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Antecedents and consequences of Balanced Scorecard

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Abstract

This paper provides exploratory empirical evidence on 103 organizations' degree of implementation experiences with Balanced Scorecard (BSC) exploring the way in which it is used and affects organizational performance. Specifically this paper describes antecedents and consequences of BSC adoption in organizations highlighting, at the same time, important limitations and suggesting avenue for future research.

Keywords: Balanced scorecard, antecedents, consequences, survey.

1 – Introduction

Few innovations have generated much interest as the introduction of the Balanced Scorecard (BSC) in the field of management accounting systems (Kaplan & Norton, 1992) with a growing body of research analyzing successes and determinants of its adoption over time (De Geuser, et al. 2009; Malmi, 2001).

Firstly, the literature acknowledges that there is considerable variation in the degree of implementation firms have with BSCs given that the BSCs tend to be interpreted differently in different organizations.[1]

For example it is not new the idea that many adopters implement the model focusing only on the implementation of the scorecard.[2]

Since its introduction in 1992, the concept of BSC has changed substantially, developing dynamically in its elements and content. Malmi (2001: p. 215) sustained that was not clear the idea of a BSC given that it tended to be interpreted differently in the organizations.

For example, as observed by Olve et al. (1999), many adopters implemented the model focusing only on the implementation of the scorecard ("the scorecard often becomes a catalyst for discussions which actually could have been held without it but which become essential when it is used") while recently Johanson et al. (2006: p. 847) note that "it questionable whether the scorecard introduced is that of Kaplan and Norton or whether it is the implementer's own model, based on ideas borrowed from other sources".

Malmi suggested (2001:p. 216) that for a measurement system to be a BSC, it should fulfil the following criteria: "it should contain financial and non-financial measures, these measures should be derived from strategy and the measurement framework should contain perspectives derived from the original four".

For Johanson et al., (2006: p. 844): "it is apparent that the Kaplan and Norton approach to management accounting and control has induced a number of organizations to apply many of the thoughts and ideas linked to the BSC. This influence is evidently based on efforts to combine financial and non - financial measures at multiple levels within organizations, and to make strategy and learning about value creation important to all members of the organization". Instead for Jazayeri and Scapens (2008:p. 68):

[1] Kaplan & Norton (1996a: p. 53) sustain: "Many managers believe they are using a balanced scorecard when they supplement traditional financial measures with generic, nonfinancial measures about customers, processes and employees. A scorecard should contain outcome measures and the performance drivers of those outcomes, linked together in cause and effect relationships".

[2] As observed by Johanson et al. (2006: p. 847): "it has sometimes been found questionable whether the scorecard introduced is that of Kaplan and Norton or whether it is the implementer's own model, based on ideas borrowed from other sources".

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"one of the reasons that the BSC is so popular is that it has a wide range of different uses and it can mean many different things to different people".

Secondly, several behavioral variables are important to explaining cross - sectional variations in BSC antecedents (i.e., top management support, pressure from holding company, ownership or top management, management fashion theory, hostile internal opposition, insufficient internal resources).

Thirdly, several organizational variables are important to making the implementation of BSC a real success. Unfortunately, little empirical information exists about firm's use of these variables and how they correlate with the consequences of BSC projects. Such information may be useful in helping to identify how organizations are implementing effective BSC projects. Despite BSCs' creators and proponents sustain its importance as innovative performance measurement system and strategic management tool its validity remains questionable among academics and practitioners. Some authors recognize the effectiveness of the BSC as a communication, control and evaluation mechanism (Malina and Selto, 2001) others criticize its design features (Norreklit, 2000).

Indeed the contrast with the enthusiastic success stories narrated by Kaplan and Norton's case studies led the researcher to consider the BSC as a fascinating research topic. Hence, from a survey on 103 BSC regular adopters, the aim of this paper is to contribute to understand how and to what extent the BSC is adopted, for what reasons and what are the main consequences of using different types of it. A theoretical model of classifying of BSC systems is presented using the definitions described by Speackbaker et al. (2003) that provide a consolidated and general framework for conducting subsequent analysis. Results show that there is significant variation in the degree of BSC implementation in organizations explaining significant variation in BSC consequences. Implications, limitations, and directions for future research are consequently discussed.

The paper proceeds as follows. Section two provides a background review on the BSC. It acknowledges that different opinions exist on the BSC concept and that three different phases are clearly distinguishable in the literature.Section three describes the research methodology explaining the research method, the questionnaire validity and the variables used.

Section four describes the results while section five interprets and discusses them. Finally, sections 6 and 7 will conclude the study and propose some areas for future research.

2 -Literature review

The traditional performance measurement systems (PMSs) have been strongly criticized for being dominated by short - term backward looking, lag financial metrics, internally orientated and poorly linked to organizational strategy (Eccles,1991; Lynch and Cross, 1991; Kaplan and Norton, 1992; Epstein and Manzoni, 1997).

This is the reason why prominent academicians from Harvard Business School introduced the BSC framework and successively developed its concept to provide organizational management with a set of measures that give "a fast but comprehensive view of the business" (Kaplan and Norton: 1992,:p. 71).[3] Kaplan and Norton (1996a, p. 23) sustained that promising financial results in the short term could be achieved through means that were detrimental in the long term and that it was not just what was measured, but how the measurements were used, that determines organizational success (Kaplan and Norton, 2001: p.158). The sustained the four perspectives of the scorecard were important for balancing short - term with long - term objectives, outcomes desired with the performance drivers of those outcomes, hard objectives measures with softer, more subjective measures (Kaplan and Norton 1996a: p. 25).

Kaplan and Norton (2001b: p. 94) acknowledge that different opinions exist on the BSC concept.

Despite they pointed out that many organizations "claim have a Balanced Scorecard because they use a mixture of financial and non-financial measures", they underscored that the BSC idea is a not "static concept".[4]

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[3] Kaplan and Norton (2001c, p. 3) commenting their early work noted that: "several years ago, we introduced the Balanced Scorecard. At the time, we thought the Balanced Scorecard was about measurement not about strategy. We began with the premise that an exclusive reliance on financial measures in a management system was causing organizations to do the wrong thing. . . . If financial measures were causing organizations to do the wrong things, what measures would prompt them to do the right things. The answer turned out to be obvious. Measure the strategy!

[4] As suggested by Malmi (2001: p.216): "for a measurement system to be a BSC, it should fulfil the following criteria: it should contain financial and non-financial measures, these measures should be derived from strategy and the measurement framework should contain perspectives derived from the original four". For Johanson et al. (2006, p. 844): "it is apparent that the Kaplan and Norton approach to management accounting and control has induced a number of organizations to apply many of the thoughts and ideas linked to the BSC. This influence is evidently based on efforts to combine financial and non-financial measures at multiple levels within organizations, and to make

Examining Kaplan and Norton's works on theme, three different phases are clearly distinguishable:

Phase 1 (Kaplan and Norton, 1992): BSC is developed as a comprehensive performance measurement system encompassing a coherent set of financial and non-financial performance measures covering different perspectives of the organization.

Phase 2 (Kaplan and Norton, 1996b, 2001a, 2001b, 2001c): BSC is transformed into a strategic management system describing management processes and principles to develop and implement a strategy-focused and aligned management system.

Phase 3 (Kaplan and Norton, 2004a, 2004b) BSC is developed as an holistic management philosophy embracing strategy maps.

According to them the strategy - focused organization is based on a set of five principles:

1. translate the strategy to operational terms;
2. align the organizational to the strategy;
3. make strategy everyone's day job;
4. make strategy a continual process;
5. mobilize leadership for change.

However, despite recognizing these three different phases, many researchers argue that a single definition of BSC is not able to capture the complex nature of this management control system (Soderberg et., 2011). For example, Speckbacher, Bischof, and Pfeiffer (2003) find that organizations are using three different versions of Balanced Scorecard (BSC). In their study, they propose that further research should take into consideration the three types of BSCs.

Specifically:

Type I (minimum-standard BSC), which is a strategic performance measurement system containing financial and non – financial strategic measures and/or objectives grouped into perspectives.

Type II, which is a BSC type I that employs a specific approach to describe the company's strategy using a sequential cause-and-effect logic to link tangible and intangible assets.

Type III (fully-developed BSC), which is a BSC type II that additionally implements the organization's strategy through action plans and/or target setting and by linked incentives.

The Speckbacher's et al. (2003) definition suggests that the three types of BSC are incrementally related. That is BSC type II is based on BSC type I and BSC type III is based on BSC type II. That also suggested, research should evaluate the performance consequences of BSC implementation regarding which types of BSC is used. However, with the notable exception of Speckbacher et al., (2003) no BSC studies have considered this problem in their analyses, although some studies openly recognize such flaws in their limitation sessions.

For example, commenting the limitations of her study, Wiersma (2009: p. 250) sustains that BSC is "treated as a black box with no information given about the design of the scorecard, its quality of implementation, or sophistication". Also De Geuser et al., (2009:p.115) observe how their study does "not collect information from responding organizations about the progress stage of their BSC roll-out". They admit that it would be a most interesting piece of research to analyze the contribution of the BSC while controlling for different stages of its development. In a similar vein, Kraus & Lind (2010: p. 6) complain about the lack of interviews providing a "detailed account of its design, for example regarding how many measures were included and what they represented".

The rationale is that implementing BSC is a complex task and it requires advancement through different stages of the process, with design attributes that might differ and vary in importance during these development stages.

Unfortunately these different stages of the process are rarely addressed in the management accounting literature because the BSC is often treated using a 'black box' approach.

Consequently, it is unknown whether, and to what extent, the development stages of a BSC affect its performance consequences (Franco et al., 2012).

3 - Research methodology

This research falls into both the descriptive and explanatory survey study categories. Survey method is considered appropriate to provide an analysis of a relatively large sample of organizations' experiences with BSC. Furthermore, existing empirical research has primarily used field study approach providing an in depth analysis generally on limited number of firms (Butler et al 2001; Ahn 2001; Papalexandris et al 2001). The survey methodology may complement field studies by collecting information from a broader cross-section of organizations.

3.1 - *Research method*

The research has been carried out through a survey questionnaire using fax and e-mail during the first six months of 2008. The survey was preceded by an introductory letter clarifying the purposes and objectives of the entire research project. We undertook an in depth research through several Italian management books, specialized magazines, academic journals, working paper, internet website, conference proceedings, and also personal knowledge in order to discover what kind of organizations were using the BSC model.

strategy and learning about value creation important to all members of the organization".

Furthermore we made telephone calls to the top 500 Italian firms (ranked by turnover) in order to find out whether these were implementing and currently adopting the BSC project in the way suggested by Kaplan & Norton. Totally we selected a sample of more than 1.000 organizations from several economic industries. However, after a first telephone contact, we found out that only 384 organizations were really experienced with some kind of BSC project.

Companies were contacted by telephone to find out the most competent person for answering the questionnaire on the BSC (respondents are mainly heads of departments of management control). All the respondents are key informant on BSC in the respective organizations. They are responsible for the BSC initiative. During the telephone contacts the researcher clearly asked for the adoption of a managerial accounting system called "balanced scorecard" introduced by two US consultants: Kaplan and Norton. The researcher also asked for the presence of perspectives suggesting to not participate to the research if the organization was using a simple array of financial and non financial indicators not linked to the organizational strategy. In order to increase the response rate, managers were promised to receive an overall BSC study report. In this way they were allowed to compare their responses to those of the others organizations surveyed. After follow ups by e-mail and phone calls made to non-respondents, 111 questionnaires returned from top and middle management (response rate about 29%). Subsequently 8 questionnaires were excluded due to missing data and uncompleted responses. A final sample of 103 questionnaires was selected and used for the successive analyses. Respondents are members of the boards and heads of departments (mainly department of management accounting).

3.2 - *Questionnaire validity*

A preliminary draft of the questionnaire was discussed with academic scholars to assess the content validity prior to pilot testing. A pilot test was conducted with a group of accounting managers and controllers of six large organizations, whose inputs were used to improve the clarity, comprehensiveness and relevance of the survey instrument.

The pre-test is resulted useful in discarding and modifying some questions and to focus more on specific constructs.

Furthermore two separate procedures were conducted to find evidence for possible bias from respondents (Oppenheim 1966). A first test based on time response was undertook as suggested by Armstrong and Overton (1977). An independent samples t-test was conducted but failed to detect any significant difference between early and late respondents. Afterwards a comparison was made based on two characteristics of surveyed respondents (organizations industries and respondents job title). Also in this case no significant differences were found ($p<0.05$) between these groups.

3.3 – *Variables*

To start the manager had to choose among three different types of BSC adopted by the organization (BSC type I, II, III) based on Speckbaker et al. (2003) model. Afterward the questionnaire asked to indicate on a seven point Likert scale – ranging from 1 (completely disagree) up to 7 (completely agree) – the extent to which organizations agreed on listed BSC antecedents and consequences taken from current BSC literature (see relative paragraphs). The questionnaire also listed some BSC features related to its design in terms of presence of strategy maps, number of performance measures and incentives.

4 – Results

Survey results are shown through the use of descriptive statistics. Table 1 gives some information about the sample in terms of industries, employees and manager area organized by BSC types.

Table 2 shows how and to what level the BSC is implemented in the organizations. Most of them (72 organizations) are regularly implementing the BSC and in some cases (22 organizations) with a pilot project. Few organizations (9) have decided to abandon the BSC project.

Table 3 shows the degree of experience with BSC project.

4.1 – *BSC design*

4.1.1 – *Strategy maps*

The strategy map enables companies to describe the links between intangible assets and value creation, and helps managers understand the interrelationships and causal effects among the various aspects improving their capabilities in decision making and problem solving. It describes, in a visual form, the one-way chains of cause and effect necessary to link the learning and growth perspective (employee actions) to the financial perspective (outcomes for shareholders) passing through internal efficiency and customer perspectives.

Kaplan and Norton have proposed strategy maps as a communication device to reduce the complexity of performance measurement systems and to increase its comprehension.

Strategy maps should make it easier for employees to understand the cause-and-effect relationships among performance measures.

Table 1 – *Sample profile and BSC types*

Industries	**Type 1**	**Type 2**	**Type 3**	**Total**
Mining and quarrying	1	–	4	5
Manufacturing	25	7	14	46
Water supply, sewerage, waste management and remediation activities	–	–	1	1
Construction	1	1	–	2
Wholesale and retail trade; repair of motor vehicles and motor cycles	–	1	2	3
Transport and storage	2	–	1	3
Information and communication	1	–	1	2
Financial and insurance activities	3	1	4	8
Public administration and defence; compulsory social security	1	3	5	9
Human health and social work activities	5	4	14	23
Other service activities	1	–	–	1
Total	40	17	46	103
Employees	**Type 1**	**Type 2**	**Type 3**	**Total**
Up to 250	7	3	11	21
251 – 500	7	2	4	13
501 – 1000	11	2	6	19
1001 – 5000	8	8	18	34
more than 5000	7	2	7	16
Total	40	17	46	103
Manager area	**Type 1**	**Type 2**	**Type 3**	**Total**
Finance	9	5	13	27
Accounting & Operation Management	24	10	16	50
Human Resource	2	1	1	4
Information Systems	5	1	16	22
Total	40	17	46	103

Table 2 – *Implementation profile and BSC type*

Implementation	**Type 1**	**Type 2**	**Type 3**	**Total**
Adopted with pilot project	12	5	5	22
Regularly implemented	26	10	36	72
Abandoned	2	2	5	9
Total	40	17	46	103
Organisational level	**Type 1**	**Type 2**	**Type 3**	**Total**
Corporate	7	2	7	16
Business unit	29	12	35	76
Plant	3	2	4	9
Department	1	1	–	2
Team	–	–	–	–
Total	40	17	46	103
Hierarchical level	**Type 1**	**Type 2**	**Type 3**	**Total**
Top management	14	4	10	28
Top & Middle management	15	9	16	40
Top, Middle & Employee level	11	4	20	35
Total	40	17	46	103

Table 3 – *BSC experience*

BSC adoption	Organizations	Percent	Cumulative
1 year	20	19.42	19.42
2 years	20	19.42	38.84
3 years	22	21.36	60.20
4 years	13	12.62	72.82
5 years	8	7.77	80.69
6 years	9	8.74	89.33
More than 6 years	11	10.68	100.00
Total	103	100.00	

Table 4 – *Development of a strategy map*

Strategy Map	Type 1	Type 2	Type 3	Total
No	22	6	9	37
Yes	18	11	37	66
Total	40	17	46	103

Kaplan and Norton (1992, 1996a, 1996b, 2001) sustain that communicating management's vision and strategy to employees is critically important to its successful implementation (1996a p. 203 "we encourage companies to communicate the objectives, measures, and targets embodied in the unit's Balanced Scorecard throughout the organization").

Therefore they (Kaplan and Norton, 1996b, 2001) have proposed strategy maps as a communication device to reduce the complexity of performance measurement systems and to increase its comprehension. Strategy maps make easier to understand for employees cause-and-effect relationships among performance measures. The strategy map (Kaplan and Norton 2000, 2001) enables companies to describe the links between intangible assets and value creation and helps managers understand the interrelationships and causal effects among the various aspects improving their capabilities in decision making and problem solving (Frigo, 2004).

The strategy map describes in a visual form the one-way chains of cause and effect necessary to link the learning and growth perspective (employee actions) to the financial perspective (outcomes for shareholders) passing through internal efficiency and customer perspectives.[5] As suggested by Kaplan & Norton (1992, 1996a) the formulation of a causal business model should describe strategy and aim at improving the alignment between an organizations' strategic objectives and its performance measures. For this reason in the questionnaire, the respondents had to confirm (yes/no) if they were developing also a strategic map linked to the implementation of their BSC project. Table 4 shows that most organizations implementing a BSC have also developed a strategy map linked to the BSC model. Overall 66 organizations have employed a strategy map describing cause and effect relationships closely related to the implementation of the BSC. Probably the remaining 37 organizations are facing problems in describing cause-and-effect relationships (Malmi, 2001). That might be due to their recent BSC implementation process and correspond to the literature which points out the lack of empirical evidence on how to construct cause-and-effect relationships (Ittner and Larcker, 2001: p. 375).

Therefore these organizations are not actually able to formulate cause and effect relationships among the different objectives and measures even though this should be considered one of the key features of the BSC approach according to its proponents (Kaplan & Norton, 1996a, 2001). These results are quite consistent with prior findings (see also the study conducted by Malmi, 2001, on 17 Finnish organizations).

4.1.2 – *Number of measures*

In the past decade Merchant (1985) and Simons (1995) documented some shortcomings related to the use of financial performance measures (i.e. managerial myopia, excessive risk aversion, gamesmanship) successively reported also by Johnson and Kaplan (1987) in their critics to the traditional management accounting systems.[6] Kaplan and Norton (1996a: p.

[5] However, as Norreklit (2000, p.75) argues: "there is no causal relationship between measures from the four perspectives. Instead, the arguments indicate that the perspectives are interdependent." The relationships in the BSC are logical rather than causal (Norreklit, 2003).

[6] Merchant (1985) proposed the use of non-financial measures to avoid the shortcomings of financial controls (Kaplan, 1983).

23) sustained that promising financial results in the short term could be achieved through means that are detrimental in the long term.[7] They (Kaplan and Norton 1996b) suggested linking the measures to strategy proposing cause-and-effect relationships among measures. Strategic objectives of the organization should derive their measures from strategy, based on cause and effect reasoning.

Moreover implementing BSC means adopting new measures that are not used earlier. Further Kaplan and Norton (2001a) maintained that in order to achieve an effective BSC, employees at lower levels in the organizational hierarchy should be involved in the establishment of performance measures (Tung et al., 2011). Table 5 reports the number of financial and nonfinancial performance measures in the BSCs.

4.1.3 – *Incentives*

Performance evaluation and compensation are important to motivate and reward employees to appropriately focus on BSC information.

Ittner et al. (2003) studied the subjective evaluations and the different weights of performance measures in a BSC bonus plan suggesting further research on the proper construction of BSC bonus plans[8] while Malmi's (2001) pointed out whether the incentive system was compatible with the BSC and how such compatibility could be improved. In line with literature (Kaplan and Norton, 1996a, p. 217; Otley, 1999, p. 367; Ittner and Larcker, 1998; Malmi, 2001: p. 211), this study confirms that organizations have linked incentives to the BSC. Interestingly the Kruskal - Wallis test shows (Table 6) that type III of BSC rely more of incentive systems. Specifically, in mature BSC applications, incentives are more frequently tied to BSC measures ("Incentive compensation rely on BSC system", $\chi2 = 14.06$; df(2); $p<0.001$) and "based on team performance" ($\chi2 = 11.98$; df(2); $p<0.001$) through the use of both financial ($\chi2 = 6.02$; df(2); $p<0.05$) and non financial measures ($\chi2 = 11.60$; df(2); $p<0.001$). Therefore, the results suggest that the type of BSC discriminates the incentive systems usage.

4.2 – *Antecedents of BSCs adoption*

This study examines factors influencing the BSC adoption (Kaplan and Norton, 1992, 1993, 1996b). Prior studies (Malmi, 2001; Speackbaker et al. 2003, Carmona and Grönlund, 2003) suggest various factors affect the choice to adopt the BSC (top management support, effective incentive schemes, performance evaluation and compensation, proper internal resources and consensus towards the organizational objectives). These factors are determinant to implement BSC systems and for stimulating employees accepting, working and using BSC information.

The paper addresses this issue highlighting antecedents of the BSCs adoption and raising some intriguing questions. As argued by past research (Malmi, 2001, p. 218) the BSC may be perceived by the management like a simply managerial fashion. In this case, who would be its main propagators and disseminators? and, how BSC users explain its adoption and diffusion in their organizations? Using printing media indicators (PMI) and later content analysis on Dutch language management publications, Braam et al. (2007) assess whether consultants are the dominant BSC-disseminators. They demonstrate that consultants turn out to be about 50 per cent of the authors in professional media suggesting a significant role of consultants in disseminating the BSC concept. Braam & et al. (2007) also take into account the influence of consultants on the interpretation variety of the BSCs. Consultants often represent the supply-side organizations playing a significant role on the decisions of organizations to adopt BSC.

Although they often have an active role in organizations, the evidence of this paper suggests that organizations have adopted BSCs mostly to support processes of internal changes. Moreover selling BSC ideas through public seminars, books, articles and workshops appears to be a less important source of information for such organizations. Also isophormism processes (DiMaggio and Powell, 1983; Abrahamson, 1991, 1996; Malmi, 1999) do not seem to be decisive. The paper shows, at least in this sample, that BSCs do not exhibit fashion-setting processes (Abrahamson, 1996) induced by supply side actors (e.g., consultancy firms, early adopters or academics).[9]

[7] Kaplan and Norton (2001, p. 158) state that "it's not just what is measured, but how the measurements are used that determines organizational success".

[8] Ittner, Larcker, and Rajan (1997) studying a Balanced Scorecard Compensation system in retail branch banks found no evidence that the BSC enhanced branch managers' understanding of business goals.

[9] Abrahamson refers four different motives of innovation adoption/rejection: the "efficient choice" perspective (Abrahamson, 1991:p. 592) where innovations are diffused if they help to reduce performance gaps created by environmental changes; the "forced selection" perspective where pressure from other organizations have sufficient power to dictate which technologies spread across organizations; the "fashion" perspective through imitation of organizations outside the own social group (fashion setters such as consulting firms, business schools and mass media); the "fad" perspective where organizations imitate other organizations that have already adopted certain technologies in an effort to appear legitimate and to conform to the norms.

Table 5 – *Number of performance measures*

	Type 1	Type 2	Type 3	Total
Less than 9 measures	4	–	4	8
9 - 12 measures	5	2	5	12
13 - 16 measures	6	1	2	9
17 - 20 measures	9	5	3	17
21 - 23 measures	7	1	3	11
24 - 25 measures	1	1	2	4
More than 25 measures	8	7	27	42
Total	40	17	46	103

Table 6 – *Kruskal-Wallis Test for BSC incentives*

			Rank Kruskal-Wallis Test						
	BSC Type	N	Mean Rank	Chi-Square	df	Asymp. Sig.	Monte Carlo Sig.	99% Confidence Interval	
								Lower Bound	Upper Bound
Incentive compensation rely on BSC system	Type 1	40	41.39	14.06	2	0.00	0.00	0.00	0.00
	Type 2	17	44.24						
	Type 3	46	64.10						
Incentive compensation rely on BSC financial performance measures	Type 1	40	43.18	6.02	2	0.04	0.04	0.04	0.05
	Type 2	17	55.29						
	Type 3	46	58.46						
Incentive compensation rely on BSC non financial performance measures	Type 1	40	39.76	11.60	2	0.00	0.00	0.00	0.00
	Type 2	17	56.65						
	Type 3	46	60.92						
BSC incentive schemes rely on individual performance	Type 1	40	48.39	1.02	2	0.60	0.59	0.58	0.61
	Type 2	17	53.29						
	Type 3	46	54.66						
BSC incentive schemes rely on team performance	Type 1	40	40.08	11.98	2	0.00	0.00	0.00	0.00
	Type 2	17	53.00						
	Type 3	46	62.00						

Interestingly, most manager perceive that BSC cannot be marked as a typical "management fashion".

Results show that one of the main reasons for adopting a BSC system is for orienting and starting up processes of internal changes necessary to improve organizational performance.

That can be interpreted as a signal assuring that some dysfunctional effects of over hastily implementing BSC like a management fashions should not appear to have arisen (Braam et al., 2007).

Table 7 summarizes antecedents of BSC adoption.

4.3 – Consequences of BSCs adoption

As earlier mentioned, one of the main reasons to implement the BSC is to improve organizational performance. For instance Ittner, Larcker, and Randall (2003) examine the association between use of the BSC and shareholder returns but fail to find evidence of any association. On the contrary, Crabtree & DeBusk (2008) find out evidence of a positive impact on market returns. However they recognize that the BSC adoption is hardly the only causal factor.

Table 7 – *Antecedents of BSC adoption (ranked by mean order)*

	N	Mean	Std. Dev.	Variance
Start up important processes of internal changes	103	5.01	1.78	3.19
Used management accounting systems were not up to the company expectations	103	3.71	1.74	3.03
Behind pressure from holding company, ownership, top management	103	3.59	2.29	5.22
After joining to seminars and workshops on BSC themes	103	2.88	1.92	3.69
Behind suggestion of management consulting	103	2.30	1.70	2.88
Crashing with an internal opposition	103	2.16	1.53	2.33
Because being already used by your competitors	103	1.84	1.36	1.86
Not clearly detectable factors	103	1.80	1.41	1.99
Like a management fashion	103	1.62	1.25	1.57

Table 8 – *Kruskal-Wallis Test for BSC performance consequences*

				Rank Kruskal-Wallis Test					
	BSC Type	N	Mean Rank	Chi-Square	df	Asymp. Sig.	Monte Carlo Sig.	99% Confidence Interval	
								Lower Bound	Upper Bound
to enhance the participation of top management to the formalisation of the strategy	Type 1	40	43.35	7.16	2	0.03	0.02	0.02	0.03
	Type 2	17	49.94						
	Type 3	46	60.28						
to translate strategy into operational goals	Type 1	40	38.55	14.42	2	0.00	0.00	0.00	0.00
	Type 2	17	56.47						
	Type 3	46	62.04						
to align the organization with strategy	Type 1	40	40.10	11.30	2	0.00	0.00	0.00	0.00
	Type 2	17	55.18						
	Type 3	46	61.17						
to make strategy everyone's day job	Type 1	40	44.02	8.11	2	0.02	0.02	0.01	0.02
	Type 2	17	45.94						
	Type 3	46	61.17						
to make more clear the linkages among short and long period objectives	Type 1	40	39.94	18.60	2	0.00	0.00	0.00	0.00
	Type 2	17	43.24						
	Type 3	46	65.73						
to improve employee's knowledge on how they are evaluated	Type 1	40	40,05	13.09	2	0.00	0.00	0.00	0.00
	Type 2	17	51,38						
	Type 3	46	62.62						
to link performance measures to corporate strategy	Type 1	40	42.44	8.38	2	0.02	0.01	0.01	0.02
	Type 2	17	51.00						
	Type 3	46	60.68						
to explicate cause-effect relationships	Type 1	40	41,45	9.23	2	0.01	0.00	0.01	0.01
	Type 2	17	63.82						
	Type 3	46	56.80						

Table 8 – *Kruskal-Wallis Test for BSC performance consequences* (*contd*.)

to adopt new performance measures	Type 1 Type 2 Type 3	40 17 46	43.31 48.44 60.87	8.02	2	0.02	0.02	0.02	0.02
to enhance time and efforts on strategic related issue	Type 1 Type 2 Type 3	40 17 46	44.14 42.50 62.35	10.37	2	0.01	0.00	0.00	0.01
to motivate people (on comprehension about their role in the firm)	Type 1 Type 2 Type 3	40 17 46	39.10 51.88 63.26	14.54	2	0.00	0.00	0.00	0.00
to improve internal communication among people	Type 1 Type 2 Type 3	40 17 46	43.05 52.41 59.63	6.93	2	0,03	0.03	0.03	0.03
to help managers to built a consensus around the organization's vision and strategy	Type 1 Type 2 Type 3	40 17 46	44.49 52.82 58.23	4.72	2	0,09	0.09	0.08	0.10

Kaplan and Norton (2001c) admit that to improve performance may occur from two to three years after its implementation due to the lag effect between its adoption and performance gains.

More importantly, according to Malmi (2001, p. 217) the consequences of BSCs could be expected to vary depending on how BSCs are applied.[10]

That suggests that research should evaluate consequences of BSCs with respect to BSC types.

To this end, the current study sheds new light providing data about the relationship between different types of BSC and users' perceived consequences.[11]

Table 8 reports the Kruskal-Wallis non parametric test for BSC consequences under different conditions (BSC types). Results show significant value (less than 0.05) in all cases, except for "to help managers to build a consensus around the organization's vision and strategy" (0.09) that is slightly insignificant.

These results fully support the idea that different BSC types are significantly associated to different performance consequences and more importantly that the more extent an organization uses a BSC (type III) the better performance consequences gains**.**

5 – Discussion of the results

The aim of the paper was to survey organizations claiming to have adopted BSCs in order to evaluate their implementation experience and to provide empirical evidence on its antecedents and consequences.

Using Speckbaker *et al*. (2003) scheme the paper divides the BSC in three types based on different stage of implementation perfectly reflecting the successive phases in the evolution of the BSC concept. Summarizing the paper classifies:

BSC type I, a comprehensive performance measurement system encompassing a coherent set of financial and non-financial performance measures covering different perspectives of the organization.

BSC type II, a financial and non-financial performance measurement of individuals and teams linking the scorecard measures to individual and collective rewards. The linkage between the BSC and incentive pay should help to increase managers' and employees' motivation and commitment.

BSC type III, a strategic management system for managing strategy and for initiating discussions about connections between strategy and management control. It is a framework to guide strategy-focused and aligned organizational and behavioral change processes.

In this way the research provides useful indications on BSC usage exploring the field to increase insight into the variety of BSCs implemented in organi-

[10] Malmi (2001, p. 217) suggested: "It could be that one way to use BSCs leads to success, whereas considerably fewer benefits should be expected from the other. In other words, it is not meaningful to study economic benefits obtained from adopting BSCs without considering how they are used. Fur-ther research should study economic benefits from applying the BSCs in a certain way".

[11] "Although the assessment of economic benefits from using BSCs is bound to be difficult, the perceived benefits will help us to assess their role in an organization" Malmi (2001: p. 209).

zations. The number of organizations investigated and their experience with BSCs concept allowed us to make some inference.

First of all, in accordance with Kaplan and Norton (1996a: p. 300) BSCs should be primarily applied at business unit level where competitive strategies become crucial.

Results appear to support this view (76 organizations) while just 16 organizations are implementing a corporate level BSC.

Interestingly few BSCs tend to be implemented at lower hierarchical levels like plant or department level (2 organizations). Surprisingly, no organization is currently implementing BSCs at the team level.

Also, according to Kaplan and Norton (1996a, 2001a) few employees understand the organization's strategy being not aligned with it. BSCs can be used to communicate strategy to all members of the organization illustrating to the employees how to perform every day, both individually and collectively, in order to impact on organization's strategic success. As suggested by Speckbacher *et al.* (2003: p. 376) "since BSCs are primarily implemented on higher organizational levels, it is interesting to see to what extent BSCs are used as an instrument for communicating the strategy to lower organizational levels".

Aranda & Arellano (2010) shows that the effectiveness of a SPMS used as a communication tool of the strategy depends on whether its link structure among measures is made explicit.

They find that making the links explicit improves the communication effectiveness of SPMSs. Contrarily to Malina and Selto (2001) who found no support for the effectiveness communication effect of a BSC probably because the BSC they studied did not make explicit the links among measures.

Malina and Selto (2001) is one of few research studying the impact of BSC systems on communication processes.

Regard to this, table 2 shows also the extent to which the BSCs are used for facilitating the communication of the strategy at the top management level (28 organizations), at the middle management level (40 organizations) and at the employee level (35 organizations).

Interestingly these results contradict previous findings stating that only few organizations are interested in applying the BSC for communicating the strategy at the employee level (Speckbacher et al. 2003: p. 376).

It is worth noting that most organizations have relatively little experience with BSC project given that around 73% of them have adopted it less than four years ago.

Griffith & Neely's (2009) study suggests that in a BSC environment managers with more working experience may be able to increase organizational performance more than their counterparts. Their study shows that managerial experience may play an important role in explaining differences in company performance.

Overall the findings suggest that *BSCs type III* positively influence organizational consequences (Braam and Nijssen, 2004; Davis and Albright, 2004).

Therefore it is important to improve managers' understanding of conditions facilitating or inhibiting BSC-implementation in the right way as suggested by Kaplan & Norton. In this regard, the research confirms that no single or uniform BSC concept exists in organizations ("one-size-fits-all methods")[12] and that may undermine its validity.

Moreover, BSC implementations seem to appear highly flexible compared with the original proposed by Kaplan and Norton (1992) suggesting how the notion of a BSC is opened to various interpretations and applications.

Finally, it is evident that many organizations that claim to use the BSC approach are instead adopting only a limited or incomplete version of it.

For example not all the organizations are using strategy maps in connection with BSC implementation (Lucianetti 2010, 2011).[13]

6 –Conclusion

This research has important implications for practitioners given that these findings are based upon a survey data, it is likely to be common problems in implementing the scorecard effectively in organizations.

Despite widespread practitioners interest in the BSC, academic studies on its implementation, antecedents and consequences are rather limited (Ittner and Larcker, 1998; Chenhall, 2003; Luft and Shields, 2003).

Undoubtedly, understanding "how" BSC systems are used in organizations and the extent to which some less developed BSC undermine its validity are arguably important area for research.

In this regard the study provides fresh evidence on the implementation process of BSCs.

For instance, communicating management's vision and strategy to employees is critically important to its successful implementation.

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[12] Kaplan and Norton (1993: p. 35) particularly emphasize that: "The balanced scorecard is not a template that can be applied to businesses in general or even industry-wide. Different market situations, product strategies, and competitive environments require different scorecards. Business units devise customized scorecards to fit their mission, strategy, technology, and culture."

[13] Speckbacher *et al*. (2003) find out that about half of organizations using a BSC also use strategy maps.

Therefore, it becomes important to evaluate at what level organizations implement the BSC (corporate, business unit, factory, department, team) and consequently at what level organizations intend to

communicate the strategy of the BSC (top management level, middle management level, employee level).

However, the paper shows that BSCs are primarily applied at the business unit level waiting to develop a corporate level scorecard later on (Malmi, 2001: p. 211).

Probably, because at the level of the business unit the competitive strategies became crucial (Kaplan and Norton 1996a:p. 300).

The paper also examines the extent to which organizations use strategy maps, incentive systems, or it shows that BSCs are not currently enabling organizations to build consensus around strategic objectives (as reported in table 7) suggesting probably a lack success in achieving employee empowerment.

The BSC implementation is a complex process and specific phases such, empowerment or cascade objectives cannot be commanded or performed solely and simply through a top-down process. Furthermore, performance measures might tend often to focus on what can easier be measured, limiting, *de facto*, to capture more complex phenomenon's.

7 – Limitations and implications for further research

This last section concludes by highlighting insights and shortcomings of the findings and identifying avenues for further research.

Firstly being the response rate well below 50%, this survey should be regarded with significant caution (Van der Stede et al., 2007: p. 465).

Also the sample size was not adequately large to enable validation of the findings with a holdout sample and the research design is based only on a cross-sectional study where data is collected at one point in time.

A longitudinal perspective would have been useful to verify causality mechanisms (lag effects) and to examine consequences of BSC implementation in a longer period. Therefore, a long - horizon event study would be more appropriate.[14]

We acknowledge that the analysis of antecedents and consequences of BSC maybe request a further investigation through case - studies, so combining quantitative and qualitative approaches as recently suggested by Modell (2005; 2009).

Further one of the main limitations of the study is the decision to exclude small and micro companies from the initial sample.

These organizations are less familiar with complex management control systems and probably more oriented to implement easy friendly reporting systems (e.g. Tableau de Bord).

Also the research design is based on a cross-sectional study where data is collected at one point in time while a longitudinal perspective is more adapted to verify causality mechanisms (lag effects) and to examine consequences of BSC implementation in a longer period.

Further the methodology of self reported data often cast doubt especially when managers rate organizational performance.

For some exception see Dunk's, (2003) and Abernethy and Stoelwinder, (1991) and the sample size is not adequately large to enable validation of the findings with a holdout sample.

That may provoke biases and random errors.

Therefore this study proposes also the use of objective financial performance measures to overcome the limitations of self reported survey data.

Finally, the variety in the design and use of BSC meant that this tool is often understood as flexible by organizations.

However the choice of BSC is specific and it is dependent on the strategic objectives of the organizations.

Prior literature (Kasurinen, 2002; Brignall & Ballantine, 2004) indicates the environmental context as important in understanding how various contingencies impact on the effectiveness of BSC implementation.

However we did not consider the relationship with organization strategy.

Kaplan and Norton (1996b: p.85) explicitly claimed that the BSC "provides a framework for managing the implementation of strategy while also allowing the strategy itself to evolve in response to changes in the company's competitive market and technological environments".

Future research should consider some lag effects and specific contextual variables in terms of environment, technology, organizational structure, strategy affecting the design and the effectiveness of BSC systems.

References

Abernethy M.A. and Stoelwinder J.U. (1991), Budget use, task uncertainty, system goal orientation and subunit performance: a test of the "fit" hypothesis in not for profit hospitals, *Accounting, Organizations and Society*, vol. 16 (2) [105-120].

Abrahamson, E. (1991), Managerial fads, and fashions: the diffusion and rejection of innovations, *Academy of Management Review*, Vol. 16, [586-612].

[14] Kaplan and Norton (2001c) admit that to improve performance may occur two to three years after implementation of the BSC due to the lag effect between its adoption and performance gains.

Abrahamson, E. (1996), Management fashion, *Academy of Management Review,* Vol. 21 No. 1 [254-285].

Ahn, H. (2001), Applying the Balanced Scorecard Concept: an Experience Report, *Long Range Planning*, Vol. 34, No. 4 [441-461].

Armstrong, J.S. and Overton, T.S. (1977), Estimating non response bias in mail surveys, *Journal of Marketing Research*, Vol. 14 [396–402].

Aranda C. and Arellano J., Consensus and Link Structure in Strategic Performance Measurement Systems: A Field Study, *Journal of Management Accounting Research* Vol. 22, 2010 [271–299].

Braam, G.J, Benders, J. and Heusinkveld, S. (2007) The balanced scorecard in The Netherlands: An analysis of its evolution using print-media indicators, *Journal of Organizational Change Management*, 20(6) [866-879].

Braam, G.J.M. and Nijssen, E.J. (2004), Performance Effects of Using the Balanced Scorecard: a Note on the Dutch Experience, *Long Range Planning*, Vol. 37, No. 4 [335-349].

Brignall T.J.S. and Ballantine J. (2004). Strategic Enterprise Management Systems: New Directions for Research, *Management Accounting Research*, Vol.15 [225-240].

Butler, A., Letza, S.R. and Neale, B. (1997), Linking the Balanced Scorecard to Strategy, *Long Range Planning*, Vol. 30, No. 2 [242-253].

Carmona S. and Grönlund A. (2003), Measures vs actions: the balanced scorecard in Swedish law enforcement, *International Journal of Operations and Production Management*, 23 [1475-1496].

Chenhall, R.H. (2003) Management control systems design within its organizational context: findings from contingency-based research and directions for the future, *Accounting, Organizations and Society*, 28(2/3) [127–168].

Crabtree, A.D., and DeBusk, G.K., (2008). The effects of adopting the Balanced Scorecard on shareholder returns. *International Advances in Accounting*, 24 (1) [8-15].

Davis, S. and Albright, T. (2004), An investigation of the effect of balanced scorecard implementation on financial performance, *Management Accounting Research*, Vol. 15 [135-153].

De Geuser, F., Mooraj, S. and Oyon, D. (2009), 'Does the Balanced Scorecard Add Value? Empirical Evidence on Its Effect on Performance', *European Accounting Review*, Vol. 18, No. 1 [93-122].

DiMaggio, P. and Powell, W. (1983), The iron case revisited: institutional isomorphism and collective rationality in organizational fields, *American Sociological Review*, Vol. 48 [147-160].

Dunk, A. S. (2003). Moderated regression, constructs and measurement in management accounting: A reflection, *Accounting, Organizations and Society*, 28 [793–802].

Eccles, R.G. (1991), The performance measurement manifesto, *Harvard Business Review*, Vol. 69 No. 1, [131-137].

Epstein, M.J. and Manzoni, J., (1997). The balanced scorecard and Tableau de Bord: translating strategy into action, *Management Accounting* August [28–36].

Franco M., Lucianetti L. and Bourne M., (2012) Contemporary performance measurement systems: A review of their consequences and a framework for research, *Management Accounting Research*, 23 [79-119].

Frigo, M. L, Growth isn't always good: Knowing When and Where to Grow, *Strategic Finance* December 2004.

Ittner, C. and Larcker, D.F. (2001) Assessing empirical research in managerial accounting: a value-based management perspective *Journal of Accounting and Economics*, Vol. 32 [349–410].

Ittner, C., Larcker, D. and Randall, R. (2003) Performance Implications of Strategic Performance Measurement in Financial Services Firms, *Accounting, Organizations and Society*, Vol. 28 No. 7–8 [715–741].

Ittner, C.D., Larcker, D.F., and Rajan, M.V. (1997) The choice of performance measures in annual 44 bonus contracts. *The Accounting Review*, Vol. 72 [231-255].

Ittner, C.D. and Larcker, D.F. (1998), Innovations in performance measurement: trends and research implications. *Journal of Management Accounting Research* 10 [205–238].

Jazayeri, M. and Scapens, R.W. (2008), The Business Values Scorecard Within BAE Systems: The Evolution of a Performance Measurement System, *British Accounting Review,* Vol. 40, No. 1 [48-70].

Johanson, U., Skoog, M, Backlund, A. and Almqvist, R. (2006). Balancing Dilemmas of the Balanced Scorecard, *Accounting, Auditing and Accountability Journal*, Vol. 19, No. 6 [842-857].

Johnson, H.T. and Kaplan, R.S. (1987), *Relevance Lost: The Rise and Fall of Management Accounting*, Harvard Business School Press, Boston, MA.

Kaplan R.S. and Norton D.P. (2001a) Transforming the Balanced Scorecard from Performance Measurement to Strategic Management: Part I, *Accounting Horizons*, Vol.15 No. 1, March [87–104].

Kaplan R.S. and Norton D.P. (2001b) Transforming the Balanced Scorecard from Performance Measurement to Strategic Management: Part II, *Accounting Horizons*, Vol. 15 No. 2, June [147–160].

Kaplan, R. S. (1983). Measuring manufacturing performance: A new challenge for managerial accounting research. *The Accounting Review* (October) [686-705].

Kaplan, R.S. and Norton, D.P. (1993) Putting the balanced scorecard to work, *Harvard Business Review*, 71(5) [134–147].

Kaplan, R.S. and Norton, D.P. (1996a), *Translating Strategy into Action, The Balanced Scorecard*, Harvard Business School Press, Boston, MA.

Kaplan, R.S. and Norton, D.P. (2001c), *The Strategy-Focused Organization, How Balanced Scorecard Companies Thrive in the New Business Environment*, Harvard Business School Press, Boston, MA.

Kaplan, R.S. and Norton, D.P. (2004a) *Strategy Maps Converting Intangible Assets into Tangible Outcomes*, Harvard Business School Press, Boston, MA.

Kaplan, R.S. and Norton, D.P. (2004b), Measuring the strategic readiness of intangible assets, *Harvard Business Review*, Vol. 82 No. 2 [52-63].

Kaplan, R.S. and Norton, D.P. (1992), The balanced scorecard—measures that drive performance, *Harvard Business Review* January–February [71–79].

Kaplan, R.S. and Norton, D.P. (1996b), Using the Balanced Scorecard as a strategic management system. *Harvard Business Rev*. 74 (1) [75-85].

Kasurinen, T. (2002), Exploring management accounting change: the case of balanced scorecard implementation, *Management Accounting Research*, Vol. 13 [323-343].

Lucianetti L., (2004), *Balanced Scorecard e controllo aziendale,* Aracne Editrice, Roma.

Lucianetti L., (2010), The impact of strategy maps on balanced scorecard performance, *International Journal of Business Performance Management*, Vol. 12, 1 [21-36].

Lucianetti L., (2011), L'adozione della Balanced Scorecard: i risultati di una ricerca empirica, *Management Control*, 3 [39-66].

Luft, J. and Shields, M. (2003), Mapping Management Accounting: Graphics and Guidelines for Theory-Consistent Empirical Research, *Accounting, Organizations and Society*, Vol. 28 [169-249].

Lynch R.L. and Cross K.F. (1991). *Measure Up! Yardsticks for Continuous Improvement*, Basil Blackwell.

Chiapello, E. and Lebas, M., (1996), The Tableau de Bord, A French Approach to Management Information. *Presented at the 19th Annual Meeting of the European Accounting Association*, Bergen, Norway, 2–4 May.

Malina, M.A. and Selto, F.H. (2001), Communicating and Controlling Strategy: an Empirical Study of the Effectiveness of the Balanced Scorecard, Journal of *Management Accounting Research*, Vol. 13 [47-90].

Malmi, T. (2001) Balanced scorecards in Finnish companies: a research note, *Management Accounting Research*, Vol. 12 No. 2 [207-220].

Malmi,T. (1999). Activity-based costing diffusion across organizations: An exploratory empirical analysis of Finnish firms. *Accounting, Organizations and Society*, 24(8) [649–672].

Merchant, K. A. (1985), *Control in Business Organizations*. Cambridge, MA: Ballinger.

Modell, S. (2009) In defense of triangulation: A critical realist approach to mixed methods research in management accounting. *Management Accounting Research* 20, no. 3 [208-221].

Modell, S. (2005) Triangulation between Case Study and Survey Methods in Management Accounting Research: An Assessment of Validity Implications. *Management Accounting Research* 16 [231-254].

Norreklit, H. (2000) The balance on the balanced scorecard – a critical analysis of some of its assumptions, *Management Accounting Research*, Vol. 11 [65–88].

Norreklit, H. (2003) The balanced scorecard: what is the score? A rhetorical analysis of the balanced scorecard, *Accounting, Organizations and Society*, Vol. 28 [591–619].

Olve, N.G., Roy, J. and Wetter, M. (1999) *Performance Drivers: A Practical Guide to Using the Balanced Scorecard*, Wiley, Chichester.

Oppenheim, A. N. (1966). *Questionnaire design and attitude measurement*. London: Heinemann.

Otley, D., 1999. Performance management: a framework for management control systems research. *Manage. Acc. Res*. 10 [363–382].

Papalexandris, A., Ioannou, G. and Prastacos, G.P. (2004), Implementing the Balanced Scorecard in Greece: a Software Firm's Experience, *Long Range Planning*, Vol. 37, No. 4 [351-366].

Simons, R. (1995) *Levers of Control: How Managers Use Innovative Control Systems to Drive Strategic Renewal*. Boston: Harvard Business School Press.

Soderberg M., Kalagnanam S., Sheehan N.T., Vaidyanathan G., (2011) When is a balanced scorecard a balanced scorecard?, *International Journal of Productivity and Performance Management*, Vol. 60 Iss: 7 [688-708].

Speckbacher, G., Bischof, J. and Pfeiffer, T. (2003), A descriptive analysis of the implementation of balanced scorecard in German-speaking countries, *Management Accounting Research*, Vol. 14 [361-387].

Tung A., Baird K., Schoch H.P., (2011) Factors influencing the effectiveness of performance measurement systems, *International Journal of Operations & Production Management*, Vol. 31 Iss: 12 [1287-1310].

Van der Stede, W. A., Young, S. M. and Xiaoling Chen, C. (2007) Doing management accounting survey research, in Chapman, C. S. and Hopwood, A. G. and Shields, M. D., (eds.) *Handbook of management accounting research*, Elsevier Science [445-478].