

DETERMINANTS OF BALANCED SCORECARD USAGE: INDIRECT CORRELATION THROUGH ATTITUDINAL FACTORS

Wasatorn Shutibhinyo, Chulalongkorn University

ABSTRACT

The successful implementation of Balanced Scorecard (BSC) requires a positive attitude toward the BSC. Specifically, the BSC should be perceived as simple to use and of great usefulness. This study develops the measurement of BSC usage and examines whether the determinants impact the BSC usage through attitudinal factors. Most existing studies have quantified the BSC usage by identifying the stages of BSC application whereby the discrete step of usage is reflected rather than the degree of usage. This research work thus develops a measurement to reflect the degree of BSC usage by taking into consideration the key characteristics of BSC usage and their theoretical weights. In addition, this study examines the determinant-innovation relation by drawing on the organizational innovation theory and the technology acceptance model. In particular, this research article seeks to determine whether top management support and training are associated with the BSC usage through the attitudinal factors of perceived ease of use and perceived usefulness. Based on 73 complete questionnaires, it is found that top management support and training are indirectly associated with the BSC usage through the perceived ease of use and the perceived usefulness factors. These findings highlight the vital role of the attitudinal factors as the mediating factors.

JEL: M190, M490

KEYWORDS: Balanced Scorecard, Attitudinal Factors

INTRODUCTION

The Balanced Scorecard (BSC), which was devised in 1992 by Kaplan and Norton, is one of the most significant developments in management accounting as it has revolutionized how a firm's performances are measured (Atkinson et al., 1997). The BSC offers a balanced view of strategic non-financial and financial measures that can be illustrated in the causal linkage (Kaplan, 2010). Due to its successful accounts, the BSC has become an interesting research topics in the field of management accounting. Most prior research studies that focused on the BSC application rate, the determinants and effects of BSC implementation, nevertheless, simplistically equate the BSC usage with the stages of BSC application. In addition, these research works identified and classified the BSC application stages into the discrete categories of non-implementation and implementation stages. This classification however fails to reveal the degrees of BSC implementation between two different firms in the same implementation stage category. That is, two BSC-implementing organizations would be classified as firms in the same category of BSC implementation stage even though one company has a higher degree of BSC implementation than the other. Most prior studies highlight the importance of external factors and the firms' characteristics as they are directly associated with the BSC implementation. Interestingly, the organizational innovation and the technology acceptance model have suggested that attitudinal factors are mediating variables in the context of organizational innovation implementation (David, 1989; Damanpour, 1991; Roger, 2003).

It is thus likely that the external factors and the firms' characteristics are associated with the BSC implementation through attitudinal factors. However, a limited number of research studies have quantitatively examined the vital role of attitudinal factors as the mediating variables in the context of BSC implementation (Shutibhinyo, 2011). This research study aims to develop the measurement to better reflect the degree of BSC usage by taking into account the key characteristics of BSC and their theoretical weights.

The proposed measurement would enable future researchers to determine the degree of BSC implementation and to examine the determinant-innovation relationships, particularly the attitudinal factors, in the context of BSC implementation. This research article is thus expected to contribute to the existing body of knowledge in the area of BSC with the proposed measurement of BSC usage; and highlights the importance of attitudinal factors as the mediating variables. The organization of this research paper is as follows: The first section is the introduction section. The second section is a brief review of related literature, followed by the research methodology in the third section. The fourth section presents the main findings. The last section provides some concluding comments.

LITERATURE REVIEW

Kaplan and Norton initially invented the BSC as a multi-dimensional performance measurement system with a collection of financial and nonfinancial measures (Kaplan & Norton, 1992). The BSC has since been transformed into a strategic performance measurement system (Kaplan & Norton, 2001, 2008). Firms have implemented the BSC to translate their strategy into operational terms by which they properly align the corporate strategy with those of business and supporting units (i.e. Alignment), to effectively communicate the strategy to their employees (i.e. Communication), and to provide feedback and promote learning (i.e. Feedback). Following the conceptual framework of BSC developed in Shutibhinyo’s works (2011, 2012, 2013), this research paper has summarized and presented in Table 1 four key BSC attributes.

Table 1: the BSC Attributes

BSC Attributes	Description
Attribute 1: Strategy Translating a strategy into operational terms	Grouping the strategic financial and nonfinancial measures into multiple and interrelated dimensions. The linkages between/among those measures within and across perspectives illustrate firm’s value-creation process.
Attribute 2: Alignment Aligning the organizational units to the strategy	Aligning business units’ or support functions’ strategies to firm’s strategy to create synergy.
Attribute 3: Communication Communicating strategy to employees	Communicating vision and strategy throughout the company in order that employees understand and conduct their works in accordance with the strategy.
Attribute 4: Feedback Providing feedback	Linking strategy to operating plan and budgeting systems; and reviewing the strategy.

Table 1 presents characteristics of a firm’s management processes and performance measurement systems, which reflect the BSC implementation..

Attribute 1 (i.e. Strategy) is the key BSC characteristic as it not only clarifies the organization’s strategy and thereby builds a consensus among employees but also serves as a platform for the other three attributes (i.e. Alignment, Communication and Feedback). This fact underscores the significance of the Strategy attribute in the BSC implementation. The theoretical weights are assigned to attributes 1, 2, 3 and 4 in the order of 40%, 20%, 20% and 20%, respectively. In determining the theoretical weights of the BSC attributes, the value of the Strategy attribute is always 1 since this attribute serves as the platform for the remaining three attributes, while the Alignment, Communication and Feedback attributes are assigned a value of either 0 or 1, where 1 denotes the existence of a particular attribute in the firm’s management processes and performance measurement system; and 0 otherwise. As a result, there are eight possible combinations of the attributes, as presented in Table 2.

Prior studies based on the organizational innovation and the technology acceptance model have suggested various factors relating to the BSC application (David, 1989; Damanpour, 1991; Hongratanawong, 2002; Roger, 2003). The factors include top management support, training and attitudinal factors, the third of which refer to the perceived ease of use and the perceived usefulness. According to Davis (1989) and Davis et al (1989), the perceived usefulness is defined as a degree to which a person believes that adopting a particular system would enhance his or her job performance within an organizational context. Meanwhile, the perceived ease of use is defined as a degree to which a person believes that using a particular system would require minimal or no effort. In addition, the technology acceptance model has implied that top

management support and training may be correlated with the perceived ease of use and the perceived usefulness. The technology acceptance model also suggests that the attitudinal factors, i.e. the perceived ease of use and the perceived usefulness, tend to be associated with the BSC usage.

Table 2: Eight Combinations of BSC Attributes

Combination #	Attribute1 (Strategy)	Attribute2 (Alignment)	Attribute3 (Communication)	Attribute4 (Feedback)
1	1	1	1	1
2	1	1	1	0
3	1	1	0	1
4	1	1	0	0
5	1	0	1	1
6	1	0	1	0
7	1	0	0	1
8	1	0	0	0
Count	8	4	4	4
Weight (total = 20)	8/20 = 40%	4/20 = 20%	4/20 = 20%	4/20 = 20%

This table shows all possible combinations of the BSC attributes, where 1 denotes the presence of a particular attribute and 0 otherwise. Since Attribute 1 (i.e. Strategy) is the platform for the three remaining BSC attributes, the Strategy attribute of all eight combinations is always assigned a value of 1.

Top management support is a crucial factor in the successful implementation of organizational innovations (Damanpour, 1991; Rogers, 2003; Chenhall, 2003), including BSC implementation (Kaplan and Norton, 2008; Shutibhinyo, 2011, 2013). Support by top management in the form of time and resources determines the success of BSC implementation. If the top management believe that BSC implementation benefits the firm, they will allocate sufficient resources and time to it as well as act as a change catalyst who encourages others in the organization to participate. The top management’s actions contribute to the positive attitudes of CFOs and employees toward the perceived usefulness and the perceived ease of use of BSC. This fact indicates the mediating role of the attitudinal factors and thereby leads to the following hypothesis:

H1: Top management support is positively associated with the usage of BSC through the attitudinal factors.

In the process of BSC implementation, employee training is necessary (Assiri et al., 2006) to promote the employees’ understanding of the strategy and scorecard. The employee training is one of the facilitating factors that influence the formation of positive attitudes toward the BSC implementation and its success as the training could facilitate the realization of the usefulness and ease of use of BSC (Venkatesh, 2000). In the context of BSC implementation, employee training enhances the employees’ knowledge and applicability of BSC, which results in a positive perception of BSC usefulness and ease of use and subsequently the successful BSC implementation as hypothesized below:

H2: Training is positively associated with the usage of BSC through the attitudinal factors.

RESEARCH METHODOLOGY

Survey Instrument: A survey package consisting of one questionnaire, a cover letter and a postage-paid self-addressed envelope was posted to the chief financial officers (CFOs) of the listed firms during May – June of 2011. The questionnaire is comprised of two parts: The first part asks the respondents to assign a percentage value (i.e. 0 – 100%) to a series of questions concerning the performance measurement systems and management processes of their organizations. Their responses help identify the degree of each BSC attribute embedded in the performance measurement systems of their organizations. The second part of the questionnaire contains questions pertaining to top management support and training.

Model Specifications and Variable Measurements: The simple regression analysis was performed to test the hypotheses. The model specifications and variables are presented in Table 3.

Table 3: Models and Variables

Models for H1		Models for H2	
M1.1	$BSC_i = \beta_0 + \beta_1 PU_i + \varepsilon_i$	M2.1	$BSC_i = \beta_0 + \beta_1 PU_i + \varepsilon_i$
M1.2	$BSC_i = \beta_0 + \beta_1 PE_i + \varepsilon_i$	M2.2	$BSC_i = \beta_0 + \beta_1 PE_i + \varepsilon_i$
M1.3	$PU_i = \beta_0 + \beta_1 PE_i + \varepsilon_i$	M2.3	$PU_i = \beta_0 + \beta_1 PE_i + \varepsilon_i$
M1.4	$PU_i = \beta_0 + \beta_1 TOP_i + \varepsilon_i$	M2.4	$PU_i = \beta_0 + \beta_1 TRAIN_i + \varepsilon_i$
M1.5	$PE_i = \beta_0 + \beta_1 TOP_i + \varepsilon_i$	M2.5	$PE_i = \beta_0 + \beta_1 TRAIN_i + \varepsilon_i$

Variables: BSC_i = BSC usage, TOP_i = Top management support, $TRAIN_i$ = Training, PE_i = Perceived ease of use, PU_i = Perceived usefulness. This table shows the regression models and related variables. Models 1.1-1.5 and Models 2.1-2.5 were used to test H1 and H2 respectively. BSC usage is the summation of the products of the degree of each BSC attribute and its respective theoretical weight, i.e. BSC usage = (Degree of Attribute1 x 40%) + (Degree of Attribute2 x 20%) + (Degree of Attribute3 x 20%) + (Degree of Attribute4 x 20%)

RESULTS

Out of 500 firms, 73 observations are usable, which is equivalent to a 15% response rate. The descriptive statistics are presented below:

Table 4: Descriptive Statistics (N=73)

Variable		Average	Min	Max	SD
Dependent Variable					
BSC usage	BSC	71.82	3.96	100.00	17.72
Independent Variables					
Top management support	TOP	76.27	14.00	100.00	17.07
Training	TRAIN	71.71	0.00	100.00	18.18
Mediating Variables					
Perceived usefulness	PU	72.19	3.00	100.00	17.79
Perceived ease of use	PE	67.47	3.67	100.00	17.84

The descriptive statistics are presented in this table. BSC usage is the summation of the products of the degree of each BSC attribute and its respective theoretical weight as discussed in Tables 2 and 3.

Table 5: The Main Findings (N = 73)

Panel A: Top Management Support									
Models for H1					p-value	Adj.R ²			
M1.1	BSC =	16.31***	+	0.77***	PU	0.00	0.59		
M1.2	BSC =	21.90***	+	0.74***	PE	0.00	0.55		
M1.3	PU =	10.99***	+	0.91***	PE	0.00	0.82		
M1.4	PU =	18.83***	+	0.70***	TOP	0.00	0.44		
M1.5	PE =	12.68***	+	0.72***	TOP	0.00	0.47		
Panel B: Training									
Models for H2					p-value	Adj.R ²			
M2.1	BSC =	16.31***	+	0.77***	PU	0.00	0.59		
M2.2	BSC =	21.90***	+	0.74***	PE	0.00	0.55		
M2.3	PU =	10.99***	+	0.91***	PE	0.00	0.82		
M2.4	PU =	27.29***	+	0.63***	TRAIN	0.00	0.40		
M2.5	PE =	20.91***	+	0.65***	TRAIN	0.00	0.43		

The regression estimates are shown in this table. Panel A shows the results for Top management support. Panel B shows the results for the Training. *** indicates significance at the 0.01 level.

The linkages between the determinants, the attitudinal factors and BSC usage are illustrated in Figure 1.

Figure 1: The Indirect Correlations between Top Management Support and BSC Usage and between Training and BSC Usage through the Attitudinal Factors

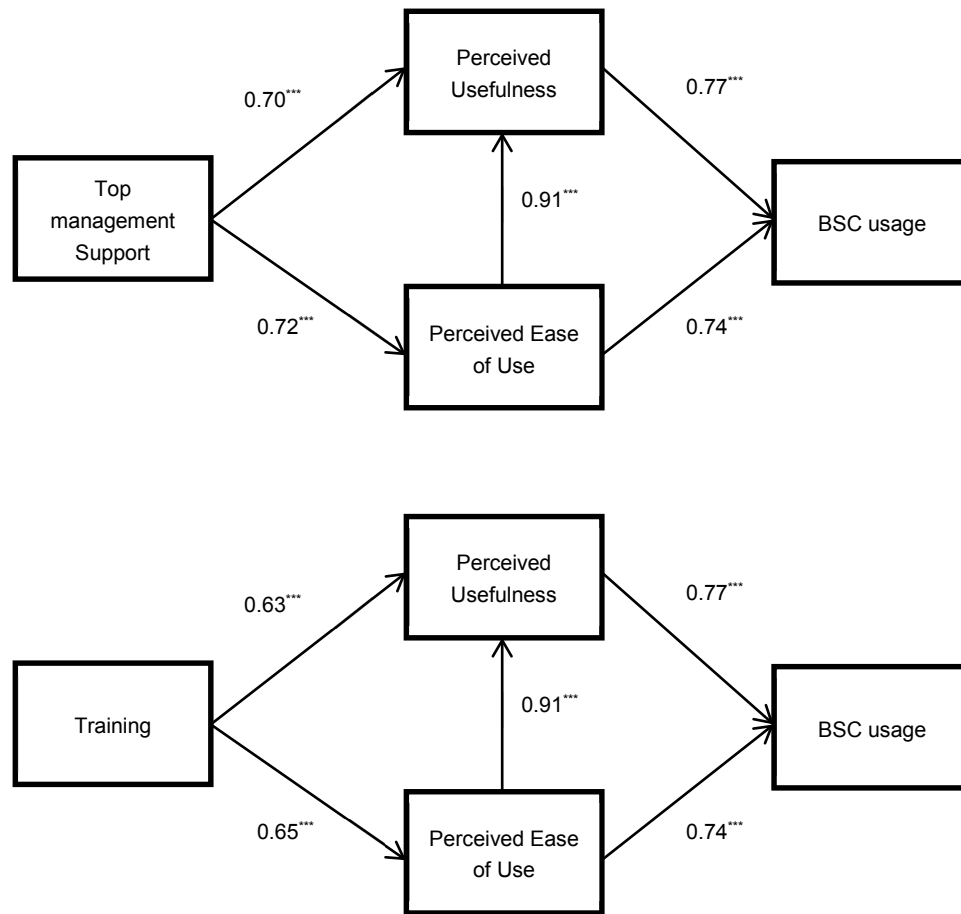


Figure 1 shows the coefficient estimates from Table 5 and the indirect correlations between key determinants (Top management support and Training) and BSC usage through the attitudinal factors (Perceived ease of use and perceived usefulness). *** indicates significance at the 0.01 level.

Both Table 5 and Figure 1 indicate that the top management support and training determinants are positively associated with the BSC usage through the attitudinal factors. Specifically, the top management support and training positively relate to the perceived usefulness and the perceived ease of use (i.e. attitudinal factors) as both determinants bring about the positive attitudes toward the BSC implementation with respect to its perceived usefulness and perceived ease of use. The support from top management convinces the CFO and the employees of the usefulness of BSC and thus to contribute to the implementation as the employees trust that the top management would make available necessary time and resources for the successful BSC implementation. As a result, both the perceived usefulness and the perceived ease of use are positively correlated with the BSC usage. That is, if an employee has a positive attitude toward the BSC, he or she would constantly participate in and contribute to the BSC implementation.

CONCLUSIONS

Most existing research studies on the stages of BSC implementation have adopted the discrete classification to classify firms into the category of either non-implementer (i.e. non-implementation stage) or implementer

(i.e. implementation stage). The discrete classification nevertheless fails to reveal the degree of the BSC usage for the firms in the implementation stage category. In addition, prior determinant studies have been overlooking the importance of a positive attitude toward BSC, which in turn promotes the successful BSC implementation in the organization, especially when the BSC is perceived as easy to use and of great usefulness (i.e. the attitudinal factors). This research paper develops the measurement of BSC usage by taking into consideration the key BSC characteristics and their theoretical weights; and presents the evidence of attitudinal factors as the key determinants and the mediating variables in the context of BSC implementation. Specifically, the top management support and training factors promote the BSC usage through the attitudinal factors.

One of the limitations of this research study lies in the fact that the postal survey is normally met with a low response rate and self-response bias. In addition, the responses are usually supplied by only one individual and thereby are less likely to represent the actual behavior with regard to the BSC of the entire organization. The researcher nonetheless attempted to overcome these limitations by collecting the data from the most knowledgeable person in the organization, i.e. CFO. Furthermore, although the theoretical weights assigned to each BSC attribute may not represent the actual weights that the participating firms assign to each of the corresponding BSC attributes, the ratio measurements of BSC implementation of this research study still enable the researcher to determine the degree of BSC usage in ratio scale, rather than in discrete scale. This feature enables the research to further carry out the determinant and the consequence studies. In addition, the significance of the attitudinal factors is highlighted in this research work.

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BIOGRAPHY

The author is a lecturer at Chulalongkorn Business School, Chulalongkorn University, Thailand, and can be contacted at wasatorn@cbs.chula.ac.th. Questions and comments are welcome.

