

THE IMPACT OF LONG TERM ORIENTATION AND DIFFUSION OF INNOVATION ON BSC USE IN AUSTRALIAN HOSPITALS

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ABSTRACT

There is significant evidence of the take-up of the balanced scorecard (BSC) in overseas hospitals. This paper provides the first survey of adoption of the BSC in Australian hospitals . Half of the sample had adopted the BSC, but most were relatively recent adoptions. The BSC appears to be in the early stages of penetration of the Australian hospital sector.

Barriers to the implementation were identified, as well as the factors that caused the BSC to fail. Inadequate training and lack of resources were the two most important reasons for failure.

Two factors, long-term orientation and the use of performance measures for strategy implementation, were investigated to identify their impact on the presence of the BSC. Neither explained the use of BSC.

INTRODUCTION

The concept of applying the balanced scorecard (BSC) to hospitals has been around over a decade. In 1994, the first refereed paper on the subject was published but there are now numerous papers in both the professional and academic literature as the BSC appears to have gone into a growth phase (Zelman, Pink and Matthias 2003). Much of the literature relates to the principles of how to apply BSC successfully in health care (for example, Chow *et al* 1998, Stewart and Bestor 2000; Pink *et al* 2001; Oliveria 2001; Fitzpatrick 2002, Shutt 2003, Tarantino 2003; Radnor and Lovell 2003a,b). Less common are surveys about applying BSC in health care, although Chan's survey of Canadian hospitals in 2000 and Inamdar, Kaplan and Bower's (2002) survey of USA executives in health provider organizations are exceptions.

This paper examines the use of various performance measurement systems in hospitals. Its primary focus is on the diffusion of the scorecard methodology . It posits two main drivers of BSC use. The first, following the well worn path of Roger's diffusion of innovation argument, is that as the knowledge of BSC in Australian hospitals increases, so will its use . Secondly we argue that the organisations with a more long-term orientation will have higher levels of strategy formulation and hence BSC use .

LITERATURE REVIEW

Diffusion of management control systems often occurs in networks (Lapsley and Wright, 2004), and the lateral networks within the hospital sector provide an obvious environment in which an idea such as the BSC may spread. Diffusion assumes that the innovation has some potential benefit; although the literature on "fashion setters" (Abrahamson, 1996) and diffusion processes (Ax and Bjornenak, 2005) puts more emphasis on the supply side and the role of consultants. The issue of the level of diffusion of the BSC has been the subject of enquiry by a number of researchers (Hoque and James, 2000). The level of diffusion of BSC in hospitals was studied by Chan and Ho (2000) in Canadian hospitals. Given the widespread discussion of the BSC, the first research question is what is the pattern of diffusion of the BSC in Australia?

Rogers (1995) suggests five sequential stages in the diffusion process from knowledge to persuasion to decision, then implementation and finally confirmation. In this study, we have asked about the level of knowledge of BSC to ensure this first requirement is in place. There may be considerable barriers to implementation (Ax and Bjornenak, 2005). This was our second key research question: What are the barriers to implementation of the BSC? Building on the work of Ho and Chan (2000) we were able to compare the barriers in Australia to the Canadian experience.

One element of diffusion research in management control systems is to understand the characteristics of the innovators (Askarany and Smith, 2000). In particular, we took as our focus the strategic orientation and time horizons of the organization. Proponents of the BSC, principally Kaplan and Norton, claim it enable an organisation to turn strategy into action, to enable the development and implementation of strategy. Given this claim it may be argued that organisations that have adopted the BSC have done so to increase the strategic orientation of the organisation, and improve strategy formation as well as implementation. Building on the work of Boyd and Reuning-Elliott (1998) and Noble (1999), we explore a third question: Are organizations with a high emphasis on the use of performance measurement systems for strategic planning / strategy formulation more likely to implement BSC than the organizations with a low emphasis on strategic planning?

The desire to implement a BSC may be linked to a longer term orientation (which links to more focus on strategy). Peterson, Dibrell et al. (2002) investigate performance measurement approaches using Hofstede's long term orientation. This then leads to the fourth research question: Are hospitals with a long-term orientation more likely to implement BSC than those with a short-term orientation?

Finally, the form of the BSC and its use interested Chan and Ho (2000). The final research question is: What is the form and use of the BSC?

METHOD

A questionnaire was designed and sent to Australian hospitals. The instrument was mainly designed using previous questionnaires. Several of the questions were based on Chan and Ho's (2000) survey of Canadian hospitals; hence it is a partial replication. A question on the factors that drove implementation of performance measurement systems was drawn from Inandar, Kaplan et al, 2000 and Lapsley and Wright, 2004. A question on strategy implementation was based on Boyd and Reuning-Elliott (1998). LTO orientation was measured using the instrument developed by Hofstede (1994).

The list of both public and private hospitals was drawn from the websites of the ministry of health of every state in Australia. Only hospitals with more than 100 beds were selected because smaller hospitals were expected to have much simpler performance measurement systems. The questionnaire was sent to the CEOs of all 216 hospitals in Australia. Usually the CEO handed the questionnaire to a senior administrator to complete.

The number of 216 hospitals proved incorrect because of the amalgamations in the New South Wales public system, and the formation of hospitals into groups using common systems. The final usable number of responses of 45 represents more than a 23% response rate, comparable to Ho and Chan's (2000) 22%.

RESULTS

Patterns of Implementation of the BSC

Most hospitals had a system of KPIs and half had a BSC as shown in Table 1.

Table 1 Use of the BSC and KPIs

	KPIs	%	BSC	%
Yes	38	95	20	49
No	2	5	21	51

Although the sample size was small, an ANOVA was run to see if there was a significant difference

between public and private hospitals in their use of the BSC. The results in Table 2 show that there was no difference.

Table 2 ANOVA of the Use of BSC by sector

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.211	1	.211	.818	.372
Within Groups	8.531	33	.259		
Total	8.743	34			

Dividing the hospitals into two groups – less than 200 beds and over 200 beds does produce a statistically significant difference between the use of the scorecard (Table 3). Larger hospitals are more likely to have a BSC, which can be explained in terms of needing better information systems to co-ordinate and make decisions, as well as having sufficient resources. Hoque and James (2000) found that size was a significant predictor of BSC usage, so this study adds to the confirmation of their hypothesis; a concept well supported in the management control systems literature (Chenhall, 2003).

Table 3 Use of BSC compared with hospital size

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	2.032	1	2.032	10.213	.003
Within Groups	5.968	30	.199		
Total	8.000	31			

Diffusion of the BSC and barriers to implementation

The introduction of BSCs across the Australian hospital sector seems recent. Although the BSC is at least 15 years old, it is still developing in this sector. Table 4 shows the year in which the 22 hospitals introduced the BSC – the majority in the last 3 years. Two more indicated that they were in the process of developing the scorecard. The BSCs appear to be at relatively unsophisticated stages with only half of the respondents developing strategy maps.

Table 4 Year of Introduction of the BSC

Year	No.
1999	2
2000	0
2001	2
2002	0
2003	4
2004	6
2005	8
Total	22

Given that Rogers (1995) argued that knowledge was critical for the first stage of a diffusion, the question on knowledge of BSC was important. The results are shown in Table 5 where the 1 represents “Not at all” and 5 represents “Very well”. The mean was 3.45 with a standard deviation of 1.245. Only 4 respondents believed they had no knowledge at all, and a significant majority had some knowledge. It appears that the first stage of the Roger’s diffusion model has been met .

Table 5 Knowledge of the BSC

	Frequency	%	Cumulative Percent
1	4	10.5	10.5
2	4	10.5	21.1
3	9	23.7	44.7
4	13	34.2	78.9
5	8	21.1	100.0
Total	38	100.0	

Following Chan and Ho (2000) factors were identified that were barriers to the implementation or impacted on the development of the BSC.

Table 6 Factors that affected the implementation of the BSC

	Yes	No
Obtaining approval to implement the BSC	3	18
Obtaining executive time and commitment	12	9
Developing the value proposition from the customer perspective	11	9
Deploying the scorecard throughout the organization	13	7
Gaining commitment to implement	10	10
Obtaining and interpreting timely data cost-effectively	15	5
Keeping the scorecard simple and using it for learning	16	4

Clearly, at the time of the implementation getting approval was not a problem, although gaining sufficient commitment from executives (12 cases) and the wider organization (13 cases) are important. The stand out issues are the practical concerns of getting the data, keeping it simple, and using it for learning.

A specific question addressed the factors that had produced an unsuccessful implementation or had caused the BSC not to be implemented at all. Twenty two respondents answered this question. These factors are listed in rank order in Table 7, with the comparison rank for Canada in the last column, in the cases where Ho and Chan (2000) used exactly the same factors.

Table 7 Factors that produced an unsuccessful or no implementation

Factor	Mean	Std Dev	Ho and Chan rank
Inadequate education and training to staff on BSC implementation	3.14	1.3	
Lack of skills and know how	3.13	1.1	1
Management is too busy solving short-term impending organisational problems	3.00	1.3	2
Inadequate organisational resources committed to the implementation	2.86	1.3	
Lack of linkage to employee rewards	2.76	1.4	6
Standard ready made scorecards do not fit the organisation's strategic implementation	2.74	1.2	7
The organisation does not know what objectives will be achieved with the development of the scorecard	2.68	1.3	8
Lack of buy-in from medical staff	2.64	1.3	9
Too time consuming	2.64	1.3	3
Too difficult in defining and measuring outcomes and performance drivers	2.64	1.3	4
Inadequate executive sponsorship	2.57	1.5	5
No pilot project was conducted	2.29	1.4	10
Organisational resistance to change	2.09	1.1	12
Organisational strategic goals were not in place before the implementation	1.95	1.1	11
The organisation worked too long and too intensively on perfecting the BSC, destroying enthusiasm	1.91	1.0	13

It must be noted that most of these factors are not significantly different from the mean, suggesting that they was not strong support for them. Lack of skills and resources with management too focused on short term issues are the significant items. The last three - resistance to change, lack of strategic goals and too much perfection of the scorecard - were not important factors.

Table 8 Factors that impact on performance measurement system

	Mean	Std. Deviation
Financial pressure	4.05	1.0
Justifying use of resources	3.71	1.2
Regulatory reporting	3.63	1.2
Information requests from managers	3.34	1.1
Improving accounting	3.32	1.0
Organization headquarters instigation	3.32	1.4
Government instigation	3.24	1.5
Increasing consumer pressure	3.10	1.2
Industry consolidation / regionalisation	2.90	1.4
New technology	2.85	1.1
Increasing competition	2.59	1.4
Change in staff	2.58	1.3
Inherited from previous management structure	2.10	1.0

It is interesting that in this list the three highest issues and the 5th are those that may well relate to traditional accounting information to meet the needs of external stakeholders and hospital boards. The fourth factor “information requests for managers” addresses internal information needs .

Emphasis on using Performance Measures for Strategic Planning and the Use of the BSC

Strategic planning was constructed as a variable using the weights derived from a one factor model developed using AMOS, which with the small number of respondents may be unsatisfactory.

Table 9 Descriptive statistics of the use of performance measures for strategic planning construct

	N	Minimum	Maximum	Mean	Std. Deviation
StratForm	41	1.53	4.56	3.5562	.60870

The range of responses was 1 to 5. A t-test demonstrated that the mean of strategy formulation was statistically greater than the mid-point of 3 . There was no correlation between presence of a BSC and higher levels of use of performance measures for strategic planning. Hospitals using a system of KPIs also had high emphasis on strategic planning. The form of the performance measurement system was not

significant – strong emphasis on strategy formulation can be achieved with a good set of KPIs; the BSC is by no means the only performance measurement system that can support an organisation with a strong emphasis on strategy. This is an important finding .

There was also a question about the link between the performance measurement system and strategic objectives. Again there was no correlation. Hospitals with a system of KPIs and no BSC claimed a strong link to strategic objectives.

Long Term Orientation and the Use of the Scorecard

There was no correlation between long term orientation and the use of the BSC. Hospitals that only used KPIs rated highly for their perception of long term orientation. KPIs may well be adequate to measure performance on factors that affect long term performance. This appears to be contrary to the findings of Petersen, Dibrell et al, (2002).

Form and Use of the Scorecard

The form of the scorecard is shown in Table 10. The financial perspective is the most important. All respondents rated it between 3 and 5 where “5” represents highest importance. That customer ranks second is unsurprising – patient care would be important to all hospitals. In the Canadian survey of Chan and Ho (2000), all perspectives rated higher than in our Australian sample with both Financial and Customer being equally rated. They suggested that: “These responses are consistent with the mission of healthcare organisations which is to provide quality health care to patients, their customers” (Chan and Ho, 2000, p.151). While their argument seems sound, in the Australian case there seems to be greater pressure to meet financial targets of government and health insurance funds. Australia spends a slightly lower proportion of GDP on health (OECD, 2006).

Table 10 Importance of Perspectives

	Financial	Customer	Business Process	Learning and Growth
Mean	4.36	3.91	3.77	3.68
Std. Deviation	.727	.921	.813	1.086
Means for Canadian hospitals	4.67	4.67	4.32	4.08

DISCUSSION

BSC implementations in Australian hospitals seem to be increasing. The drivers of this change are not yet clear. The sector is under increasing pressure. Government hospitals are under pressure to meet increasing service demands as the population ages. For profit hospitals and not-for-profit hospitals are under pressure from health insurance funds that want to contain costs for their members, so that they want the impossible combination of high service at a lower cost. There was no statistical difference between the rate of adoption of BSC between public and private hospitals suggesting that it is seen as an equally valid response for management information in both sectors.

Half of this small sample had developed a BSC, half were using a set of KPIs. Neither long-term orientation nor the focus on using performance measures for strategy implementation appear to explain BSC usage. While not confirming anticipated results is disappointing, the alternative explanation is appealing. In the hospital sector, a set of KPIs that address key strategic factors appears to be equally valid. With a strong emphasis on financial performance, a good set of KPIs that measure strategic factors, such as patient satisfaction, may be meeting the strategic goals of the organisation without working through the scorecard process. Informal control systems in lower levels may be achieving the communication of these strategic objectives. "Hospitals have been using metrics for a long time, longer than most other organizations... Technology has enabled hospital leadership to collect and distribute vast amounts of data; benchmarking process that allow healthcare organizations to measure their performance against industry averages have been in place since the late 1970s" (Pieper 2005). Hospitals may therefore not feel any particular need to invest resources in the scorecard; the traditional set of KPIs may appear to meet their

needs. As the possible advantages of strategy mapping and understanding causal relationships permeates the sector, there may be increased interest in the BSC.

For hospitals that choose to implement the scorecard there are obvious difficulties. The most important ones that come from Table 6 are the practical issues of being able to get sufficient, timely data and reporting it in a simple form.

CONCLUSION

This is the first Australian study of the prevalence of the BSC in hospitals. Although neither of the explanatory factors – use of performance measures for strategic planning and long term orientation – were significant, the study produced interesting insights into the diffusion process of this management control system. Most implementations are indeed very recent, and not especially sophisticated. Managers know about the BSC even though they have not yet committed to it.

As with all mail surveys it had many limitations. Although the response rate is the same as Chan and Ho (2000) nevertheless the small sample size precludes more sophisticated statistical analysis. Further follow up of the surveys is proceeding. However, if there is a non-response bias, we anticipate that it is more likely to be from respondents who are less interested in performance measurement or do not have a balanced scorecard. To this extent we believe that the results over-state the level of development of the BSC in Australian hospitals.

So, in this case we do not believe that a larger survey will produce stronger support for expected relationships. A follow up survey when more implementations are in place may be useful. As there is likely to be resistance to the full utilization of the BSC, further research using structured interviews or detailed case study or action research approaches may increase our understanding of the dynamics of the issues involved in implementation. At this stage the barriers to implementation and the benefits appear unclear.

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