Balanced Scorecard Design and Performance Impacts: Some Australian Evidence

David S Bedford*
David A Brown*
Teemu Malmi^
Prabhu Sivabalan*

*School of Accounting, University of Technology, Sydney
^Helsinki School of Economics

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Abstract

In recent years academic literature has given increased consideration to the adoption and use of performance measurement systems, notably the Balanced Scorecard (BSC). However, there has been limited empirical investigation into the particular benefits that result from the use of the BSC (Ittner & Larcker, 1998). Furthermore, while the normative literature has seen a shift in the conceptualisation of the BSC from an information system towards one of strategic control, little is known about whether these normative developments are being mirrored in practice and if so, are these developments reflected in benefits that BSCs produce. This study empirically examines how the BSC has been applied in practice and whether different BSC designs result in varying performance outcomes. Data is from a cross sectional survey, which provided a sample of 92 Australian firms using BSC. It is hypothesised that the BSC provides greater benefits when 1) cause and effect logic is used between measures 2) its non-financial measures are tied to compensation and 3) it is implemented at multiple levels within the organisation. Results support the first proposition, although cause and effect logic appears to be more important if the BSC is tied to compensation. These results are discussed, and implications for practice and future research are presented.

Keywords: Balanced Scorecard, strategic performance measurement systems, management control

JEL Classification: M41

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1.0 Introduction

The research issue that this paper investigates is whether different Balanced Scorecard (BSC) design characteristics impact on the level of benefits and success outcomes experienced within Australian organisations. Three key elements of BSC design are considered; use of the cause and effect logic between measures, tying of compensation to non-financial measures, and the extent to which the BSC has been implemented down through the organisational hierarchy.

Kaplan and Norton (1992, 1993) started their development of the BSC arguing that it BSC was a Key Performance Indicator (KPI) types system somewhat like an airplane cockpit enabling executives to manage their organisations more effectively. From this they developed the idea further with a stronger emphasis on cause and effect relationships between perspectives and measures, along with a greater strategic focus in organisations. The BSC was described as a comprehensive strategic management system (Kaplan & Norton, 1996). Kaplan and Norton in their latest writings suggest that the BSC facilitates the management of intangibles (2001; 2004). Central to all of this normative literature is that the implementation of the BSC will provide superior performance in the organisation.

Given this evolutionary development, it is not surprising that the limited empirical research that has considered the BSC has shown some preliminary evidence that there is variation in the content and use of the BSC (Malmi, 2001; Speckbacher et al., 2003), although there is very little broad based evidence of this still (Chenhall, 2005). Furthermore, there is some initial evidence that the BSC may have some performance impacts (Malmi, 2001; Malina & Selto, 2002; Ittner et al, 2003; Davis & Albright, 2004). However, most of these studies are limited to smaller samples or case studies. Furthermore, the studies either consider performance impacts of non BSC users to BSC users (Ittner et al, 2003; Davis & Albright, 2004), or an overall perception as to what impacts the BSC has had (Malmi, 2001; Malina & Selto, 2002). What is not clear from the above research is whether the different forms that a BSC may take (design choices or characteristics) has any impact on the extent to which benefits are derived.

This is an important research issue for a number of reasons. First is that BSC adoption rates have been comparatively high (Speckbacher et al., 2003)[1]. With many organisations investing in the BSC, the usefulness of it and its impacts on performance is an important research issue (Atkinson et al, 1999; Ittner and Larcker, 1998; Ittner et al, 2003; Chenhall, 2005). Furthermore, while there have been criticisms of the BSC (Norreklit, 2000; 2003) and some uncertainty as to the extent to which firms gain benefits (Malmi, 2001; Malina & Selto, 2002; Ittner et al, 2003), a simple counter claim from the BSC authors could be that it has not been designed and applied according to their prescriptions (Kaplan & Norton, 1996). Within this context, this paper considers the question of whether different choices in BSC design have an impact on the benefits gained. In doing so, it makes a contribution to the developing stream of empirical research on the use and impacts of the BSC (Malmi, 2001; Malina & Selto, 2002; Ittner et al, 2003; Speckbacher et al, 2003; Davis & Albright, 2004; Tuomela, 2005; Chenhall, 2005), which sits within the strategic performance management systems and broader management control systems research literature (Chenhall, 2003; Chenhall, 2005).

The research approach was a cross sectional survey of 92 Australian organisations. The first part of the data analysis tests propositions relating to three key characteristics of BSC design and their impacts on benefits gained. Results show that, the use of the cause and effect logic between measures was associated with the 11 BSC related benefits identified and with 2 of the 3 overall success outcomes. The tying of compensation to non-financial measures was

[1] Speckbacher et al. (2003) cite a range of studies showing adoption rates of 40-60% across a number of countries.

associated with 4 of the 11 benefits and did not seem to impact on success outcomes. Finally, the extent to which the BSC had been implemented throughout the organisational hierarchy had no significant impact on benefits or success outcomes.. After considering the impacts of these three characteristics, further sensitivity analysis was undertaken to understand how the combination of cause and effect along with compensation impacted on BSC benefits. From the analysis a number of findings emerge. There is evidence that when cause and effect is absent in BSC design, compensation has no impact on benefits. When no compensation is tied to non-financial measures, cause and effect has impact on a limited number of benefits achieved. Finally, when compensation is present, cause and effect is associated with 9 of the 11 benefits and the 3 success outcomes measures. Overall, in this study, the cause and effect characteristic seems to have some impact on BSC benefits, compensation has some impacts but less than cause and effect, finally the level of implementation does not seem to be significantly associated with benefits achieved.

The paper is organised into the following four sections. The first section reviews the relevant BSC literature and argues why the three key design characteristics will have an impact on the benefits gained from the BSC. The second section outlines the research method and design. The third section provides the findings from testing the propositions and then outlines the further analysis of the data. The final section discusses these results and their implications for research and practice.

2.0 Literature Review and Proposition Development

A central tenet of all the BSC writing by Kaplan & Norton (1992, 1993, 1996a, b, 2001) is that through the implementation of the BSC, organisations will gain superior performance. The strategic benefits of the BSC have been decomposed into a number of aspects by Kaplan and Norton (1996; 2001). The first is that management will be able to clarify and gain consensus about strategy. This is through the process of senior mangers working together to 'translate its business units strategy into specific strategic objectives' (Kaplan and Norton 1996, p. 10). The BSC will then enable the strategy to be communicated throughout the organisation and personal and departmental goals to be aligned (2001). As part of this strategic process, long term strategic initiatives will be identified and aligned through a reduced emphasis of short term financial measures, and more of a focus placed upon drivers of long term success (Kaplan and Norton 1996; 2001). One of the most innovative aspects of the BSC (as argued by Kaplan and Norton, 1996) is that the BSC provides a strategic learning framework where the capability for organisational learning is able to take place at an executive level. It is argued that by enabling a feedback loop on the strategic process, managers will be able question strategic priorities and the assumptions made, leading to a realignment of strategy and organisational objectives where necessary.

Ittner & Larcker (1998) argue that investigation of the performance impacts of the BSC requires consideration. While Kaplan & Norton (1996) make the above normative assertions, the limited empirical research on this issue has been less than consistent in its findings (Malmi, 2001; Malina & Selto, 2002; Speckbacher et al., 2003; Ittner et al., 2003; Davis & Albright, 2004). One of the problems with trying to understand the impacts of BSC is that there are a range of characteristics associated with the design of the BSC which may have an influence on outcomes received (Malmi, 2001; Speckbacher et al., 2003).

The conceptual model and design of the BSC has undergone an evolutionary development in the writings of Kaplan and Norton. The original conception of the BSC was that of a KPI type information system based around four core perspectives to be used by the CEO and senior management to facilitate decision making (Kaplan & Norton, 1993). This conception was developed further by Kaplan & Norton (1996, a, b) into a strategic management system which included linking organisational strategy and vision to measures, as well as the linking of

measures to each other between the four perspectives using cause and effect logic. As part of this development and later work by Kaplan & Norton (2001), the idea of strategy maps and the use of the BSC as part of strategic development started to take a greater focus in the conceptualisation of the BSC.

On this basis, at least on a theoretical level, organisations can develop BSCs that have a range of different technical designs and use types based on which stage of the BSC conceptual development they have adopted. In this context, two studies have considered empirically what forms/use the BSC takes in practice (Malmi, 2001; Speckbacher et al, 2003). Both these studies found that the BSCs examined had a range of design choices that were different. Malmi (2001) argue that for a system to be considered a BSC it has to contain financial and non-financial measures, and these measures should be based around a number of perspectives which should be derived from, but not necessarily include, the four perspectives as originally outlined by Kaplan and Norton. Beyond this baseline BSC, a number of other design characteristics may be manifest on the forms that the BSC takes; the extent to which the cause and effect logic is built into the BSC design, the extent to which compensation is tied to measures, and the extent to which it has be implemented on multiple levels of the organisational hierarchy (Malmi, 2001; Speckbacher et al., 2003).

The cause and effect relationships are a key feature of the BSC that distinguishes it from other performance evaluation methods. Kaplan and Norton (1992; 1996) argue that one of the greatest strengths of the BSC model is that it makes these relationships between activities and outcomes clear. They draw a distinction between causes and outcomes and argue that much performance evaluation focuses on the outcomes or effects rather than the causes, which they liken to driving a car looking in the rear-view mirror. While the idea of cause and effect is intuitively appealing there has been some discussion about what cause and effect actually means.

Norreklit (2000) argues that the relationship between the four areas of the BSC is not causal but rather a logical one. For example, customer satisfaction does not necessarily lead to good financial results, even though this may seem to be intuitively logical. Norreklit (2000) goes on to argue from a philosophy of science perspective that the BSC makes invalid assumptions about the causal relationships between performance indicators. Furthermore, these invalid assumptions will result in dysfunctional behaviour in organisations and as a consequence lower organisational performance. Bukh and Malmi (2005) take a more practical approach to the issue and argue that if establishing significant correlations between measures and causal chains was immediately obvious and easy then the need for strategy or even management is diminished. They argue that establishing association between inputs that are assumed to have the greatest impact on outcomes is what developing cause and effect is about; and in many organisations these relationships can be discovered and attuned through a process of learning and experimentation over time (see also Tuomela, 2005).

The empirical research literature on the BSC is somewhat mixed in its finding of the use of the cause and effect design characteristic. Malina & Selto (2001), Malmi (2001) and Ittner et al (2003) all found very little application of the cause and effect principle in the companies they considered. They also had somewhat mixed results in the effectiveness of the BSC with some generally positive views on the usefulness of the approach but very little evidence on its impacts. Davis & Albright (2004) in their study of bank braches found that the organisational units that used the BSC did have cause and effect designed into their BSC, and compared to the organisational units that did not have a BSC they had better financial performance.

There are a number of reasons why a BSC with a cause and effect design may provide greater benefits than those without. These include the strategic alignment of activities, the strategic learning provided by the feedback mechanism, and feed-forward control that causal links provide. Kaplan and Norton (1996; 2001) argue that the BSC is to be constructed from the

organisations strategy. As part of this, there is an identification of the key strategic outcomes desired by the organisation. With this established, the activities needed to be performed in the customer, operational and learning and growth perspectives are identified and measures created for these. This is then developed into a strategically aligned causal model. This alignment of measures to strategy and with each other enables alignment between strategy and activities.

The final issue considered is the feed-forward nature of causal links. One of the greatest strengths of the BSC with causal links is that lead and lag indicators are developed. The distinction between causes and outcomes are made clear, with leading measures providing indicators of future performance. This feed-forward approach to control enables identifying the root causes of problems and addressing these earlier than what may have been otherwise.

As outlined above, the BSC literature has been somewhat mixed in its examination and findings about the use and effectiveness of the cause and effect concept that Kaplan and Norton argue is central to the BSC. Despite this lack of evidence there are a range of reasons why BSCs that are designed with cause and effect logic should provide greater impacts than those without. In line with this, the ex ante expectation is that BSCs that are designed with causal links between measures or between measures and perspectives will enable greater performance outcomes. This is formally stated as the following proposition:

Proposition 1: *Organisations that have cause and effect relationships between measures in their BSC will gain more benefits from their BSC than those without cause and effect relationships in their BSC.*

Kaplan & Norton (1996) argue that reward and compensation is a central component to BSC design as it increases the impact through attaching incentives to measures thereby focusing individual's efforts. They also argue that with a strategically linked scorecard and incentive systems based on this, "strategy becomes everyone's job because employees now understand the strategy and are motivated to make it succeed" (Kaplan and Norton, 2001 p. 152).

The BSC research literature to date has presented limited evidence on the benefits of incorporating reward and compensation into BSC design. Malmi (2001) found 13 of the 17 organisations he interviewed had incentives attached to their BSC, however he did not provide any evidence of whether this had any impact on the effectiveness of the BSC in the organisations that did. Speckbacher et al (2003) also examined the extent to which incentives where linked to the BSC. Out of 38 organisations 27 had incentives linked to the BSC. However, the extent to which this impact either benefits of the BSC or organisational performance is not developed. Tuomela (2005) in his case company found that compensation was not linked to BSC measures as staff in the organisation felt that attaching bonuses to measures reduced the power of the BSC to be used interactively as a learning vehicle, at least in the early stages of implementation.

Despite the lack of evidence on the impacts of compensation on the benefits gained from the BSC there would seem to be a range of good reasons why we would expect it to have an impact. The focus of reward and compensation systems is on motivating and increasing the performance of individuals and groups in organisations (Bonner & Sprinkle, 2002). The basic argument is that the presence of rewards and compensation will lead to increased effort when compared to absence explicit rewards and compensation (Bonner & Sprinkle, 2002), and that rewards and compensation are gained from behaviour that is desirable from an individual's perspective (Flamholtz, et al, 1985). Bonner and Sprinkle (2002) argued that monetary incentives increase effort and performance through greater effort being enacted on the task by individuals. This is through three characteristics: effort direction, which is the tasks that the individuals focuses on; effort duration, which is how long individuals devotes themselves to the task; and effort intensity, which is the amount of attention individuals devote to the task.

Consequently, a BSC that has compensation tied to measures will facilitate increased effort from individuals in achieving the outcomes measured by the BSC.

A large proportion of organisations have compensation tied to financial measures (Sivabalan et al, 2006). As the BSC contains both financial and non-financial measures, many BSC organisations may have compensation tied to financial measures that are part of the BSC by default rather than by design. Consequently, the impact of compensation on BSC design has greater discriminate validity in the extent to which compensation is tied to non-financial measures. Based on the research literature on reward and compensation, the ex ante expectation is that organisations that attached incentives to non-financial BSC measures will have greater benefits. This is stated formally as the following proposition:

Proposition 2: *Organisations that have compensation tied to the non-financial measures in their BSC will gain more benefits than those without compensation tied to the non-financial measures in their BSC.*

Kaplan and Norton (1996) argue that a number of the key strengths of the BSC devolve from the ability of the BSC to cascade the strategy and then provide feedback loops through the organisational hierarchy. In order to do this the BSC would need to be implemented at more than SBU level. Kaplan and Norton (1996) argue that the design of a corporate BSC enables a common framework for the themes and visions of the organisation. This provides a platform for the SBUs to develop their BSCs, which should be aligned to a well defined strategy. Based on the SBU BSC, functional units, departments, and individuals are able to develop BSCs that are congruent with the SBU, and in this way "the SBU scorecard is cascaded down to local responsibility centres" (Kaplan and Norton, 1996, p36).

Very little BSC research literature has considered the issue of to what extent the BSC is implemented down organisations hierarchy, with the major focus being on BSC use at business unit level. Davis & Albright (2004) found that the BSC was implemented from an individual level through to a branch level. While the financial performance of BSC branches was better than non-BSC branches, no insights are provided as to whether a BSC that is implemented at more hierarchical levels gives greater benefits than one that isn't. Speckbacher et al (2003) found that the majority of the organisations in their survey had implemented the BSC at a business unit level which made it hard to distinguish the extent to which the key strengths of the BSC had an impact at lower levels of the organisations. This finding is consistent with Malmi's (2001) study where the majority of BSC applications existed at a business unit level.

Kaplan and Norton (2001) argue that the BSC facilitates the process of making sure that employees understand what the strategy is and conduct their activities so that they contribute to this strategy. This is part of the communication process. Malina and Selto (2001) argue that communication is enabled through processes and messages, support of organisational culture, and creation and exchange of knowledge. They argue that the BSC provides processes and messages that are understandable as the BSC creates a common 'language' through the organisation to describe phenomena. The BSC supports the organisational culture through communicating clearly the established goals, values and behaviour patterns. This is manifest through metrics that are rolled out through the organisation. The BSC converts some of the strategic tacit and objective knowledge of senior management into metrics which is then communicated to lower levels of the organisation through the cascading of the BSC. In the same manner, at lower levels of the organisation knowledge of how activities can contribute to organisations strategy is also created by the systematic process of considering metric design and its impact on higher levels of BSC.

Related to this is the operational linking of objectives of departments and individuals to the SBU and corporate BSC. It would seem that unless the lower level activities in the

organisation are overtly linked to the BSC the benefits of the BSC that depend on lower level activities are unlikely to be manifest. The progressive cascading down BSCs which are linked are more likely to produce activities at lower levels in the organisation that are congruent with higher level BSCs than a more ad hoc design of measures.

Based on the normative arguments of Kaplan and Norton (1996) and the limited research literature, the ex ante expectation is that the more organisations implement the BSC through their hierarchical levels the greater the benefits obtained will be. This is stated formally as the following proposition:

Proposition 3: *Organisations that have implemented the BSC throughout the organisation to team and/or individual levels will gain more benefits than those that have implemented it only at higher organisational levels.*

3.0 Research Method

3.1 Sample and Survey Response

The data for this study was obtained from a cross-sectional survey which was part of a larger research project supported by the Certified Practicing Accountants of Australia (CPAA). The CPAA is the largest professional accounting body in Australia, with the majority of its members working in industry and commerce. Their database, which is regularly updated, provided an appropriate source from which to draw the sample for this study. Further, given that the CPAA officially endorsed the survey, members may have been influenced to respond.

The mail-out to 2400 firms, randomly selected from the CPAA database, was conducted between October, 2004 and March, 2005 in two stages. The unit of analysis was the strategic business unit (SBU), which includes single unit organisations (Chenhall & Langfield-Smith, 1998). Respondents were classified as having 'financial control' as their primary job function, and are thus likely to have sufficient knowledge of the BSC in their firm. Questionnaires were personally addressed to these members. The package included the questionnaire and a cover letter, which offered a benchmark report and invitation to an industry seminar as incentives to respond. From this, a total of 426 surveys were returned, representing an initial response rate of 17.8%. Given that the mail-out process followed many of the suggestions by Dillman (2000), including a follow-up postcard two weeks after each stage, the moderate response rate is likely to be attributable to the length of the survey (15 pages, due to requirements additional to this study). However, this response rate is still comparable to those obtained elsewhere in the management accounting literature (see the review of Young, 1996).

The survey asked respondents to indicate their level of consideration/adoption of the BSC. 18 firms (4%) stated that the BSC had been 'implemented then abandoned', while 311 (73%) indicated that the BSC had not been considered. Firms stating that the BSC was either 'gaining acceptance' (58 firms, 14%) or 'used extensively' (39 firms, 9%), were included in the study. From this sample of 97 firms, 5 additional firms had to be removed. When asked about the particular perspectives included in the BSC, four indicated that they only had the financial perspective. The last firm had significant missing data. The authors were unable to determine whether these firms had, in fact, implemented a BSC, and thus they were removed from the analysis. This left a usable sample size of 92 firms (21.6%) that were using a BSC.

Visual inspection of the remaining 92 cases revealed that there were a small number of responses with some missing values. To maintain sample size, missing values were imputed.

Little's MCAR test showed that the data was missing completely at random (MCAR)[2], meaning that any imputation method can be used reliably (Hair et al, 1998). The expectation-maximisation (E-M) was used to impute the missing data. E-M is an iterative process in which mean, covariance and correlation parameters of the sample are protected (Hair et al, 1998). Lastly, non-response bias was tested by comparing the first 20% of the BSC sample with the last 20%. Analysis of categorical and scale data indicated no significant differences.

3.2 Industry and Size

Industry classification and size of organisations is outlined in the Appendix (Table A1). T-tests between company and SBU size show a significant difference between BSC adopters and non-adopters in terms of company size (p=0.013), but not SBU size (p=0.854). The result of company size is consistent with previous literature (Hoque & James, 2000; Speckbacher et al, 2003). Although no statistical tests were run on industry classification, visual inspection indicates few notable trends.

4.0 Results

4.1 Descriptive Data and Measurement

4.1.1 BSC Design

Respondents were asked about three aspects of their BSC design: the use of cause and effect logic in the development of the BSC, the linking of compensation to non-financial measures and the extent that the BSC has been implemented throughout the organisational hierarchy. Descriptive data is shown for each of these aspects in Tables 1, 2 and 3 respectively.

As shown in Table 1, a large number of organisations do not use cause and effect logic (43.5%), despite this being considered a central tenet of BSC design in practitioner literature. Some organisations also indicated that they only used cause and effect logic between perspectives. Given the simplicity of this type of logic, it is likely to have few beneficial outcomes unless measures within and between perspectives are also linked together. These 7 firms were not considered as having used cause and effect logic in testing the first proposition.

Table 1: Use of cause and effect logic

	#	%
Between perspectives	7	7.6%
Between measures	13	14.1%
Both perspectives and measures	32	34.8%
Not used	40	43.5%

Respondents were asked to indicate the extent to which they agree with the statement that 'non-financial data is used for management (staff) compensation' on two 7 point Likert scales, one for management and one for staff. The scale was anchored with 'strongly disagree' (1), 'strongly agree' (7) and 'neutral' (4). The breakdown of the responses is shown in Table 2. 52.2% of firms agree (a response of 5 or greater) with the statement for management compensation, and 41.3% for staff. Firms in either of these categories were classed as having compensation tied to the BSC (a total of 51 firms, with 35 of these compensating both management and staff based on BSC measures).

[2] Chi-square = 451.625, DF=441, p>0.10.

Table 2: Link to compensation

	Management		Staff	
	#	%	#	%
1 = Strongly Disagree	7	7.6	13	14.1
2	8	8.7	11	12.0
3	10	10.9	11	12.0
4 = Neutral	19	20.7	19	20.7
5	16	17.4	15	16.3
6	22	23.9	15	16.3
7 = Strongly Agree	10	10.9	8	8.7

Table 3 displays the levels that the BSC has been implemented. The finding that most firms have implemented the BSC at the SBU level (91.2%) is consistent with both normative suggestions and previous empirical work. Kaplan & Norton (1996) argue that the SBU level is the principle level of implementation as the BSC is primarily a mechanism to translate strategy into quantifiable measures. The studies of Malmi (2001) and Speckbacher et al (2003) both observe that this is being mirrored in practice.

Table 3: Extent of implementation

Organisation Level	Corporate	SBU	Unit	Department	Team	Individual
# Firms	88	83	76	68	66	57
% Percentage	96.7	91.2	83.5	74.7	72.5	62.6

Nb. One firm did not complete this section (total of 91 firms included)

However other findings regarding implementation throughout the hierarchy are somewhat surprising. For instance, Speckbacher et al (2003) reported 55% implementation at the corporate level, 23% implementation at plant and department levels, 10% in teams and 3% at the employee level. The current study reports that the BSC has been implemented at the corporate level in almost all firms (96.7%), and to a far greater extent at lower levels of the organisational hierarchy. Of particular note is that 72.5% and 62.6% of firms have implemented at the team and individual levels respectively. As suggested in proposition 3, this cascading of the scorecard to lower levels might reflect potential performance benefits from doing so. Kaplan & Norton (1996, 2001) write that the BSC can be used as a mechanism to communicate strategy throughout the organisation, with such communication facilitating the alignment of individual action to strategic goals.

4.1.2 BSC Benefits and Outcomes

The questionnaire included a list of 11 benefits and 3 outcomes. While the benefits included were identified from previous literature, they centred on the fundamental purpose of the BSC as a device used to develop, communicate and implement strategy. Benefits and outcomes were measured on 7 point Likert scales. Respondents were asked to indicate the extent to which the BSC has helped achieve each benefit. Scales were anchored with ‘strongly agree’ and ‘strongly disagree’, with the middle response labelled as ‘undecided’. Outcomes were anchored as ‘very successful’ and ‘very unsuccessful’ for overall success, ‘significant dollar improvements’ and ‘no dollar improvements’ for dollar improvements from BSC implementation, and ‘not at all’ and ‘fully’ for meeting strategic objectives. The average response of benefits and outcomes for all BSC users is outlined in Table 4 in descending order (with regards to average benefits).

Table 4: Average Responses to BSC Benefits and Outcomes (Total Sample #92)

	Average response (and rank)
Benefits	
Stronger consideration for non-financial performance drivers	5.35
More focus on our strategy	5.15
Clarifying and communicating strategy	4.99
Link long term strategic planning to short term activities/actions	4.84
Provide a common language for staff to communicate	4.83
Better consideration to stakeholders	4.82
Developing strategy	4.78
Enable managers to question the relevance of strategic objectives	4.47
Provide a forum for individuals to share specific knowledge	4.29
Reduce management focus on short term financial measures	4.12
Enhance the investment in intangibles	4.00
Outcomes	
Ability to meet strategic objectives of the organisation	4.23
Overall success of BSC initiative	4.01
Dollar improvements from BSC implementation	3.91

The descriptive data suggests that on average the BSC is providing a number of benefits to Australian firms, particularly in terms of developing, communicating and directing focus on strategy. It appears, though, that while the BSC has helped managers place greater attention on non-financial drivers, it has not reduced the focus on short-term financial measures. This is an unusual finding considering that the balanced scorecard was initially developed on the basis of considerable critique over the inadequacy of financial measures (Kaplan & Norton, 1993; Speckbacher et al, 2003). The result may indicate, however, that non-financial measures are complementing, rather than substituting for, financial measures. This is also supported by reports that a very high percentage of firms continue to use budgets (Ekholm & Wallin, 2001; Sivabalan et al, 2005). The present survey also asked if firms had abandoned use of the budget. Only 1 firm responded that they no longer used a budget.

In contrast to Speckbacher et al (2003), the study here provides some evidence that the BSC provides greater consideration to stakeholders. This result is not surprising in light of the extent of use of non-traditional perspectives. In another section of the survey, respondents were asked to indicate what perspectives they included in their BSC. While the traditional perspectives of financial, customer, internal process and learning and growth, recorded the highest use, a significant number of organisations included non-traditional perspectives, such as environment (50%), community (53%), supplier (47%) and government (49%). Consistent with Speckbacher et al (2003), though, is that the BSC is providing little enhancement in the investment of intangibles.

Finally, while on average respondents agreed that the BSC has helped in achieving most of the benefits at least to some extent, outcomes from BSC implementation, in terms of overall success, dollar improvements and meeting strategic objectives, were fairly low. This suggests that on the whole, the success of the BSC has only been moderate in Australia, despite the scorecard fulfilling many of its normative claims.

4.2 Test of Propositions

To test the three propositions, Mann-Whitney U tests were conducted to test whether a significant difference exists between the inclusion or exclusion of each of the three design elements (cause and effect, link to compensation and high implementation). Results for all three propositions are contained in Table 5.

4.2.1 Proposition 1 – Cause and Effect Logic

The results for the first proposition show significant differences for all benefits, and for 2 of the outcome measures (the only non-significant result being the overall success of the initiative). These results support Kaplan and Norton's claim that cause and effect is a central and necessary component of the BSC in order for an organisation to achieve high levels of benefits from its usage.

4.2.2 Proposition 2 – Link to Compensation

There is inconclusive support for the second proposition. Although 10 of the 11 benefits and all 3 of the outcome measures had higher averages for the group that linked compensation to BSC non-financial measures, only 4 of these benefits were significantly higher, with none of the outcomes statistically different. It should be noted that all these four benefits found significantly higher are the ones one would reasonably expect as a result of linking compensation to non-financials. Many other studied benefits are less likely to result form compensation link.

4.2.3 Proposition 3 – Extent of Implementation

For the third proposition, organisations were grouped as either having high or low levels of implementation. Organisations were included in the high implementation group if they had implemented the BSC at the team or individual level (68 firms). The remaining organisations were placed in the low implementation group (24 firms).

The averages reported in Table XX for the organisations that have implemented at the team and individual levels are higher for all but 1 outcome and 1 benefit measure however there are no statistically significant differences. A number of other bases were also used for categorising firms as high and low implementers, but these had no notable impact on results. While no support is provided for the third proposition as the majority of firms have implemented the BSC to lower levels of the organisation it is likely that there is some benefit to doing so, although it has not been captured in this study.

4.3 Additional test on cause and effect and compensation

With strong support for proposition 1 and some support for proposition 2, additional tests were run. These additional tests considers whether compensation and cause and effect characteristics contributed to BSC effects independently and whether including both characteristics together gave greater benefits than including only one or the other of these features. Firms were divided into four groups based on cause and effect and link from non-financial measures to compensation. The results are shown in Table 6.

The tests demonstrate that the compensation characteristic has little independent effect on BSC benefits and outcomes (Group 1 v 3). When cause and effect is not part of the BSC design, the inclusion of compensation provides no significant difference in benefits. The results do provide evidence that the use of cause and effect logic has an independent effect on BSC benefits, although it appears to be more important when compensation is also included. All of the outcome measures and 9 of the 11 benefits were significantly higher when cause and effect logic was used with a BSC tied to compensation (Group 3 v 4). When the compensation link was absent, 4 of the benefit measures were significantly higher with the use of cause and effect, although all of the reported averages for benefits and 2 of the outcome measures were higher (Group 1 v 2). In comparing a BSC design with both compensation and cause and effect to one that only includes the latter (Group 2 v 4), only one benefit is significantly higher, although the outcome of 'overall success' is moderately significant.

The additional tests suggest that linking non-financial BSC measures to compensation may not be a requisite for successful use of the BSC, and that cause and effect is the dominant characteristic considered in this study of BSC design. Whether the compensation characteristic is included or not may relate to the role that the BSC plays in the control package mix, or on other contingent circumstances.

Table 5: Tests of Propositions

	Proposition 1 Cause and Effect			Proposition 2 Compensation Linkage			Proposition 3 Implementation		
	No C&E (#47)	C&E (#45)	*Sig.*	No Link (#41)	Link (#51)	*Sig.*	Low Imp (#24)	High Imp (#68)	*Sig.*
Benefits									
Developing strategy	4.43	5.16	0.005**	4.61	4.92	0.234	4.54	4.87	0.432
More focus on our strategy	4.83	5.49	0.004**	5.07	5.22	0.370	5.04	5.19	0.827
Clarifying and communicating strategy	4.60	5.40	0.001**	4.80	5.14	0.105	4.83	5.04	0.602
Reduce management focus on short term financial measures	3.81	4.44	0.047*	4.05	4.18	0.681	3.88	4.21	0.373
Link long term strategic planning to short term activities/actions	4.53	5.16	0.015*	4.76	4.90	0.360	4.54	4.94	0.140
Provide a common language for staff to communicate	4.51	5.16	0.010**	4.85	4.80	0.961	4.75	4.85	0.808
Provide a forum for individuals to share specific knowledge	3.98	4.62	0.055^	4.24	4.33	0.840	4.25	4.31	0.711
Stronger consideration for non-financial performance drivers	5.04	5.67	0.004**	5.00	5.63	0.007**	5.17	5.51	0.598
Better consideration to stakeholders	4.40	5.24	0.001**	4.41	5.15	0.004**	4.96	4.76	0.470
Enhance the investment in intangibles	3.62	4.40	0.002**	3.68	4.25	0.070^	3.71	4.10	0.317
Enable managers to question the relevance of strategic objectives	3.94	5.02	0.000**	4.12	4.75	0.014*	4.29	4.53	0.479
Outcomes									
Overall success of BSC initiative	3.76	4.23	0.137	3.73	4.20	0.176	3.95	4.03	0.973
Dollar improvements from BSC implementation	3.55	4.22	0.030*	3.67	4.05	0.210	4.29	3.81	0.224
Ability to meet strategic objectives of the organisation	3.92	4.51	0.018*	4.13	4.31	0.396	4.11	4.27	0.576

^ p<.10, * p<0.05, ** p<0.01

Table 6: Additional test of cause and effect and link to compensation BSC design elements

	No Compensation Link			Compensation Link				
	No C&E (Group 1)	C&E (Group 2)	*Group 1 v Group 2*	No C&E (Group 3)	C&E (Group 4)	*Group 3 v Group 4*	*Group 1 v Group 3*	*Group 2 v Group 4*
	#26	#15	*Sig.*	#21	#30	*Sig.*	*Sig.*	*Sig.*
Benefits								
Developing strategy	4.42	4.93	.185	4.43	5.27	.026*	.965	.454
More focus on our strategy	4.85	5.47	.023*	4.81	5.50	.105	.526	.870
Clarifying and communicating strategy	4.62	5.13	.106	4.57	5.53	.008**	.719	.353
Reduce management focus on short term financial measures	3.92	4.27	.517	3.67	4.53	.050*	.570	.677
Link long term strategic planning to short term activities/actions	4.54	5.13	.132	4.52	5.17	.085^	.823	.774
Provide a common language for staff to communicate	4.58	5.33	.036*	4.43	5.07	.079^	.824	.823
Provide a forum for individuals to share specific knowledge	4.00	4.67	.186	3.95	4.60	.146	.838	.903
Stronger consideration for non-financial performance drivers	4.81	5.33	.138	5.33	5.83	.070^	.110	.158
Better consideration to stakeholders	4.19	4.80	.079^	4.67	5.47	.026*	.104	.163
Enhance the investment in intangibles	3.42	4.13	.053^	3.86	4.53	.051^	.416	.376
Enable managers to question the relevance of strategic objectives	3.88	4.53	.143	4.00	5.27	.000**	.808	.016*
Outcomes								
Overall success of BSC initiative	3.84	3.57	.203	3.68	4.53	.028**	.350	.067^
Dollar improvements from BSC implementation	3.53	3.89	.404	3.56	4.32	.082^	.983	.382
Ability to meet strategic objectives of the organisation	3.89	4.46	.175	3.95	4.53	.073^	.796	.784

^ p<.10, * p<0.05, ** p<0.01

5.0 Discussion

This study was designed to find out how Balanced Scorecards have been applied in practice and whether different BSC designs result in varying benefits and performance outcomes. A number of interesting findings emerged. First, deriving measures using cause and effect logic seem to enhance perceived benefits and performance outcomes from the BSC. Given the wide range of benefits received, it is difficult to point out any single underlying factor driving these results. However, as cause and effect logic seemed to bring more benefits for firms that linked compensation to non-financials, benefits could partly be due to this type of BSC making management by objectives based control system reflect what is truly believed to be meaningful in organisations. The reliance on cause and effect may help to reduce and prioritise objectives, providing more focused target setting and accountabilities, compared to a BSC where objectives are grouped into perspectives but no clear understanding exists on their interdependencies. Balancing various outcome measures with drivers of those measures in management by objectives systems may bring many of these benefits. On the other hand, benefits may well also be due to increased communication and understanding of aims and means in these organizations and perhaps due to greater consensus over the strategy. These results also suggest that firms are able to utilise the concept of cause and effect in practice despite criticism presented in the accounting literature towards the concept (e.g. Norreklit, 2000). In studying the cause and effect, we observed that strategy maps are not used extensively in Australia (only 17% of respondents). Moreover, there seems to be a lack of knowledge about this concept in practice (40% of respondents had not heard of the concept). Given that the use of cause and effect is perceived providing benefits, we would assume to see strategy maps gaining popularity in Australia in the future.

Further research could assess the exact mechanisms that lead cause and effect logic to be beneficial. This would help the designers and users of performance management systems to focus their emphasis. Researchers could also study how organizations determine cause and effect relations without using strategy maps.

Second, linking compensation to non-financial measures of BSC seemed not to be a prerequisite for the BSC to be beneficial. This result is easy to comprehend when various alternative ways of using BSC are considered. Malmi (2001) found that some organizations used BSC mainly to provide information for managerial decision making. This type of use does not require compensation to be linked to measures. Other firms used BSC as a basis for management by objectives. This type of use is more likely to benefit from linking compensation to measures. However, it may be that linking compensation to only financial outcome measures of BSC is enough. The results may also reflect difficulties in using often less precise non-financial measures as a basis for compensation.

On the other hand, we found that certain benefits, stronger consideration for non-financial performance drivers, better consideration of stakeholders, enhanced investment in intangibles and enabling managers to question the relevance of strategic objectives, were more often present in companies linking compensation to non-financial measures than in those who do not. A company seeking such benefits with its BSC, linking compensation to non-financials may pay off. It seems that this linking should be based on cause and effect. In case there is no cause and effect logic in use, linking compensation to non-financials seems not to provide clear additional benefits. Further research on the compensation link should assess the role of BSC as part of the larger organizational control package and include also links to financial measures of BSC.

Third, our study suggests that the majority of Australian organizations have implemented BSC through out the whole organization. This does not seem to be related to the benefits though. We find this result hard to interpret. As the majority of firms have cascaded the BSC

to lower levels of the organisation, there is likely to be some benefit in doing so. We suspect that we have not been able to capture these benefits properly with our measurement instrument. Furthermore, organizational structure, size and the type of activities are likely to have an impact on whether cascading to team or individual level makes sense at all. Comparing two groups of firms which have selected an optimal extent of their application should not yield differences in benefits. This question is also related to the type of BSC use. Proper cascading is thought to be crucial for management by objectives type of use and therefore further down you cascade, more influence on everyday activities you should expect. On the other hand, using BSC for decision-making at the top requires data to be collected throughout the organization, but does not necessarily require scorecards to be applied at lower levels. Respondents might, however, consider the production of measurement information for corporate reporting purposes. High corporate level use and the large extent of implementation may suggest that BSC is used as a corporate reporting mechanism in Australian organizations. Further research should consider the nature of use of BSC in Australia and explain the why there is a high extent of implementation throughout hierarchy in Australia and not in other countries.

Further research on BSC, in addition to topics outlined above, should analyse the use and benefits of the BSC as part of the larger control package. This may help in understanding the various ways compensation might or might not be advisable to link to scorecards. Compared to studies in many other regions, the adoption rate of BSC appears to be low in Australia. Is it that Australians are more sceptical towards management fashions or is the structure of supply-side organizations of management innovations somehow different from other western countries? These might provide some interesting topics for further research for those interested in diffusion of innovations.

Appendix

Table A1: Industry (GICS) and size

	Non-BSC Users		BSC Users	
	#	%	#	%
Energy	4	1.3	2	2.4
Materials	27	9.1	7	8.2
Industrials	99	33.3	23	27.1
Consumer discretionary	64	21.5	12	14.1
Consumer staples	32	10.8	10	11.8
Health care	17	5.7	5	5.9
Financials	35	11.8	15	17.6
Information technology	8	2.7	7	8.2
Telecommunications	8	2.7	1	1.2
Utilities	3	1.0	3	3.5
Total Firms	297		85	
Size (employees)				
Company	6,797		17,296	
SBU	564		627	

N.b. 33 non-BSC users and 7 BSC users did not fill in GICS codes

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