysis.

A questionnaire strategy along the lines suggested by Dillman (2000) was used in the data collection phase. Prior to distributing the questionnaire to the business units, a questionnaire draft was circulated among four senior management accounting researchers and two practicing management accountants. This step resulted in improvements in the web design, introductory text, ordering of questions, and the wording of questions and response alternatives. All of the written material was rendered in Swedish. Each business unit in the sample was contacted by phone and asked to participate in the study. By presenting the focus of the study and clarifying the types of questions that were included in the questionnaire, we were able to identify relevant respondents at the business units. The respondents who agreed to participate in the study received an e-mail with a cover letter and a hyperlink that directed them to the questionnaire. Respondents were asked to fill in the questionnaire from the viewpoint of the business unit where they were working. An e-mail reminder with a replacement hyperlink was sent 5–10 days after the initial e-mail. Firms that did not respond to this reminder received a phone call after another 10–15 days to plead for the non-submitted questionnaires. Respondents who agreed to return the questionnaire received an e-mail with a replacement hyperlink to the questionnaire. All of the submitted questionnaires were verified to have been completed and consistently answered. Business units that had submitted questionnaires that did not meet this criterion were, as the questionnaires were received, contacted

[5] In our view, the BSC has a lower degree of interpretative viability (Benders and van Veen, 2001) than other candidate MAIs for a study of this type, in particular ABC, VBM, and SMA, which has helped to make the BSC, conceptually, more clearly defined than other MAIs. The development of ABC has been highly dynamic since its introduction. It has, for example, developed from being a full costing model into an activity-hierarchy model, and, more recently, into a time-driven model (e.g. Israelsen, 1994; Jones and Dugdale, 2002; Kaplan and Anderson, 2007). VBM and SMA are best described as umbrella concepts comprising some original ideas but generally also incorporating other MAIs such as ABC and the BSC, and it has been argued that it is not clear how we should understand SMA (e.g., Malmi and Ikäheimo, 2003; Roslender and Hart, 2003). Obviously, the concept of the BSC has not been static since its introduction. However, the development of the BSC has been less radical compared to that of other MAIs, leaving the core of the BSC relatively stable over time.

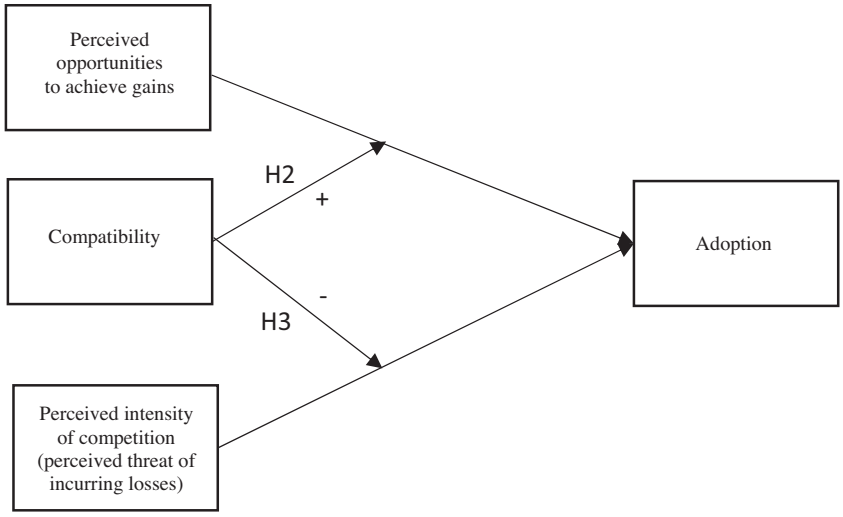


Fig. 1. Interaction effects between compatibility and adoption motivations on adoption.

Table 1
Respondents and adoption/non-adoption of the BSC by job position, size of business unit, and sub-industry (N = 165).

	Adopters	Non-adopters	N
Panel A: Job position			
CFO	45	23	68
Business controller	26	21	47
Production controller	13	13	26
Controller	5	4	9
Other	9	6	15
	98	*67*	*165*
–			
Panel B: Size of business unit (No of employees)			
200–499	67	46	113
500–999	22	16	38
1000–1499	3	2	5
1500–1999	1	1	2
2000–2999	4	1	5
3000–3999	1	0	1
5000–9999	0	1	1
	98	*67*	*165*
–			
Panel C: Sub-industry			
Food	9	9	18
Textile	1	4	5
Wood and paper	16	9	25
Chemical	12	7	19
Metal	13	11	24
Electronics	11	10	21
Manufacturing	30	16	46
Other	6	1	7
	98	*67*	*165*

by phone to resolve the matter. The main data collection took place from May to August 2009, with a pause during the general industrial holiday (a five-week period during the summer). The handling of incomplete and inconsistently filled-out questionnaires took place during autumn/winter 2009. The respondent statistics indicating job position, the business unit size, and industry classification are presented in Table 1.

The proportions of adopters and non-adopters are approximately the same irrespective of company size or sub-industry. The proportions of compatible and incompatible business units of differing sizes and in distinct sub-industries were also estimated (not reported in Table 1), but no statistically significant imbalances were observed. We also tested whether the values and beliefs of business units were associated with the respondents' job positions and found that 66% of the CFOs and 54% of the controllers belonged to the compatible group of business units. A Chi-square test showed no statistically significant difference ($p > 0.10$) in job positions between compatible and incompatible business units. Thus, it does not appear that respondents' job positions systematically impacted the classification of firms into compatible or incompatible business units. We hereafter refer to business units as "firms".

3.2. Measures

Where possible, the measures used in the study were drawn from previous research. However, some measures were adapted to the purpose of the study. The measures used are described next.

BSC adoption: Adoption of the BSC was measured by an instrument that was adapted from measures of implementation stages of MAIs, for example, ABC (Brown et al., 2004), the BSC (Ittner et al., 2003), and target costing (Ax et al., 2008). The following stages were used: (i) We have not used the BSC in the past and have no plans of adopting it; (ii) We have used the BSC in the past but have abandoned it; (iii) We have not used the BSC in the past, but a decision has been made to adopt it; (iv) We use the BSC somewhat today; and (v) We use the BSC extensively today. The question included a brief description of the BSC: "*The balanced scorecard is a method for linking/translating the firm's business strategy and overall goals to a set of financial and non-financial targets and/or performance measures. Financial measures relate to, for example, profitability, sales or costs. Nonfinancial measures relate to, for example, customers, internal processes or innovation and development.*" Firms that currently use the BSC (iv–v) were classified as adopters. Of the 165 responses used in the statistical analysis, 87 firms (52.7%) were classified as BSC adopters.[6]

[6] Although the study's statistical analysis focuses on *whether* firms have adopted the BSC, by also providing data about *what* has been adopted we enable readers to judge the validity of the measure of BSC adoption used in the statistical analysis of our hypotheses (Al-Omiri and Drury, 2007; Naranjo-Gil et al., 2009; Burkert et al., 2010). In addition to our measure of implementation stages of the BSC, we therefore also measure the characteristics of BSCs adoptions based on the typology presented by Speckbacher et al. (2003). Their typology contains three types of BSCs. *Type 1 BSC*: A specific multidimensional framework for strategic performance measurement that combines financial and non-financial strategic measures; *Type 2 BSC*: A type 1 BSC that additionally describes strategy by using cause-and-effect-relationships; *Type 3 BSC*: A Type 2 BSC that also implements strategy by defining objectives, action plans, results, and connecting incentives with BSC. We found that all but four adopters use type 2 or 3 BSCs. Thus, it can be concluded generally that

Year of BSC adoption: Adopters were asked to indicate the year in the 1992–2009 period in which the BSC was adopted. The starting year was 1992 because that was when Kaplan and Norton (1992) introduced the BSC. The year 2009 was excluded for this purpose, however, because the data collection phase ended before that year was over. When the number of BSC adopters in each year of the study period is plotted, an approximate bell-shaped pattern of adoption appears (Abrahamson, 1996). This indicates that the study covers both the upswing and the downswing stages of BSC adoption in the manufacturing industry in Sweden.

Compatibility: Compatibility between a firm's culture (i.e., shared values and beliefs among organizational participants) and the values and beliefs associated with the BSC were measured with an instrument that was based on Detert et al. (2000). These authors have synthesised the general dimensions of organizational culture that are used most frequently in research into eight dimensions. Their framework assigns particular importance to Schein's (1985) view of culture, mainly his values and beliefs dimension, rather than culture as such. The previously mentioned study by Love and Cebon (2008, pp. 251–252) stated that "adoption decisions will typically be made by a relatively small group (i.e., the senior group) based on their own meaning system (which would include their perception of organizational characteristics and members). Consequently, it is actually preferable, for our purposes, to assess values and beliefs of that group (from which our survey respondents are drawn), than to attempt to assess the internal meaning system (or culture) of the organisation as a whole". As the present study covers a long period of investigation (1992–2009), our sample may include respondents who were not employed by a given firm at the time the BSC was adopted. It is therefore possible that the cultural values and beliefs expressed by respondents did not fit those of their respective firms when we conducted the study. However, the literature generally agrees that newcomers to a firm become insiders through a process of organizational socialization (Louis, 1980; Korte and Lin, 2013), which also helps new employees become acclimated to an organization and increases the likelihood that they adopt its cultural values and beliefs (Van Maanen and Schein, 1979). This, in combination with the fact that organizational culture changes slowly, and typically with some difficulty (Alvesson and Berg, 1992; Schein, 1985; see also below), should reduce the occurrence of mismatches between the values and beliefs of respondents who were not employed at the time the BSC was adopted and the values and beliefs of their respective firms. We acknowledge, however, that the lack of data indicating the possible existence and impacts of such mismatches in values and beliefs may limit the study's findings in this respect.

The conceptualisation of the eight dimensions of culture that are considered in this study was drawn from previous research on compatibility (Detert et al., 2000; Love and Cebon, 2008). We were able, after examining the BSC literature (Kaplan and Norton, 1992, 1993, 1996a,b,c, 2001, 2004), to link the values and beliefs that underlie the BSC to five of the eight dimensions that were identified by Detert et al. (2000) (see Appendix B for examples of the values and beliefs that underlie the BSC along the study's five cultural dimensions that the literature search resulted in). They were: The basis of truth and rationality in the organization; The nature of time and time horizon; Motivation; Stability versus change/innovation/personal growth; and Control, coordination, and responsibility. Three dimensions were excluded. 'Isolation versus collaboration/cooperation' was excluded because the BSC literature makes indistinct and few links between the values and beliefs of the BSC and the dimension. 'Orientation and focus – internal and/or external' was excluded because the BSC literature does not clearly support either of the two statements that are related to the dimension. The dimension 'Ideas about orientation to work, task, and coworkers' was excluded because we were not able to identify explicit links between the dimension and the BSC literature.

Two researchers were involved in searching the literature for values and beliefs that underlie the BSC, for developing the pairs of statements that represent the opposite positions along the cultural dimensions, and for establishing links between the values and beliefs that underlie the BSC and the cultural dimensions. These activities required considerable time and effort and continued until a consensus was reached on the values and beliefs, statements, and links. A group of five senior management accounting researchers/teachers, of whom two also work as BSC consultants, were interviewed about the relevance of the chosen statements and links. The interviewees were consistent in their affirmative view of the chosen statements and links.

Compatibility measures the match between the dimensions of organizational culture and the values and beliefs associated with the BSC. For the cultural dimension, pairs of statements that represent opposing positions were constructed for the questionnaire. A 7-point scale separated the two statements (see Appendix A for a presentation of the survey question). A non-hierarchical cluster analysis (K-means) was performed in order to classify the total sample into two internally homogenous groups such that each group is anchored to the ideal compatible or incompatible profile. These profiles were defined for each of the groups, i.e., 1-1-1-7-1 for compatible groups and 7-7-7-1-7 for incompatible firms, and the scores were used as seeds when each firm was assigned to the closest group. The procedure resulted in one group with 98 compatible firms and one group with 67 incompatible firms.[7]

A study that uses a retrospective cross-sectional research methodology involves possibly unstable measures of variables. In this study, this concern relates specifically to organizational culture. The issue is that the time that has elapsed since the BSC was adopted varies between the investigated firms. This arrangement means that early adopters' values and beliefs have had a longer period of time to change compared with those of late adopters. However, the perspective on culture as a system of values and beliefs deemphasises organizational possibilities for change and control culture (Alvesson and Berg, 1992; Schein, 1985), and previous research often treats values and beliefs as being relatively stable (Love and Cebon, 2008). A weakness of the research methodology used in this study is the lack of data indicating possible changes in values and beliefs, and, if such changes have occurred, what directions they have taken and how radical they have been.

There may be a problem using the Kaplan and Norton publications on the BSC in a study of this type due to possible design variations (distinct versions) of the BSC adopted in practice and because the BSC may be adapted when it is presented to potential adopters in local contexts. Regarding the design of the BSC, the firms in this study were asked to indicate the perspectives

the large majority of firms in this study appear to have adopted sophisticated types of the BSC.

[7] The robustness of groups formed was tested by comparing the results (i.e., adoption patterns and interaction effects) with two other methods for grouping firms ('Euclidean distance' and 'selection rules', respectively). No significant differences in results were observed for compatible firms. For incompatible firms the three classification methods show differences in adoption pattern over time. However, they all show that adoption increases among incompatible firms and decreases among compatible firms in the late stage of the study period, so that the proportion of incompatible firms is larger than the proportion of compatible firms. This is in accordance with the studyís prediction. The K-means clustering method was used in this study because it minimizes (excludes) the information loss involving firms not being assigned to any cluster. Both the Euclidian distance method and the selection rules method result in many firms not being assigned to any cluster.

they use in their BSCs (not presented in the paper) and, on the basis of Speckbacher et al. (2003), what type of BSC they have adopted (reported in footnote 5). An examination of this data, and the results from another study on the BSC in Swedish practice (Olve and Petri, 2004), indicates that adopters in Sweden design/use BSCs in accordance with the Kaplan and Norton publications. We found, however, that some firms use, in addition to the four original perspectives, an employee-related perspective. Concerning the supply of the BSC in Sweden (Ax and Bjørnenak, 2005), we compared the key characteristics of the BSC in the Kaplan and Norton publications with the key characteristics of the BSC in the leading management books on the BSC in Sweden (Olve et al., 1999, 2003). This analysis identified no significant differences in characteristics. These observations suggest that using the Kaplan and Norton publications on the BSC in this study does not pose a significant problem. However, because we did not directly ask firms in the study about whether they design/use their BSCs on the basis of Kaplan and Norton or Swedish publications (or both), or other sources, we cannot entirely rule out the possibility that some firms may design/use their BSCs on the basis of publications or other sources that do not present the BSC in accordance with the publications of Kaplan and Norton.

Perceived gains of the BSC: The measure of the perceived gains (effectiveness) of the BSC in this study was based on Rogers's (1995) seminal work on the diffusion of innovations. He presented five main attributes of innovations, which are described as perceived properties of innovations that influence firms' decisions to adopt or reject innovations. These attributes have appeared to be relatively invariant across settings (Boyne et al., 2005).

The attributes that were presented by Rogers (1995) are: Relative advantage – The degree to which an innovation is perceived as being better than the idea that it supersedes; Compatibility – the degree to which an innovation is perceived as being consistent with the existing values, past experiences, and needs of potential adopters; Complexity – the degree to which an innovation is perceived as relatively difficult to understand and use; Trialability – the degree to which an innovation could be experimented on; and Observability – the degree to which the results of an innovation are visible to others. This study uses four of these attributes. 'Compatibility' is excluded because it overlaps with the study's measure of fitness between the organizational culture and the values and beliefs associated with the BSC. Research has investigated attributes of innovations other than those that are presented by Rogers. One such attribute that has been widely investigated and has been shown to affect adoption decisions is innovation cost, e.g., the implementation and operating costs (Damanpour and Scheider, 2009). Based on these facts, we decided to include this attribute.

The five attributes of innovations listed above refer to economic motives. Kennedy and Fiss (2009) explain that gains may be economic or social while also admitting that economic and social effects from adoption are intertwined, and it may therefore be difficult to separate these types of motivations from each other: "Technical and social benefits may thus work according to a parallel logic rather than substituting for each other, and they may even reinforce each other, especially as higher performance may increase an adopter's legitimacy, and vice versa" (Kennedy and Fiss, 2009).

Provided that economic and social motivations are mutually interrelated, Rogers's framework offers reliable indicators of the perceived gains of an innovation. However, there is no generally applicable instrument available that is designed to actually measure innovation attributes. Therefore, on the basis of previous research (Moore and Bensabat, 1991; Rogers, 1995; Damanpour and Scheider, 2009), we developed a measurement instrument for this study. Each respondent was asked to indicate his or her firm's or business unit's agreement with a BSC statement with respect to each of the five attributes, each with a corresponding 7-point Likert scale ranging from (1) "Strongly disagree" to (7) "Strongly agree". The measurement instrument that was used included the following items:

1. The effectiveness of the management control process of the business unit (firm) is significantly higher when using the BSC compared with the other control tools
2. The BSC is easy/uncomplicated to utilise in practice because it is easy to learn and understand
3. The improvement in efficiency that the BSC produces is easily demonstrable (measurable) and can be easily communicated
4. The BSC can be implemented/assessed on a trial basis before full implementation
5. The BSC is costly to implement and routinely use (reverse-coded)

A principal component analysis (Varimax) was conducted in an attempt to reduce the number of indicators. The analysis resulted in a one-factor solution (i.e., one factor with an Eigenvalue that is above 1). This factor explained 47% of the variance. Because the Cronbach's alpha statistic indicated acceptable internal reliability of 0.69 (Nunnally, 1978), we decided to adopt an index (mean value) for perceived gains due to the BSC.

Intensity of competition: The measure developed by Guilding and McManus (2002) was used to capture the intensity of competition. Respondents were asked to indicate the intensity of competition for five items on 7-point Likert-type scales that were anchored by (1) Negligible intensity and (7) Extremely intense. Based on these questions, an index (mean value) for measuring the intensity of the competition was produced. The Cronbach's alpha for this scale was 0.84, which indicates acceptable internal reliability (Nunnally, 1978).

Control variables: The study includes three control variables. Firm size and firm effectiveness have been suggested as affecting the adoption of administrative innovations (e.g., Banker et al., 2008; Gosselin, 2007; Strang and Still, 2006; Brown et al., 2004). Firm size was measured in terms of the number of employees. The numbers were transformed logarithmically. Firm effectiveness was measured by the well-known seven-item instrument developed by Gupta and Govindarajan (1984). Along each of twelve potentially important dimensions of organizational performance, the respondent rates organizations according to (1) how well an organization has performed lately and (2) how important it is to it to perform well. The overall effectiveness is computed as a weighted average.

The diffusion literature contrasts the forced selection criterion for adoption with other criteria (Abrahamson, 1991).[8] The forced selection criterion argues that innovations are adopted or rejected because powerful actors or organizations, such as headquarters or governmental bodies, have the power to dictate adoption and rejection. In the current study, 45% of the adopters stated that the decision to adopt was made at the local business-unit level, another 43% said that the decision was made at their headquarters (or in a similar organizational unit), and the remaining firms could not recall where the decision was made. Also, 79% of the non-adopters stated either that a decision to reject has never been made at the local business level (because they were not aware of the BSC and, therefore, had never considered adopting it) or that the decision to reject was made at the local business-unit level, while another 8% said that the decision was made at their headquarters (or similar organizational unit). The remaining 13% answered that they could not remember where the decision was made. In order to control for possible effects of the organizational location of the decision to adopt or reject—at the local business-unit level or at the

[8] The forced selection perspective (Abrahamson, 1991) corresponds to coercive isomorphism (e.g., DiMaggio and Powell, 1983).

headquarters level (or similar organizational unit)—on the results, a control variable (dummy) was included. Imputation of values (Little and Rubin, 2002) was used for firms that could not recall whether the decision to adopt or reject was made at the local business-unit level or at their headquarters (or similar organizational unit).

3.3. Analysis

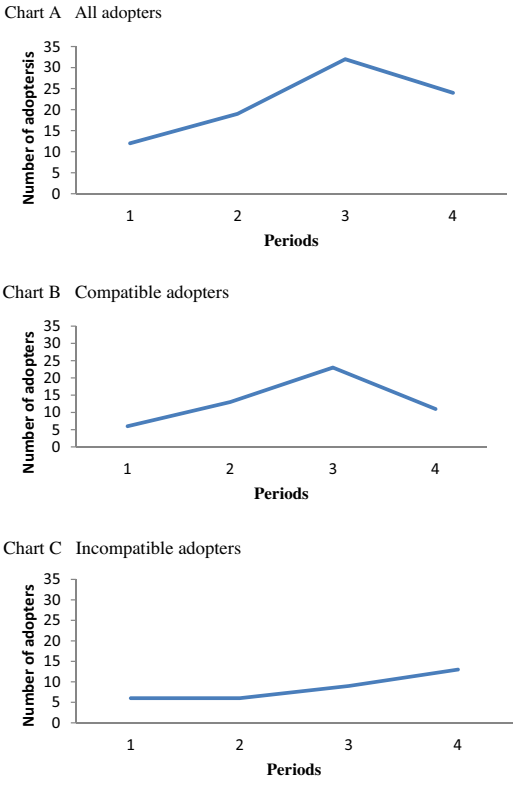
Hypothesis 1 states that compatible firms tend to adopt relatively early and incompatible firms tend to adopt relatively late in the diffusion process. In order to test this hypothesis, the total sample was split into four periods (1992–1996, 1997–2000, 2001–2004, and 2005–2008), such that each period contained all firms that had not adopted the BSC at the start of that period. Firms that adopted the BSC during a given period were denoted as adopters in that period and did not, consequently, appear as adopters in the following period(s). For example, a firm that adopted the BSC in 1998 occurred twice (as a non-adopter in period 1 and as an adopter in period 2), while a firm that did not adopt the BSC in any year during the period 1992–2008 occurred in each of the four periods as a non-adopter. Differences in adoption patterns between compatible and incompatible adopters were tested by comparing the proportional incidence of adoption for each group in each period. A logit regression analysis for each period was undertaken in which adoption was the dependent variable and compatibility/incompatibility and the control variables (firm size, effectiveness, and forced selection) were independent variables. Hypotheses 2 and 3 (i.e., compatibility interacts with perceived opportunity for gains and with perceived threat of losses – i.e., intensity of competition), were tested by a moderated logit regression analysis in which the adoption rate was defined as the dependent variable, perceived opportunity for gains and perceived threat of losses (intensity of competition) were independent variables, and the compatibility group was the moderator that interacted with both perceived opportunity for gains and perceived threat of losses. Firm size, effectiveness, and forced selection were used as control variables.

4. Results

Table 2 presents the descriptive statistics and a correlation matrix (Pearson) for the statistical analysis data set.

A non-hierarchical cluster analysis (K-means) was performed in order to sort firms into two groups—compatible firms and incompatible firms. It should be recalled that the selection of measures and the specification of "ideal" values are dictated entirely by the features of the BSC and do not draw on known theory about generic cultural types. It is possible that certain combinations of the five cultural variables occur more frequently in "reality" than others, but in this study cluster analysis was not applied for identification of possible "natural" groups. The cluster analysis was used strictly for classification purposes and only two groups (compatible firms and incompatible firms) were considered. Results from the cluster analysis are presented in Table 3. A student's *t*-test was employed in order to test for differences between the centroids of the two groups. The result of the test showed statistically significant differences between compatible and incompatible firms with respect to all cultural dimensions.

Hypothesis 1 states that early adopters are compatible firms but, as the diffusion progresses, the proportion of compatible firms declines. To portray the BSC adoption pattern over the period of investigation, 1992–2008, we divided that period into four adoption sub-periods: 1992–1996, 1997–2000, 2001–2004, and 2005–2008. Each adopter was allocated to a sub-period on the basis of the year of adoption. The results are summarised in the table in Fig. 2 and are illustrated in three charts that describe the adoption patterns over time—Chart A for all adopters, Chart B for compatible adopters, and Chart C for incompatible adopters.



Adoption of the BSC in the study's four periods

Period	All adopters	Compatible adopters	Incompatible adopters	Sign.
1992–1996	12	6	6	ns
1997–2000	19	13	6	ns
2001–2004	32	23	9	*
2005–2008	24	11	13	ns

*denotes significance at 0.10 (two-tailed)

Fig. 2. Patterns of adoption of the BSC over time (N = 87).

Chart A shows that the number of adoptions increases in period 2, reaching a maximum in period 3, and decreases in period 4. The approximate bell-shaped pattern that appears is consistent with previous findings in diffusion research (Abrahamson, 1991). The number of adopters in period 1 is only 12 (out of 87), of which 6 are compatible firms and 6 are incompatible firms. This finding does not support H1, which predicts that most early adopters are compatible firms. In period 2 the number of adoptions increases from 6 to 13 in the compatibility group while there are again 6 adopters in the incompatible group. The pattern according to which most of the adopters in this phase of the diffusion process are compatible firms is in accordance with theory. However, the difference in adoptions between the two groups is not wide. In the third period 23 compatible firms and 9 incompatible firms adopt the BSC. The growing preponderance of compatible adopters over incompatible adopters is expected, again, according to theory. Finally, in period 4 there are 11 compatible adopters and 13 incompatible adopters of the BSC. The sharp decrease in the number of adoptions by compatible firms (a drop in 12 adoptions compared with period 3) and the continuing increase in the number of adoptions for incompatible firms is consistent with H1 (i.e. that the proportion of compatible firms declines and the proportion of incompatible firms increases as the diffusion progresses).

Table 2
Descriptive statistics and Pearson correlation coefficients (N = 165).[a]

Variables		Mean	SD	Min	Max	1	2	3	4	5	6
1	BSC Adoption	0.527	0.501	0.000	1.000	1.000					
2	Compatibility	0.590	0.493	0.000	1.000	0.033	1.000				
3	Perceived effectiveness	4.761	0.820	2.200	6.800	0.412***	0.036	1.000			
4	Intensity of competition	5.284	1.023	1.000	7.000	0.137*	0.056	0.019	1.000		
5	Forced selection	0.297	0.458	0.000	1.000	0.350***.	−0.057	0.102	−0.043	1.000	
6	Firm size	2.686	0.244	2.540	3.880	0.181**	0.01	0.166*	0.091	0.115	1.000
7	Effectiveness	4.500	0.726	2.520	6.520	0.136*	−0.015	−0.019	0.08	−0.072	0.111

*, **, *** denote significance at the 0.10, 0.05, and 0.01 levels, respectively (two-tailed).

[a] Perceived gains (effectiveness) of the BSC were asked about only if respondents stated that they were aware of the BSC. Since 25 respondents answered that they were not aware of the BSC and there was a missing answer, N = 132 for the variable perceived gains.

Table 3
Results from cluster analysis.

Measurements	Compatible firms N = 98	Incompatible firms N = 67	t-statistic	Sig. p-value
Facts versus Intuition	2.24	3.81	9.408	***
Long-term planning versus Flexibility	3.04	4.75	9.360	***
Top-down versus Bottom-up (objectives)	2.91	4.46	8.969	***
Continuity versus Change	2.71	4.48	9.197	***
Tight control versus Loose control	3.39	4.27	4.104	***

*** denotes significance at the 0.001 level (two-tailed).

Table 4
Results of regression analyses testing adoption changes in period 3–4 and relationships between perceived opportunities of achieving gains, intensity of competition (perceived threat of incurring losses), and adoption among compatible and incompatible firms.

	Model 1 (H1)			Model 2 (H2 and H3)		
	Compatible firms	Incomp. firms	Interaction	Compatible firms	Incomp. firms	Interaction
Period (3–4)	−0.355	0.912*	0.874*			
Compatibility (Group)			0.869*			−1.852
Period (3–4) x Group			−1.211*			
Perceived gains				1.885***	0.614	0.575
Intensity of comp.				−0.128	0.847**	0.769**
Perceived gains x Group						1.300*
Intensity of comp. x Group						−0.850*
Control variables						
Forced selection	1.095**	1.500***	1.275***	0.644	1.671	1.069**
Firm size	1.230	0.843	1.138*	1.511	−0.367	0.738
Effectiveness	0.206	0.533	0.326	0.742	0.518	0.656*
Constant	−6.024**	−6.856*	−6.643	−15.213***	−8.304*	−11.127***
Cases (N)	135	101	236	83	49	132
Nagelkerke (R2)	0.099	0.191	0.135	0.341	0.357	0.397

*, **, *** denote significance at the 0.10, 0.05, and 0.01 levels, respectively (two-tailed).

Logit regressions examining the difference (proportional incidence) in adoptions between compatible and incompatible firms for each of the study's four periods were conducted to further test H1. As can be seen in the table in Fig. 2, the difference in adoptions between compatible firms and incompatible firms is statistically significant only in period 3. While the meaning of the nonsignificant results for periods 1 and 2 is clear, the meaning of the result for period 4 is less clear. The nonsignificant difference between compatible and incompatible adopters in period 4 is the result of the combined effect of the downward adoption pattern in the compatibility group and the upward adoption pattern in the incompatibility group. Theory predicts that adoption both accelerates earlier and slows earlier in the compatibility group compared with adoption in the incompatibility group. Therefore, we compare changes in adoption between periods 3 and 4 between firms in the compatible group and firms in the incompatible group. Two separate logit regressions were performed, one for each group of firms, and a moderated regression analysis was conducted to estimate the significance of differences in adoption changes between the compatibility group and the incompatibility group from period 3 through period 4 (Model 1 in Table 4). The interaction effect between the two groups of firms is negative (−1.211) and statistically significant. The negative sign indicates that adoption increases to a greater degree (or decreases to a lesser degree) among incompatible firms than among compatible firms between these periods. Thus, this adoption pattern supports theory.

Again, hypothesis 1 predicts that early adopters of an innovation are compatible firms but, as the diffusion progresses, the proportion of compatible adopters declines. However, we find that both compatible firms and incompatible firms adopt in early stages of the diffusion process. The relatively high level of early adoption among incompatible firms is unexpected. This result suggests that compatibility may not be the only factor explaining adoption in early stages. Our results also suggest that there are differences in adoption patterns between compatible and incompatible firms as diffusion unfolds over time. These differences are consistent with theory. Specifically, we find that the adoption rate both accelerates and peaks (and also slows) earlier in compatible firms compared with the adoption rate in incompatible firms (period 3), and that when the adoption rate accelerates for incompatible firms the

adoption rate for compatible firms drops considerably (period 4).[9] On the basis of these results we conclude that H1 is partly supported.

Hypothesis 2 predicts that perceived opportunity of achieving gains has a more positive effect on adoption for compatible firms than for incompatible firms. Hypothesis 3 predicts that intensity of competition has a more positive effect on adoption for incompatible firms than for compatible firms. These two hypotheses were tested by comparing two logit regressions—one for compatible firms and one for incompatible firms. Each regression includes perceived gains and intensity of competition as independent variables and adoption as the dependent variable. Control variables are firm size, effectiveness, and forced selection. Because only respondents who stated that they were aware of the BSC were asked about how they perceived the possible gains from the BSC, the total sample in the statistical analysis was reduced from 165 to 132 cases (83 compatible and 49 incompatible firms). The results from these analyses are shown in Table 4 (Model 2, columns 1 and 2).

The effect of perceived gains from the BSC is significant (+1.885) and of intensity of competition is nonsignificant (−0.128) for compatible firms. This is in accordance with our theory. For incompatible firms the effect of perceived gains is considerably weaker and statistically nonsignificant (0.614). The intensity of competition is positive and significant (0.847) for the incompatible firms. The positive impact of intensity of competition on adoption for incompatible firms is in accordance with H3. To test hypotheses 2 and 3, a moderated regression analysis was conducted to estimate the *difference* in the impact of perceived gains and the intensity of competition between compatible and incompatible firms. The results are shown in Table 4 (Model 2, column 3). The interaction coefficient for compatibility and perceived gains is positive and significant (+1.300), indicating that the perceived gains have a greater impact on adoption for compatible firms than for incompatible firms. The interaction coefficient between compatibility and the intensity of competition is also significant (−0.850). The negative sign signals that, with respect to innovation adoption, incompatible firms are more positively affected by the intensity of competition than compatible firms. The positive interaction effect between perceived gains and groups of firms provides support for H2 and the negative interaction effect between competition and groups of firms provides support for H3. The Nagelkerke R^2 is 0.397, signalling that the model has modest explanatory power.

5. Discussion

The aim of this study was to contribute to our understanding of the adoption of MAIs at the firm level of analysis. We develop and test an adoption model which draws on two other models recently introduced in the new-institutional literature (Love and Cebon, 2008; Kennedy and Fiss, 2009). In synthesising these models, we assume that a diffusing innovation that is compatible with a firm's values and beliefs is adopted early if it is perceived as delivering adequate gains and that such an innovation is rejected if it is not perceived as doing so, and that a diffusing innovation that is incompatible with a firm's values and beliefs is adopted late if it is perceived as reducing the likelihood of incurring losses and that such an innovation is rejected if it is perceived as not doing so. In most respects, the pattern of results this study finds supports our model and assumptions. Next, we discuss the results in light of our model and relate our results to the models of Love and Cebon (2008) and Kennedy and Fiss (2009).

Considering adoption patterns as diffusion unfolds over time, our model predicts contrasting patterns for compatible firms and incompatible firms, the contrast between the two groups manifesting largely in temporal differences in their respective adoption patterns (with proportionately more compatible firms and proportionately fewer incompatible firms adopting early). The predicted patterns for the two groups of adopters are schematically outlined in Fig. 3, Panel A. The study's 4-period model confirms differing adoption patterns for compatible firms and incompatible firms. The model does not, however, confirm our predicted temporal difference in adoption patterns. As illustrated in Fig. 3, Panel B (in which the dotted lines denote expected future diffusion), the deviation from the predicted adoption patterns occurs for incompatible firms in the early stages (periods 1 and 2) of the diffusion process, while the pattern for compatible firms over the diffusion trajectory and the pattern for incompatible firms in the later stages are consistent with our predictions.[10]

Except for the pattern observed for the early stage of the diffusion process, the observed adoption patterns are consistent with prior research findings, which have shown that compatibility is positively associated with early adoption and that incompatibility is associated with late adoption. However, our data also reveal a large proportion of compatible firms (46%) that never adopted the BSC during the 18-year study period (compared with 49% of incompatible firms). A time plot of adopters over the study's four periods reveals a bell-shaped pattern of adoption, which suggests that it is not likely that the large majority of firms in our study will have adopted the BSC at the end of the diffusion cycle. This observation suggests that compatibility/incompatibility itself does not predict adoption, as the model of Love and Cebon (2008) suggests. In contrast to their model, our model may also explain why some compatible firms reject innovations in the early stage and incompatible firms reject innovations in late stages.

With regard to our model's analysis of the *early stage of adoption*, ours agrees with the findings of Kennedy and Fiss's (2009) model, which posits that early adoption is associated with motivations to achieve gains. Our model predicts that compatible firms, but not incompatible firms, will be concerned with the prospect of achieving gains in adoption decision-making. In the present study, we measure the opportunity for achieving gains by asking both adopters and non-adopters how they perceive the effectiveness of the BSC. For compatible firms, we find a significant difference in how adopters and non-adopters perceive the effectiveness of the BSC, and the level of perceived effectiveness is higher for adopters than for non-adopters. For incompatible firms, on the other hand, there is no difference in how adopters and non-adopters perceive the effectiveness of the BSC. These results suggest that perceiving adoption as an opportunity to achieve gains is a significantly more important factor for compatible firms in adoption decision-making than for incompatible firms. While we agree with Kennedy and Fiss (2009) that motivations for achieving gains are essential to understanding adoption decision-making, there are important differences between our model and theirs. In their model, adoption motivations are explained by adoption timing; i.e., firms that are motivated to adopt by the perception that adoption is an opportunity to achieve gains tend to adopt earlier than firms motivated by the perception that non-adoption poses a threat of incurring losses. In our model (the case of early adoption), adoption motivation (i.e., the perceived opportunity for gains) and adoption timing

[9] The rate of adoption for incompatible firms peaks in period 4 (or in a later period), but we cannot determine that rate because the time period covered by the study ends at the end of period 4.

[10] Interestingly, Love and Cebon (2008) also found that incompatible firms adopt early. Specifically, they showed that the strength of the impact of compatibility on adoption starts to decrease in the early stages of the diffusion process. Unfortunately, the nature of the data presented and analyses performed in their study does not allow for a more detailed comparison of their findings with our results.

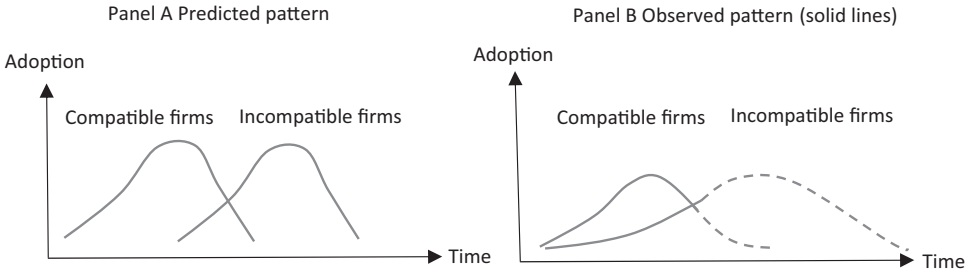


Fig. 3. Predicted and observed adoption pattern of the BSC over time.

are explained by compatibility, and adoption is explained by the level of perceived opportunities for gains of a candidate innovation. Specifically, our model says that compatible firms make the decision to adopt a candidate innovation relatively early in the diffusion process, motivated by the perceived opportunity to achieve gains provided that the innovation is perceived as being able to provide adequate gains. Importantly, our findings not only suggest that the level of perceived opportunity to achieve gains explains why some compatible firms adopt an innovation, they also help to explain why other compatible firms reject an innovation. Thus, the reason many compatible firms in this study have not adopted the BSC may be that they perceive the level of gains from adoption as inadequate.

Turning now to *late adoption*, Love and Cebon (2008) suggest, but do not show, that processes of imitation, institutionalization, and theorization at the field level lead firms to 're-evaluate' the meaning of an innovation as diffusion unfolds over time, which accelerates adoption among incompatible firms. The results of the present study suggest the existence of such a pattern of adoption. Kennedy and Fiss (2009) argue that late adopters are motivated to adopt by the perceived threat of incurring losses. Our results suggest that this association holds but, importantly, only for incompatible firms. This finding is, thus, consistent with the idea that late adopters in general are incompatible firms (Love and Cebon, 2008). In our model, adoption motivation (i.e., the perceived threat of incurring losses) and adoption timing are explained by incompatibility, and adoption is explained by the level of perceived threat of incurring losses from the non-adoption of a candidate innovation. Specifically, our model says that incompatible firms make the decision to adopt an innovation relatively late in the diffusion process, motivated by the perceived threat of incurring losses from non-adoption, provided that the innovation is perceived as being able to prevent or reduce losses.

5.1. Contributions

Our study makes three main contributions to the related body of knowledge. The first contribution represents the overall contribution to the literature represented by our theoretical and empirical investigation of the diffusion of the BSC, while our second and third contributions focus more specifically on the advancement of the two main theoretical ideas on which our study draws.

First, by combining and further developing two ideas about innovation diffusion recently introduced in the new-institutional literature—the notion of compatibility between organizational culture and the values and beliefs embedded in innovations (Love and Cebon, 2008) and the perspective that early and late adopters might both be motivated to adopt because of perceived economic and social gains and losses (Kennedy and Fiss, 2009)—we extend earlier work by presenting and testing a model suggesting how the dynamic interplay between organizational culture, the values and beliefs embedded in an innovation, and motivations for adoption influence adoption decision-making as diffusion unfolds over time. Specifically, our study provides a deeper understanding of why certain firms are early adopters and others are late adopters, why adoption motivations for early and late adopters differ, and why certain firms are non-adopters. These insights are also important because they add support to the literature questioning the validity of the basic assumptions of the influential two-stage diffusion model of new-institutional theory, i.e., that early adopters seek economic benefit and late adopters act to increase their legitimacy (therefore assuming that adoption timing is a relevant predictor of adoption motivation) (Staw and Epstein, 2000; Colyvas and Jonsson, 2011). In particular, some in the current debate argue that the dichotomy between early and late adoption is unable to account for "the adoption of a diffusing innovation (that) occurs at different times for different firms in different circumstances" (Chandler and Hwang, 2015). We believe our study provides a clear illustration of this problem with the two-stage model.

Our study thus also contributes to the growing new-institutional literature on questions associated with change and heterogeneity in studies of diffusion (Lounsbury, 2007, 2008; Chandler and Hwang, 2015). This stream of research questions "the popular understandings of neoinstitutionalism [of which the two-stage model is a key component] as a theory of isomorphism" (Lounsbury, 2008) and expands the scope of investigation to include the study of how and why adoption decision-making can lead to diverse outcomes in terms of adoption and implementation of innovations among organizations. We therefore believe that our model adds to current explanations of organizational heterogeneity.

Second, we contribute to the diffusion literature on compatibility by expanding on the current model of the link between compatibility (and incompatibility) and adoption by arguing for the inclusion of factors hindering adoption. Contrary to Love and Cebon's (2008) model, which argues that firms in a collectivity in general adopt an innovation based on distinct motivations—early adopters motivated by compatibility and late adopters (i.e., incompatible firms) in response to institutional pressures—we develop arguments that contribute to explaining why some compatible firms reject innovations in an early stage and why some incompatible firms reject innovations in late stages. Drawing on Cohen and Levinthal's (1990) ideas about absorptive capacity and Kennedy and Fiss's (2009) ideas about adoption motivations and timing, we provide a more refined account of diffusion processes by offering an outcome in which there are four categories of firms in a collectivity at the end of the diffusion cycle, i.e., compatible adopters, compatible non-adopters, incompatible adopters, and incompatible non-adopters.

Our findings on the influence of compatibility (and incompatibility) on adoption decision-making has implications for management accounting research. Extant research sees MAIs in terms of their design characteristics (e.g., Speckbacher et al., 2003; Davis and Albright, 2004; Drury and Tayles, 2005), rhetorical elements (e.g., Nørreklit, 2003; Ax and Bjørnenak, 2005), or graphics (e.g. Free and Qu, 2011). This study empirically illustrates the

significance of broadening this three-component notion of MAIs to also include culturally linked values and beliefs.

In addition to the issue of MAI adoption highlighted in this study, such an approach has the potential to also provide valuable insights into other issues. In particular, we believe that it could enhance our knowledge and understanding of the role of fit or misfit between organizational culture and the values and beliefs associated with innovations and the implementation and use of innovations in organizations. More specifically, the role of fit/misfit could be related to issues such as the extent of implementation and use of innovations, the abandonment/continuing existence of innovations, the degree of satisfaction/dissatisfaction with innovations among organizational members, and the level of financial and non-financial benefits achieved from using innovations. Another implication for research relates to the fact that the compatibility idea explains adoption behaviour not only by reference to a characteristic of the firm (i.e., organizational culture) but also by reference to characteristics of the MAI. This arrangement indicates that a firm could be compatible with one innovation but incompatible with another. Thus, this implies the relevance of considering both firm characteristics and innovation characteristics in studies on adoption.

Third, we contribute to the literature on the framing of interpretations of innovation adoption situations as either perceived opportunities for gains or perceived threats of losses (Kennedy and Fiss, 2009) by adding to our understanding of the interpretations of such situations. Although the adoption motivations posited by the Kennedy and Fiss (2009) model are clearly explained and illustrated, they suggest that additional research is needed to "understand the factors that lead organizations to interpret adoption situations as either pursuing an opportunity or avoiding a threat" (p. 914). Our findings suggest that compatibility and incompatibility are such factors, meaning that adoption motivations may depend on whether an innovation is compatible or incompatible with a firm's organizational culture. Even though this link is interesting, more research is needed to better understand the specific mechanisms involved in interpreting adoption situations. Our study contributes to this literature also by providing findings suggesting that the decision to adopt an innovation depends on the condition that the level of perceived gains from adoption is adequate or that the level of perceived threat of incurring losses from non-adoption is high enough, i.e., we show that there are interaction effects between adoption motivations and perceived levels of gains and losses.

5.2. Limitations

As with any empirical investigation, this study has potential limitations that should be considered when interpreting the results. First, the sample was drawn only from manufacturing firms in Sweden. Although previous research has noted that the nature of competition and industry structure may differ from industry to industry and country to country (Chang et al., 2003), we have no knowledge about whether or how industry and country factors might have affected the findings of the study. As noted in Section 3, restricting the sample to a single industry makes it possible to control implicitly for potentially confounding factors that could arise when defining a multi-industry sampling frame and also produces higher internal validity compared with a multi-industry study (Davila, 2000; Ittner et al., 2003).

Second, the interpretative viability (Benders and van Veen, 2001) of the BSC could mean that it is perceived differentially by firms. The intangible nature of management concepts opens up a space in which users and suppliers can shape their content and use, and, as a result, there may be problems in defining concepts and empirically measuring their incidence. We have strived to be clear about the potential problems involved in studying the BSC in a study of this type, the key issues here being the appropriateness of choosing the BSC over other candidate MAIs to study, the measurement of compatibility, and the validity of using Kaplan and Norton's publications to identify the values and beliefs of the BSC in the Swedish context. We explain how we have addressed these issues and present tests of the importance of these potential problems in our study. Although the results of these tests are non-significant, it is clear that these tests are simple and do not capture the complexity of real-life situations.

A third limitation is that of having only one respondent per firm. Although each person who completed the questionnaire was knowledgeable about the issues that were covered in the study, having multiple respondents per firm would perhaps have resulted in more reliable data.

Fourth, the study relies on retrospective recall of events. With the passage of time, it could be more difficult for respondents to accurately recall when and under what circumstances the BSC was adopted.

Fifth, the study includes self-reported questionnaire data. We have strived to limit the potential effects of this approach by following the questionnaire strategy along lines suggested by Dillman (2000).

Finally, a study that uses a retrospective cross-sectional research methodology involves possible unstable measures of variables. This approach raises methodological concerns. The case of organizational culture was highlighted in Section 3. However, even if organizational culture remains relatively stable over time, compatibility could change if the characteristics of a candidate innovation were to change. Several researchers have reported that the characteristics of the BSC have changed over time (e.g., Speckbacher et al., 2003). If such characteristics change over time, these changes could influence former non-adopters to adopt if the innovation were to become compatible with organizational culture.

We conducted two tests to examine the possibility of such an effect in our study. First, we grouped the compatible adopters according to the three types of BSCs developed by Speckbacher et al. (2003) and examined whether there were differences corresponding to the study's values and beliefs dimensions (see Appendix A) between the groups. We found almost no such differences but there was one exception, which was that adopters of the Type 3 BSC (the most sophisticated type) focus more intently on 'decision-making based on intuition' than adopters of types 1 and 2 BSCs. Second, using the same grouping of compatible BSC adopters as in the previous test, we examined whether the three types of BSCs enter in different stages of the diffusion cycle, i.e., we examine whether Type 1 enters first, then Type 2, and Type 3 last. The idea is that if the BSC becomes compatible with organizational culture because the characteristics of the BSC change over time (i.e., new types of BSCs are introduced), we should expect to find a positive relationship between BSC type and the adoption period (i.e., when firms favour more sophisticated BSCs, they adopt later). However, no such relationship was found. Although the results of these two tests showed little evidence that compatibility has changed because the characteristics of the BSC change over time, we cannot completely rule out the possibility of such an effect in our study. A limitation with our tests is that we rely entirely on Speckbacher et al.'s (2003) typology of BSCs. There may be firms in our study that have adopted other types of the BSC with other characteristics (i.e., packages of design characteristics and rhetorical elements (Olson and Bjørnenak, 1999; Ax and Bjørnenak, 2007) than the types of the typology, which may fit with cultural configurations that our

research method would not qualify as compatible with the BSC.[11] The existence of such cases in our study may thus have limited the strength of the statistical analysis.

The perceived gains of an innovation and the intensity of the competition could also change over time. Regarding the perceived gains, it is, for example, possible that adoption itself affects the perceived gains of an innovation. When firms learn more about such an innovation, their attitudes can become more positive (or negative) toward the innovation. If compatible and incompatible adopters react differently (e.g., compatible firms become more positive and incompatible firms become more negative), this will indeed increase the difference between the two groups and may possibly result in a significant interaction effect. Similarly, the intensity of the competition could change as an effect of adoption because the mere implementation of an innovation could increase the adopters' compatibility and, therefore, lower the level of the perceived intensity of competition.

5.3. Suggestions for future research

We hope the findings of this study stimulate further research. We offer five suggestions for future studies. First, as this study illustrates, the drivers of adoption in the early phases of the diffusion process may be more complex and therefore more difficult to understand than has previously been suggested. More work is needed to shed light on, for example, the motivations of early adopters and the innovation assessment process in the analysis of innovations in this critical phase of diffusion. Second, because our sample was drawn from manufacturing firms in Sweden and focused on only one MAI, future studies could, therefore, replicate or extend our study to other industries, countries, and/or innovations. Third, our methodology for measuring the values and beliefs associated with innovations could be advanced. For example, the literature on content analysis provides approaches that could be applied to text or other communications channels related to innovations. Fourth, the measurement of the motivations for adoption could be improved. Future research could develop and test more direct measures of adoption motivations. Such measures would improve the validity of diffusion research. Finally, it is possible, as suggested by Kennedy and Fiss (2009), that the extent to which innovations are implemented depends on adoption motivations. Future research could investigate whether, why, and how distinct motivations influence the extent of implementation. Such research has the potential to provide a more detailed explanation of implementation patterns in practice.

[11] The existence of incompatible adopters in the first and second periods of the study may be explained by such an effect.

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Appendix A. Survey questions on cultural positions. (*Translated from Swedish.)*

*Survey questions on cultural positions. (*Translated from Swedish.)

(For i, ii, iii and v are lower values more strongly linked to the BSC and for iv are higher values more strongly linked to the BSC).

Question 4

Mark, for each pair of statements, the number 1–7 to indicate the position that is dominant in your organization. If there is no clear (unambiguous) opinion in any direction for a statement, then please mark the middle value (4), but the more clear (unambiguous) the opinion is about a statement, the lower/higher the number that should be marked.

(i) Decisions are based on facts. Information providing decision support explains/describes causality between important/relevant factors/parameters.	1 O	2 O	3 O	4 O	5 O	6 O	7 O	Decisions are based on intuition. Information providing decision support at best provides/offers a general/overall (less explicit) description/explanation of the situation/circumstances.
(ii) We adopt a long-term perspective. By deciding on/establishing long-term (consistent over time) objectives/targets and formulate/develop a long-term (consistent over time) strategy success can be achieved/attained.	1 O	2 O	3 O	4 O	5 O	6 O	7 O	We are adaptive/flexible. By continuously challenging our business/activities and adjusting/adapting our business/activities to the current situation/position success can be achieved/attained.
(iii) Individuals are motivated when clear targets/goals are presented/communicated and their performance is measured and are given/brought to the attention of others.	1 O	2 O	3 O	4 O	5 O	6 O	7 O	Individuals are motivated when they formulate/decide on their own targets/goals and their performance is evaluated/assessed by themselves.
(iv) Stability and consistency over time/continuity are important/highly valued. It is important that quality is maintained and that standards are achieved/reached.	1 O	2 O	3 O	4 O	5 O	6 O	7 O	Change and development are important/highly valued. It is important/vital to produce/achieve progress and innovations.
(v) Management is demanding and control organizational units by deciding on and following up measurable targets/goals.	1 O	2 O	3 O	4 O	5 O	6 O	7 O	Management is open/responsive to employee ideas/opinions and emphasizes/stresses control through shared understanding of the organization's visions and targets/goals.

Appendix B.

Examples of values and beliefs that underlie the BSC along the study's five cultural dimensions.

(i) *The basis of truth and rationality in the organization*

"Ideally, companies should specify how improvements in quality, cycle time, quoted leads times, delivery, and new product introduction will lead to higher market share, operating margins, and asset turnover or to reduce operating expenses. The challenge is to learn how to make such explicit linkage between operations and finance. Exploring the complex dynamics will likely require simulation and cost modeling." (Kaplan and Norton, 1992)

"The multiple measures on a properly constructed Balanced Scorecard should consist of a linked series of objectives and measures that are both consistent and mutually

reinforcing. The metaphor should be a flight simulator, not a dashboard of instrument dials. Like a flight simulator, the scorecard should incorporate the complex set of cause-and-effect relationships among the critical variables, including leads, lags, and feedback loops that describe the trajectory, the flight plan, of the strategy." (Kaplan and Norton, 1996a)

(ii) *The nature of time and time horizon*

"In summary, the Balanced Scorecard is more than a collection of financial and non-financial measurements. It is the translation of the business unit's strategy into a linked set of measures that define both the long-term strategic objectives, as well as the mechanisms for achieving and obtaining feedback on those objectives." (Kaplan and Norton, 1996a)

"The Balanced Scorecard is more than a tactical or an operational measurement system. Innovative companies are using the scorecard as a strategic management system, to manage their strategy over their long run". (Kaplan and Norton, 1996b)

(iii) *Motivation*

"Some companies link compensation of senior executives to achieving stretch targets for the scorecard measures. Most are attempting to translate the scorecard into operational measures that become the focus for improvement activities in local units. The scorecard is not just a measurement system; it is a management system to motivate breakthrough competitive performance." (Kaplan and Norton, 1993)

"What you measure is what you get. Senior executives understand that their organization's measurement system strongly affects the behavior of managers and employees." (Kaplan and Norton, 1992)

(iv) *Stability versus change/innovation/personal growth*

"A company's ability to innovate, improve, and learn ties directly to the company's value. That is, only through the ability to launch new products, create more value for customers, and improve operating efficiencies continually can a company penetrate new markets and increase revenues and margins—in short, grow and thereby increase shareholders value." (Kaplan and Norton, 1992)

"Traditional approaches attempt to monitor and improve existing business processes. They may go beyond just financial measures of performance by incorporating quality and time-based metrics. But they still focus on improving existing processes. The Balanced Scorecard approach, however, will usually identify entirely new processes at which the organization must excel to meet customer and financial objectives." (Kaplan and Norton, 1996a)

(v) *Control, coordination, and responsibility*

"The objectives and the measures for the Balanced Scorecard are more than just a somewhat ad hoc collection of financial and nonfinancial measures; they are derived from a top-down process driven by the mission and strategy of the business unit. The Balanced Scorecard should translate a business unit's mission and strategy into tangible objectives and measures." (Kaplan and Norton, 1996b)

"That way, the measures link top management's judgment about key internal processes and competencies to the actions taken by individuals that affect overall corporate objectives. This linkage ensures that employees at lower levels in the organization have clear targets for actions, decisions, and improvement activities that will contribute to the company's overall mission." (Kaplan and Norton, 1992)

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