

# Determinant Factors of the Implementation of the Balanced Scorecard in Portugal: empirical evidence in public and private organizations

*Factores determinantes de la implementación del cuadro de mando integral en Portugal: evidencia empírica en organizaciones públicas y privadas*

*Fatores Determinantes da Implementação do Balanced Scorecard em Portugal: evidência empírica em organizações públicas e privadas*

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## ABSTRACT

In this article we aim to identify and analyze a set of variables that can potentially influence the adoption of the Balanced Scorecard (BSC) in Portugal. Hypotheses were tested using data obtained from a questionnaire sent to 591 publicly-owned organizations (local governments, municipal corporations and hospitals) and 549 privately-owned organizations (large companies and small and medium enterprises) in Portugal, with an overall response rate of 31.3%. The results allow us to conclude that although the majority of respondents claimed to know the BSC, its

use in Portugal is still limited and very recent, particularly in the public sector organizations. However, it should be noted that its use has increased in Portugal in recent years. Using as theoretical framework the contingency and institutional theories, we found that decentralization, vertical differentiation and the degree of higher education are associated with the implementation of the BSC.

**Keywords:** Balanced scorecard. Management accounting. Contingency theory. Institutional theory. Portugal.

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## RESUMO

Este artigo pretende identificar e analisar um conjunto de variáveis que podem potencialmente influenciar a adoção do *Balanced Scorecard* (BSC) em Portugal. As hipóteses definidas foram testadas utilizando dados obtidos a partir de um questionário enviado a 591 organizações públicas (câmaras municipais, empresas municipais e intermunicipais e hospitais) e 549 organizações privadas (grandes empresas e pequenas e médias empresas) que operam em Portugal, com uma taxa de resposta total de 31,3%. Os resultados permitem concluir que, embora a maioria dos entrevistados tenha afirmado conhecer o BSC, sua utilização em Portugal é ainda limitada e muito recente, particularmente nas organizações do setor público. Deve-se notar, no entanto, que sua utilização tem aumentado em Portugal nos últimos anos. Utilizando como referencial teórico as teorias da contingência e institucional, verificou-se que a descentralização, a diferenciação vertical e o grau de formação superior são fatores que estão associados à implementação do BSC.

**Palavras-chave:** *Balanced scorecard*. Contabilidade de gestão. Teoria da contingência. Teoria institucional. Portugal.

## RESUMEN

Este artículo tiene como objetivo identificar y analizar un conjunto de variables que pueden influir en la adopción del Cuadro de Mando Integral (CMI) en Portugal. Las hipótesis se probaron utilizando el conjunto de datos obtenidos a partir de un cuestionario enviado a 591 organizaciones públicas (ayuntamientos, empresas municipales e intermunicipales y hospitales) y 549 organizaciones privadas (grandes empresas y pequeñas, y medianas empresas) que operan en Portugal, con una tasa de respuesta total del 31,3%. Los resultados obtenidos nos permiten concluir que aunque la mayoría de los encuestados ha afirmado conocer el CMI, su uso en Portugal es aún reducido y muy reciente, principalmente en el caso de las organizaciones pertenecientes al sector público. Sin embargo, conviene señalar que en los

últimos años se ha registrado un aumento del uso del CMI en Portugal. Utilizando como enfoque teórico las teorías de contingencia e institucional, comprobamos que la descentralización, la diferenciación vertical y el grado de formación superior son factores que están asociados a la implementación del CMI.

**Palabras-clave:** Cuadro de mando integral. Contabilidad de gestión. Teoría de contingencias. Teoría institucional. Portugal.

## 1 INTRODUCTION

In recent years, there have been changes in the economic scenario. The market, dominated by demand, internationalization and globalization, innovation and temporality, crisis and changes, has posed a new framework for the activities of organizations, requiring new management forms and structures, and new ways and processes to make decisions that potentiate the permanent learning and the continuous adaptation of the organization to its environment (BLANCO; AIBAR; CANTORNA, 1999).

In view of such situation, it is necessary to develop information and management control systems that reflect the evolution of the key success factors of non-financial and/or non-qualitative nature, not limiting the information to past performance, but providing information related to future actions, or even considering emerging strategies. Therefore, in the past decades, new models and tools of management control combining financial and non-financial performance measures have been developed, with the aim of improving the connection between strategy and performance measurement, such as the *Balanced Scorecard* (BSC) (BEDFORD et al., 2008; BHAGWAT; SHARMA, 2007; BIGLIARDI; BOTTANI, 2010; CHIA; GOH; HUM, 2009; HOQUE; JAMES, 2000; ITTNER; LARCKER; MEYER, 2003; JORDAN; NEVES; RODRIGUES, 2011; MALMI, 2001; RUSSO, 2009; TAPINOS; DYSON; MEADOWS, 2011).

Insofar as the BSC has become well-known and accepted, both by academic experts and managers, they started to consider the possibility of applying the concept to organizational structures (NIVEN, 2003). Thus, the BSC field of application was expanded in the past decade, being applied in large, small and medium enterprises (SMES), health institutions, Public Administration, and education.

Although studies about the BSC have been developed throughout the world, there are still lots of potential to develop the subject, since with the increasing use and acceptance of the model, critiques and proposals for new developments have also increased. Therefore, despite the theoretical and practical consolidation of the BSC, and different from other countries, there is not broadly divulged works in Portugal about the critical determinant factors of the BSC implementation, nor about the relation between determined variables, both internal and external, which might benefit or hinder the BSC implementation process. This observation led us to propose the following study question: What are the factors influencing the adoption of the BSC in Portuguese public and private organizations?

Accordingly, this article has the main aim of determining, from a contingent and institutional perspective, what are the factors underlying the adoption of the BSC in Portuguese public and private organizations. We actually proposed to analyze the determinants that explain the implementation of such tool, and the variables of the environment and of the institutional context that affect the BSC, and our final objective is to propose an integrating model to empirically answer the formulated investigated question.

To conduct our empirical investigation, we have used the paradigm of the positivist investigation. Associated to the positivist paradigm, we preferably used quantitative methods to collect and analyze data. Hence, as the basic way to collect data, we have decided to conduct a postal survey by sending questionnaires to a sample of public organizations (591 organizations: local governments, municipal and intermunicipal enterprises, and hospitals) and private (549

organizations: large enterprises, and small and medium enterprises) operating in Portugal.

## 2 LITERATURE REVIEW

### 2.1 Theoretical framework of the bsc

The BSC model was developed by Robert Kaplan and David Norton as the result of a study conducted in the early 90's in twelve American companies with the aim of increasing the effectiveness level of their performance evaluation models through a new model based on financial and non-financial indicators (KAPLAN; NORTON, 1992). Thus, their belief that the existing methods to evaluate the company's performance were obsolete and could lead companies to make wrong decisions, harming their capacity to create future economic value, led the authors to highlight the need of analyzing the company's capacity to generate value from intangible assets, not considered by traditional systems, and to reduce the focus on short term objectives. With such purpose, they have introduced the BSC as a new performance measurement system that, based on multiple integrated and correlated dimensions, was capable of providing the management with a balanced and global view of the organization, and of its strategic areas: financial, customers, internal processes and learning, and growth.

In 1993, Kaplan and Norton published an article in which they show the experiences lived through the adoption of the BSC by different types of companies (actually, *Rockwater*, *Apple Computer*, *Advanced Micro Devices* and *FMC Corporation*), and recommended managers to select a limited number of critical indicators for each perspective. Furthermore, they highlight that the BSC was not a worksheet that can be universally applied to all companies, but that should be adjusted to the needs and features of different markets, organizations, strategies and environments (KAPLAN; NORTON, 1993). Three years later, the initially proposed model was enhanced by some American and Canadian

companies pioneers in the use of the BSC (such as, for instance, *Analog Device*, *Bell South*, *Apple*, *EDS*, *General Electric*, *HP* and *Shell Canada*), as well as by the academic community, highlighting new potentialities for the organizational strategy management (KAPLAN; NORTON, 1996).

In the following years, Kaplan and Norton have followed up the organizations that have adopted the BSC, verifying that they were getting innovative results in relatively short periods, thanks to the alignment of all organizational resources and their connection to the strategy. Besides, such authors have evidenced that management teams were describing their strategies through explicit cause-effect relations reflected in strategic maps (KAPLAN; NORTON, 2000, 2004).

## **2.2 Theory of contingencies and institutional theory**

Different authors have observed the public and private organizations concern in responding to changes produced in their environment, by introducing new instruments and techniques of Management Accountability, such as the BSC. Such introduction was mainly influenced by contextual and institutional factors. This has contributed to the fact that many authors have adopted a contingent focus and/or institutional focus as theoretical reference benchmark to address the BSC study (HOQUE; JAMES, 2000; KASPERSKAYA, 2008; RAUTIAINEN, 2009). Considering this background, we have the opinion that both theories (institutional and of contingencies) provide the appropriate benchmark to fundament our own empirical study. Our choice is justified by the fact that the Institutional and Contingencies Theories are the main theoretical approaches that sustain the studies trying to explain the determinants of use of different Management Accountability practices in the organizations (GEIGER; ITTNER, 1996).

In regard to this, Scott (1987) has observed that the explanations of both theories, when separately applied, offer an incomplete understanding of the different roles performed by different Management Accountability practices

used in contemporary organizations. Therefore, such author suggests that both theories could be jointly used to better understand the instrumental and symbolic role performed by such practices. In this same line, Araújo (1999) and C. Aibar Guzmán (2001) state that, although deriving from different epistemological assumptions, both theories could be used in a supplementary manner, because both intend to understand and analyze the causes explaining the features of the Management Accountability systems.

Based on the aforementioned, on one side, we consider that the contingent approach provides the adequate framework to explain the contextual factors, internal and external, that influence the adoption and implementation of the BSC. On the other hand, the postulates of the Institutional Theory help us to identify the impact of institutional pressures on the adoption of the BSC in Portuguese public and private organizations. In brief, the Institutional Theory provides elements to understand why the BSC has or has not been adopted by an organization, while the Contingencies Theory shows the technical reasons through which the BSC is kept or not analyzing the degree of competitive efficiency provided by it (ARAÚJO, 1999).

## **2.3 Review of empirical studies**

In the past decades, the BSC has become a relevant investigation topic, and consequently various empirical studies have been conducted, in which the different aspects of the BSC were analyzed, such as how the implementation process of this management tool has occurred, its features, determinant factors of its implementation and utilization, the reasons for adopting and/or abandoning it, the difficulties and advantages resulting from its implementation, among others. We present a review of empirical studies developed by different authors about the experiences of BSC implementation in different countries<sup>1</sup> as follows.

In regard to private organizations, Speckbacher, Bischof and Pfeiffer (2003) have conducted a study to obtain empirical evidence about the use of the BSC in German language

countries, observing the empirical evidence of the relation between the organization size and the use of the BSC. Russo and Martins (2005) have observed that limited liability companies use the BSC less, and that companies which capital is mostly controlled by big companies and that export to certain markets use the BSC more. On the other hand, Bedford et al. (2008) have conducted a study in Australian companies, observing that the BSC offers more benefits when connected to the incentives and rewards system, is applied in various levels within the organization, and the cause-effect logic is used amongst the measures. Braam and Nijssen (2011) have obtained empirical evidence of the association between the BSC implementation and the existence of dynamic and turbulent environments, that bigger companies are more prone to adopt the BSC, and that its receptivity is positively influenced by the prior adoption of similar instruments. In turn, Hendricks et al. (2012) have observed that there is an association between the perceived environment uncertainty and the BSC implementation, and Machado (2013) has observed, in a study conducted with the aim of examining the BSC rates of utilization and divulgation in Portuguese industrial SMES, that the degree of knowledge and utilization of the BSC is reduced, and that the knowledge of this method is associated to the individual characteristics of the staff responsible for the management accountability (educational level and age), and the organization size.

In regard to public non-profit organizations, Chan (2004) has observed that big local governments have adopted more the BSC than the government of smaller municipalities. On the other hand, within the scope of the study conducted in Finnish local governments, Rautiainen (2009) has observed that the decision to adopt the CMI was influenced by mimetic, rational and normative aspects. In turn, Greiling (2010), in a study conducted in non-profit German organizations, has concluded that most of the analyzed organizations is at the initial phase of the BSC implementation process, and such tool is not yet enough adapted to the different

requirements of such organizations. In regard to hospitals, Chan and Ho (2000) and Yap et al. (2005) have observed the small rate of the BSC implementation in hospitals, and a higher propensity to use it in larger hospitals and in hospitals affiliated to teaching institutions. On the other hand, Kollberg and Elg (2011), and Bisbe and Barrubés (2012) have observed that the BSC has the potential to contribute to a better implementation of the strategy from the measurement and monitoring of results in sanitary organizations, thus improving the internal capabilities, and supporting the organization development, but its effective adoption requires the adaptation of the generic instrument to the specific realities of the industry.

### 3 METHODOLOGY OF THE STUDY

#### 3.1 Investigation hypotheses

We understand that the type of ownership (public or private) influences the cultural, structural and management characteristics of an organization, as well as the response it adopts before the same stimulation. Accordingly, Kaplan and Norton (2001), Kidwell et al. (2002), Wenisch (2004), Lapsley and Wright (2004), and Rautiainen (2009) have proved that the degree of BSC knowledge in public organizations was smaller than that of private organizations, and therefore the first made a smaller use of the BSC. This line of thought leads us to defend the existence of a positive association between the type of ownership (public or private) and the degree of BSC utilization.

*H1: The BSC implementation is smaller in public organizations than in private organizations.*

Russo (2009) points out that the communication and coordination problems resulting from the organization growth oblige the division of tasks and the creation of intermediary hierarchical levels between the high management

and the operational management, justifying the adoption of formal management and strategic orientation systems, with normalized procedures, capable of helping the organization to have a higher coherence, effectiveness and sustainability of competitive advantages. Accordingly, Elmore (1990), Gosselin (1997), and Luft and Shields (2003) consider that the organizations with a higher degree of formalization and vertical differentiation tend to adopt more innovative management tools. Therefore, we expect that the BSC use is bigger in organizations with a higher degree of vertical differentiation.

*H2: Portuguese organizations that use the BSC have a high vertical differentiation.*

Lavarda, Barrachina and Feliu (2008) point out that centralized organizations should use a "strict" control system, while decentralized organizations should use a more "flexible" system. Therefore, the more decentralized the organization is, the more frequently formal performance management systems will be used (SPECKBACHER; WENTGES, 2012). These arguments lead us to define the hypothesis that the BSC is positively associated to the degree of decentralization/autonomy of the decision-making process.

*H3: Portuguese organizations using the BSC have a high degree of decentralization.*

Adler and Borys (1996) define the formalization as the degree to which rules governing an organization behavior are explicitly formulated, and the degree to which organizational relations are prescribed, regardless of the personal attributes of the individuals having positions in the organization structure. According to Boronat Ombuena and Simó Belenguer (2005) those organizations which organization structure is too formalized use very bureaucratic and little flexible control systems. On the other hand, in organizations which structures are little formalized, *ad hoc* control systems are usually utilized, which design is adapted to the cultural

rules of the organization with a great flexibility. In regard to this, we think it would be interesting to investigate to which extent the BSC use is associated to the degree of formalization of the organizations.

*H4: The BSC use in Portuguese organizations is associated to the degree of formalization of the organization.*

According to Kaplan and Norton (2004), the business culture, when reflecting the predominant attitudes and behaviors that characterize the functioning of a group or organization, can be an obstacle or a potentiating factor for the introduction of new Management Accountability techniques. Accordingly, Markus and Pfeffer (1983), and Letza (1996) consider that the implementation of a Management Accountability system is easier when such system is consistent with the dominant organizational culture. In regard to this, Blanco, Aibar and Cantorna (1999) consider that the study and knowledge of the business culture and its components is not only a prior step to understand the determinants of the operational performance, but also for the development of an information system that reflects the productive scenario and the environment in which the company operates.

In this line, Kaplan and Norton (2001), Bourne et al. (2002), and Wenisch (2004) have the opinion that the business culture favoring a participatory and consultative management style helps to be successful in implementing new management systems in the organizations. As a matter of fact, the organizations with a business culture that focus on innovation and continually advocates for the introduction of improvements, especially in procedures and in systems, are more prone to adopt contemporary techniques of Management Accountability (GOMES, 2007). In view of the aforementioned, we have defined the following hypothesis:

*H5: The implementation of the BSC in Portuguese organizations is positively associated to an open organizational culture.*

According to Epstein and Manzoni (1997), and Kaplan (2002), the leadership of the high management is a key factor for the correct implementation of the BSC. To such authors, to attain the true understanding and acceptance of the BSC, the upper management has to perform a constant communication process, and to perform a strong leadership. The impulse for the BSC tends to be from up to down, especially when the organization takes a new strategic direction or tries to improve the current strategic management focus. Furthermore, since the main change agents in the BSC application are the upper management, the line officers and the team leaders, they are those responsible for constructing the BSC (including the elaboration of the strategy map), explaining the differences and enhancing new initiatives (RHODES; WALSH; LOK, 2008). Therefore, we have proposed the following hypothesis:

*H6: The BSC implementation in Portuguese organizations is positively associated to a consultative and active leadership.*

According to Granlund (2001), the staff professionalization favors the modernization of Management Accountability practices and systems. New knowledge acquired by managers in qualification courses changes their beliefs and prior rules, and promote the adoption of new instruments and procedures. In this same line, to Wenisch (2004), the presence of a BSC promoter and the conduction of qualification courses in operational levels can increase the acceptance and probability of success of the BSC. In this regard, various authors point out that one of the main barriers for a successful implementation of the BSC is precisely the lack of employees with proper qualifications, who resist to the adoption of the BSC because they are unaware of its advantages.

Accordingly, to Torres and Femenias (2007), it is important to analyze to which extent the refusal to adopt the BSC by some organizations might be due to the lack of their members qualification in management topics. Therefore, insufficient qualification and

information in regard to the BSC functioning and implementation are factors that might hinder its implementation in the organizations.

In this line, according to Pineno (2004), there is a positive association between the qualification of managers and their familiarization with the BSC and the implementation of such management instrument. Therefore, the higher is the workers' qualification in regard to management, the more new techniques of Management Accountability will be used (CHAN, 2004; GOMES, 2007; O'CONNOR; CHOW; WU, 2004; SHIELDS, 1998). In line with the previous arguments, we propose the following hypothesis:

*H7: The BSC implementation in Portuguese organizations depends on the superior qualification of their members.*

### **3.2 Investigation methodology and sample selection**

As the basic way to collect data, we have decided to conduct a postal survey by sending questionnaires to a sample of public and private organizations operating in Portugal. In particular, the study object population was formed of big companies, SMES, local governments, municipal companies (MC), intermunicipal companies (IMC), and public hospitals belonging to the National Health System (NHS).

In the case of big companies, we have used the database of the 500 biggest and better Portuguese companies classified according to their sales volume, published in the special edition of the "Exame" Magazine regarding the year 2007 (EXAME MELHORES E MAIORES, 2008). In regard to the SMES, we have decided to only select those belonging to the manufacturing industry that were classified as excellent in recent years in which such classification was done (2000 and 2001). In regard to local governments and MC and IMC, we have decided to select all Portuguese local governments, and MC/IMC. At last, we have selected all the hospitals belonging to the NHS classified until the end of March 2009

as Entrepreneurial Public Entities (EPE), and Administrative Public Sector (APS).

Considering the aforementioned, the population object of the study is composed of 1,140 organizations: the 388 biggest Portuguese companies, 161 manufacturing industry excellence SMES, 308 local governments, 222 MC/IMC, and 61 hospital institutions (39 EPE hospitals, and 22 APS hospitals).

Since the organizations of the target population are very different, we have elaborated three questionnaire models: a questionnaire intended to big companies and SMES; another questionnaire intended to local governments and MC/IMC, and a third questionnaire to hospitals. Questionnaires were tested in March 2009 by elements belonging to the population to be investigated, as well as by scholars knowing the study topic with broad experience in the design and execution of questionnaire investigations. The information collection phase took place in April 2009 and March 2010, and the collected data were statistically treated through the SPSS (*Statistical Package for the Social Sciences* – version 17) program.

Of the 1,140 questionnaire mailed, we had 357 answers, corresponding to 31.3% of the total population. Those questionnaires are distributed amongst the investigated organizations as follows: 107 big companies (answer rate of 27.6%), 48 SMES (answer rate of 29.8%), 100 local governments (answer rate of 32.5%), 87 MC/IMC (answer rate of 39.2%), and 15 hospitals (answer rate of 24.6%).

### 3.3 Questionnaire elaboration and structure

Questionnaires were prepared based on different empirical studies, and in general they have a very similar structure to the one used in the studies of B. Aibar Guzmán (1997), Chan and Ho (2000), Sousa (2001), Hoque, Mía and Alam (2001), Ho and Chan (2002), Speckbacher, Bischof and Pfeiffer (2003), Chan (2004), Quesado (2005) and Gomes (2007). It is noteworthy that for the elaboration of some questions, we have only based on the existing literature on the topic.

Questions were grouped in blocks, in function of the topic or subject they referred to. Questions were mainly qualitative, although some quantitative aspects were also included to a smaller degree. Therefore, questionnaires were essentially composed of closed questions, mostly of multiple and dichotomic choice, with the application of scales of the nominal and ordinal types to allow codifying the answers (such as the *Likert* type scales). We have also tried to collect the interviewees' opinions on the study object topic, and some open questions were also included, to a smaller degree, to identify the interviewees' perception of the BSC. Once the changes suggested during the validation and pretesting of the questionnaire were done, we have structured the questionnaires into three parts, each of them with a different objective.

The first part is different in the three questionnaires, since it includes questions regarding the specific characteristics of the public or private organizations to be analyzed. Therefore, in the questionnaire mailed to big companies and to SMES, the first part intended to identify some general characteristics of the companies, such as the field of activity, the region where they operate, its dimension, age/date of creation, legal characterization, and control, if they have any certification, if they sell shares in the stock exchange market, the capital structure, etc.. In the questionnaire mailed to the local governments and MC/IMC, this part intended to determine the type of institution, its geographical location, the volume of revenue and expenses (in case of local governments, the number of inhabitants (in case of local governments), and of users (in case of MC/IMC), the number of workers, the volume of businesses (in case of MC/IMC), and if they had any type of certification. Furthermore, the MC/IMC would also have to inform the age/date of creation, the functional area and capital type. In the questionnaire mailed to hospitals, the questions in this part were focused on the legal nature (EPE or APS); geographical location; health region to which it belongs; number of inhabitants or users; number of beds; total assets, own capital and liabilities; number of employees; whether



the institution is related or not to any teaching and investigation organization, and whether it is certified and accredited or not. At last, in the first part of the questionnaire, questions regarding the interviewees' characteristics were also included (position in the organization, age and educational background, years of working in the organization and performing the professional activity).

The second part of the questionnaire intended to get information on the characteristics of the organization market and environment. In all questionnaires, the intention was to collect information on the organization structure (hierarchical levels, degree of decision-making concentration, existence of a formal rules system and of informal relations, utilization of standard operational procedures, and degree of formalization/bureaucratization of tasks, and the criteria of performance evaluation); the degree of the environment uncertainty perceived; if the organization has a defined organizational strategy, and if it follows a strategic planning process, as well as if its mission, vision and strategic objectives are clearly defined. This part also includes questions regarding leadership and support to the upper management, qualification and formation of employees, Information Technologies (IT), the use of indicators and measurements, the incentives and rewards system, the internal communication, and the budgetary process. In the case of the questionnaire mailed to big companies and SMES, in addition to those information, there were also questions about the number and variety of products and services offered; if the company's owner is its main manager; the degree and intensity of the competition, as well as the type of strategy adopted and the stage of the organization's life cycle.

The third part of the questionnaire was intended to obtain information on the BSC in the Portuguese public and private organizations. Considering the broadness of the topic, we have divided this part in seven basic groups. The first group refers to the degree of knowledge about the BSC. To the organizations stating not to know the BSC, the questionnaire ended here. The other questions should only be answered

by those organizations that did know the BSC. The second group of questions was related to the use of the BSC (current state of utilization and date of development/use). Those organizations that stated to not apply the BSC, or that have abandoned its implementation, would only have to tell the reasons for such a decision. To them, the questionnaire ended here. The other questions should only be answered by those organizations that use the BSC, and by those planning to use it in the future. The third group of questions was related to the BSC implementation process: reasons and objectives inherent to the implementation; the degree of influence of stakeholders in its implementation; the organizational level where the implementation has begun; among others. The fourth group of questions was related to the contents of the BSC, the actual elements included in the BSC; the establishment of cause-effect relations, their statistical validation and their reflex on strategic maps. We have dedicated the fifth group to general questions regarding the scope of the BSC application. In this part, we have asked about the budget control process, the connection of the CMS to an incentive and reward system, the manner and frequency of communication and review of the BSC results. The sixth group of questions was related to the use of other management methodologies or tools, and their degree of integration with the BSC. Finally, the last group of questions focused on the effects deriving from the use of the BSC to the organization (main changes; degree of satisfaction with the results attained in the BSC; problems and obstacles faced; benefits obtained with the BSC implementation, among others).

## **4 PRESENTATION AND ANALYSIS OF THE RESULTS**

### **4.1 Use of the BSC**

With the aim of knowing to which extent the use of the BSC is generalized or not in Portuguese public and private organizations, we have asked the interviewees about the degree of its

use. To this regard and in general, the application of the BSC is smaller in the organizations belonging to the public sector in comparison to those of the private sector. However, this result is exclusively because of the big companies. Actually, as observed in tables 1 and 2, the highest percentage of organizations that said they use the BSC belong to the group of big companies (38.6%).

The obtained results reveal that the degree of the BSC implementation in Portuguese SMES, local governments, MC/IMC, and hospitals is very small. However, when comparing our results to those obtained in other prior studies conducted in Portugal (QUESADO; RODRIGUES, 2009;

RUSSO; MARTINS, 2005; SANTOS, 2006; SOUSA, 2001; SILVA, 2003), we observe that there has been an increase in the use of the BSC in recent years. Furthermore, an important number of organizations have the intention to implement the BSC in the future, and some organizations have even said they are taking the first steps of its implementation process.

Accordingly, we believe that the use of the BSC in Portuguese organizations will increase in the future, taking into consideration the requirements of higher responsibility and awareness of the need to increase the number of non-financial measures in the performance measurement systems.

**TABLE 1 – Use of the BSC in private organizations**

Use	Big	%	SMES	%
Does not use and does not intend to use it	44	50	20	74.1
Currently uses it	34	38.6	1	3.7
Has used the BSC, but has abandoned it	2	2.3	1	3.7
Expect to implement it in the future	8	9.1	5	18.5
<b>Total</b>	<b>88</b>	<b>100</b>	<b>27</b>	<b>100</b>

Source: The authors.

**TABLE 2 – Use of the BSC in public organizations**

Use	Local Governments	%	MC/IMC	%	Hospitals	%
Does not use and does not intend to use it	47	74.6	33	71.7	6	46.2
Currently uses it	3	4.8	2	4.3	1	7.7
Expect to implement it in the future	13	20.6	11	23.9	6	46.2
<b>Total</b>	<b>63</b>	<b>100</b>	<b>46</b>	<b>100</b>	<b>13</b>	<b>100</b>

Source: The authors.

In the case of big companies, the interviewees have pointed out as the main reason for not implementing or abandoning the BSC implementation the fact of the company having other similar tools with which it is satisfied

(51.1%), followed by the fact that the BSC does not fit the culture and mission of the company (26.7%), and the reduced knowledge about it (24.4%). Furthermore, nine companies have pointed out the lack of understanding of the

benefits resulting from its implementation, and too much necessary time consumed (conclusion similar to that obtained by Chan and Ho (2000), Chow-Chua and Goh (2002), Pimentel and Major (2009)). In the case of the SMES, the main reasons pointed out by the interviewees also relate to the fact that the BSC is not fit to the company's culture and mission, and to the reduced knowledge about the BSC (both reasons with 47.6%), followed by the lack of understanding about the benefits resulting from the BSC implementation (41.9%). Likewise, six SMES have also pointed out the difficulty to breakdown the objectives to the lowest levels of the organization.

As for public organizations, the reason of the reduced knowledge about the BCS (75.6% in local governments, 43.8% in MC/IMC, and 66.7% in hospitals) clearly stands out. In case of local governments, an important percentage of interviewees has also pointed out the lack of understanding about the benefits resulting from the BSC implementation (40%), and the lack of commitment, availability and support on the part of the upper management (26.7%). In regard to the MC/IMC, other reasons pointed out by the interviewees are the fact that the BSC is not fit to the culture and mission of the company (28.1%), followed by too high implementation and/or maintenance costs, and the excessive necessary time consumption (both representing 25% of the answers).

In regard to the state of the BSC implementation<sup>2</sup>, we have verified that only four organizations (two private and two public) are in the phase of investigation and design; nearly all the public organizations are in the phase of their scorecards development, and most of the private organizations (55.6%) has finished the BSC implementation process. In regard to the date when the BSC implementation started, the oldest implementation started in 2000, and corresponds to a manufacturer of components to the automobile industry. In case of public

organizations, the oldest implementation started in 2006 (a local government in the Northern region).

In regard to the reasons that led the sample organizations to implement the BSC, the interviewees have pointed out as main reason the increase of efficiency and the control of costs, followed by the need of aligning the organization to the parent company's global strategy (in case of private organizations), and the need to supplement other management initiatives that were already in use (in the case of public organizations). Different from the observed by Malmi (2001), the interviewees have given little importance to the influence of "management fashions" (pursuit and execution of innovative and pioneer management practices). Our results also do not coincide with those of the studies by Griffiths (2003), Kasperskaya (2008), and Farneti and Guthrie (2008), who observed that at the base of the BSC implementation in public organizations there was the accomplishment of legal requirements in regard to the submission and divulgation of reports on strategic control, probably because these do not exist in Portugal.

On the other hand, we could observe that the use of the BSC in some organizations did not necessarily happen as an answer to a management need, but rather because of the interest of mimicking better worldwide practices, since some of the interviewees have said that it was used to "keep the organization in the forefront". Thus, insofar as some organizations manifested that their wish to mimic certain practices regarded as superior to those applied by the organization with the aim of progressing to obtain excellence was the reason for the decision to implement the BSC in the organization, we can observe the influence of the mimetic institutional isomorphism mechanism highlighted by DiMaggio and Powell (1983).

## 4.2 Bivariate analysis

To prove the hypotheses regarding the association of a set of variables with the use of the BSC, we have conducted a bivariate analysis.

*H1: The BSC implementation is smaller in public organizations than in private organizations.*

As for the first hypothesis, regarding the existing relation between the BSC implementation and the type of organization, the results obtained from the Chi-square independency test are gathered in table 3. The results imply that there is a statistically significant relation between variable (p-value = 0.049), although the association between variable is not very strong (V of Cramer= 0.128), thus confirming the defined hypothesis. Therefore, it is possible to prove a higher utilization of the BSC in private organizations.

Our results are aligned with the ideas proposed by Kaplan and Nortonf (2001), Kidwell et al. (2002), Silva (2003), Wenisch (2004), Lapsley and Wright (2004), and Rautiainen (2009). Effectively, although the BSC implementation in public non-profit organizations has increased in recent years, we cannot forget that the BSC was initially developed for manufacturing organizations of the private sector.

**TABLE 3** - BSC implementation vs. type of organization

Use		Type of organization	
		Public	Private
Uses it or intends to use it	Cases	36	48
	% type	29.5	41.7
Does not use it	Cases	86	67
	% type	70.5	58.3

(p-value= 0.049;  $\chi^2= 3.870$ ; V of Cramer= 0.128)

Source: The authors.

*H2: Portuguese organizations that use the BSC have a high vertical differentiation.*

In order to measure the degree of vertical differentiation we have asked the interviewees how they characterize their organization in terms of number of hierarchical levels. In order to get an empirical evidence about the existence of a relation between the degree of vertical differentiation and the nature of the organization, we have applied the Chi-square independency test, which level of significance (p-value = 0.028) allows to validate such relation in global terms, i.e., the organizations that use the BSC less are those with few hierarchical levels. In fact, such organizations are simpler, and the communication and flow of information between different hierarchical levels are more fluid, and that is why the use of tools such as the BSC is not justified.

**TABLE 4** – BSC implementation vs. vertical differentiation

Use		Hierarchical levels		
		Very few or few	Some	Many or a lot
Uses it or intends to use it	Cases	17	48	18
	% levels	23.9	37.5	48.6
Does not use it	Cases	54	80	19
	% levels	76.1	62.5	51.4

(p-value= 0.028;  $\chi^2= 7.177$ ; V of Cramer= 0.174)

Source: The authors.

*H3: Portuguese organizations using the BSC have a high degree of decentralization.*

In order to analyze the existing relation between the BSC implementation and the degree

of decision-making decentralization, we have grouped the answers into four categories: (1) very centralized; (2) centralized; (3) medium; and (4) decentralized or very decentralized. The result of

the Chi-square independency test is significant ( $p$ -value = 0.007), i.e., the more decentralized organizations are those that use the BSC the most (66.7%).

**TABLE 5** – BSC implementation vs. decentralization

Use	Concentration of the decision-making process				
	Very centralized	Centralized	Medium	Decentralized	
Uses it or intends to use it	Cases	11	35	24	12
	% concentration	27.5	29.2	42.1	66.7
Does not use it	Cases	29	85	33	6
	% concentration	72.5	70.8	57.9	33.3

( $p$ -value= 0.007;  $\chi^2$ = 11.999;  $V$  of Cramer= 0.226)

Source: The authors.

*H4: The BSC use in Portuguese organizations is associated to the degree of formalization of the organization.*

In regard to the relation between the BSC implementation and the degree of the organization formalization, we have used the factorial analysis of main components (FAMC) in order to create a new variable “formalization”.

We have observed that the measurement of adequacy of the factorial analysis to the variables under study is medium (KMO of 0.767). In turn, the *Bartlett* sphericity test presented a significant statistics ( $p$ -value<0.05), indicating the rejection of the hypothesis that the correlation matrix is the identity matrix, i.e., there is a significant correlation between variable, which allows us to proceed with the factorial analysis.

The variables considered were as follows: The division of work based on specialization and functionalization; the existence of a formal rules system; the use of standard operational procedures in managing the work; and the formalization in describing the specifications of the work tasks, and the criteria of evaluation of the organization performance.

We have observed that, in general, values are not so high, the reason why the variables do not have a very strong relation with the retained factor. It is noteworthy that the variable

“division of the work based on specialization and functionalization” is the one that presents a lower common variation (0.409), with other variables presenting very close variations (0.690; 0.674 and 0.687, respectively).

In regard to the total explained variation, according to the *Kaiser* criterion, we only retained one factor. The retained component only explains about 61.5% of the variation of the original variables, i.e., 61.5% is represented in the variable “formalization”. As for the components matrix (loadings), we have observed that all variables correlate positively.

Considering the aforementioned, we have verified that the FAMC provides a good measurement of the organizations formalization degree, creating a new variable (“formalization”) constituted of the scores of such components. On the other hand, the internal coherence expressed through the Cronbach’s alpha of the factor is high (0.791).

In order to prove the proposed investigation hypothesis, we have used the *t* test, which presented a significant value ( $p$ -value=0.007), which allows us to confirm the defined hypothesis, i.e., there is an association between the degree of the organization formalization and the BSC implementation, observing that those organizations with the higher degree of formalization use the BSC the most.

**TABLE 6** – Organization formalization vs. BSC implementation

Use	Formalization				
	N	Average	Typical deviation	T test	Sig.
Uses it or intends to use it	47	3.51	0.715	0.686	0.494
Does not use it	67	3.41	0.801		

Source: The authors.

*H5: The implementation of the BSC is positively associated to an open organizational culture.*

In order to evidence the existing relation between the BSC implementation and the organizational culture, we have used the FAMC to create a new variable capable of characterizing the type of culture of the organization (open or closed). We have observed that the measurement of adequacy of the factorial analysis to the variables under study is very good (KMO of 0.908). In turn, the *Bartlett* sphericity test presented a significant statistics ( $p\text{-value} < 0.05$ ), indicating that there is a significant correlation between variables, which allow us to proceed with the factorial analysis. The items considered were the statements: “the employees have doubts in expressing their disagreement with their superiors”; “most of the operational decisions are made at the upper management level”; “the organization is characterized for being conservative and adverse to risk; the organization prioritizes the team work”; “in the organization there is a clear communication, assistance and support to the workers”; “the organization promotes the discussion of strategic issues and the creativity of its members”; “in the organization there is an exchange of information, with the promotion of the functional cooperation”; “the suggestions of employees are valued”; and “there is a favorable organizational environment to the organization and the staff growth”.

We have observed that the variables that have a stronger relation with the retained factor are “the organization promotes the discussion of the strategic issues and the creativity of its members” (0.710); “in the organization there is an exchange of information, with the promotion

of the functional cooperation” (0.707); and “in the organization there is a clear communication, assistance and support to the workers” (0.705). It is noteworthy that the variable “the employees have doubts in expressing their disagreement with their superiors” is the one with a lower common variation (0.460).

In regard to the total explained variation, according to the *Kaiser* criterion, we only retained two factors. The first component explains 46% of the sample variability. The second component, smaller in explanation (about 20%), was also considered in the study as a source of variation to take into consideration. As for the correlation between each variable and the component, we have observed that all variable correlate positively.

Considering the aforementioned, we have verified that the FAMC provides a good measurement of the organizations competence, creating new variables (“open culture” and “closed culture”) constituted of the *scores* of such components. The internal coherence expressed through the Cronbach’s alpha of the factor is very high in the component 1 (0.910) and lower in the component 2 (0.610).

In order to prove the proposed investigation hypothesis, we used the t test, which presented a significant value ( $p\text{-value} = 0.030$ ), which allow us to confirm the defined hypothesis. That is, there is an association between an open organization culture and the BSC implementation. In other words, the companies characterized by an open culture are those using the BSC the most. Accordingly, this result corroborates the conclusions obtained by *Wenisch* (2004) and *Gomes* (2007).

It is noteworthy that a culture centered on operational aspects, in which the discussion of strategic issues is left aside, is not adequate

to the BSC philosophy. In fact, an open culture supposes the promotion of strategic discussions, the exchange of information, and the

collaboration, reducing the resistance to changes, and thus facilitating the implementation of new management systems, such as the BSC.

**TABLE 7 – Organization culture vs. BSC implementation**

Culture	Use	Statistics				
		N	Average	Typical deviation	T test	Sig.
Open	Uses it or intends to use it	82	3.75	0.673	2.177	0.030
	Does not use it	149	3.53	0.740		
Closed	Uses it or intends to use it	80	2.82	0.725	-1.148	0.252
	Does not use it	150	2.93	0.718		

Source: The authors.

*H6: The BSC implementation in Portuguese organizations is positively associated to a consultative and active leadership.*

In regard to the association between the BSC implementation and the type of leadership performed in the organization, through the FAMC it was possible to create two new variables: “consultative leadership” and “authoritarian leadership”. We have observed that the measurement of adequacy of the factorial analysis to the variables under study is very good (KMO of 0.930). In turn, the *Bartlett* sphericity test presented a significant statistics ( $p\text{-value}<0.05$ ), indicating that there is a significant correlation between variables, which allow us to proceed with the factorial analysis.

The items considered were the statements: “in the organization there is a democratic and flexible style of leadership”; “in the organization there is a style of leadership opened to changes”; “the leader acts as the facilitator of the process of adopting Management Accountability and Control techniques”; “the leader accepts constructive critiques and suggestions for improvement”; “the leader carries out a process of constant communication”; “the leader delegates competences and responsibilities, encouraging the initiative of people”; “the leader motivates and mobilizes his/her subordinates towards the global objectives of the organization”; “the leader decides what, who, how and when to do things”;

“the decision-making process is centralized in the upper management, although with some delegation of authority in routine tasks”; “the leader consults his/her subordinates before defining objectives and making decisions”; “the leader presents the problem to the group and tries to get the consensus”; and “there is a total involvement of the employees in defining the objectives and in the preparation of decisions”.

In general, we have observed that the values vary, and thus some variables have no strong relation with the retained factor, while others have a strong relation with such factor. It is noteworthy that the variable “in the organization there is a democratic and flexible style of leadership” is the one presenting the lowest common variation (0.459). On the other hand, the highest registered values were for the variables “the leader carries out a process of constant communication” (0.724), “the leader delegates competences and responsibilities, encouraging the initiative of people” (0.718), “in the organization there is a style of leadership opened to changes” (0.719), and “the leader motivates and mobilizes his/her subordinates towards the global objectives of the organization” (0.717), reflecting a better relation between such variables and the retained factor.

In regard to the total explained variation, according to the *Kaiser* criterion, we only retained two factors. The retained components explain approximately 52% and 11% of the variation of the original variables, respectively.

As for the correlation between each variable and the component, we have observed that all variables correlate positively. Considering the aforementioned, we have proved that the FAMC provides a good measurement of the type of leadership performed in the organization, creating two new variables (“consultative leadership” and “authoritarian leadership”) constituted of the scores of such components. The internal coherence expressed through the *Cronbach’s alpha* of the factor is very high in the component 1 (0.929) and lower in the component 2 (0.508).

In order to prove the proposed investigation hypothesis, we have used the t test, which presented a significant value (p-value = 0.004) in regard to the style of consultative leadership,

which allow us to confirm the defined hypothesis, i.e., that there is an association between the type of leadership performed in the organization and the implementation of the BSC. In other words, the organizations that adopt a more consultative leadership style are more prone to use the BSC.

In the case of the authoritarian leadership style, we have not obtained differences in statistical terms (p-value = 0.190). With this regard, it is noteworthy that the studies of Ukko, Tenhunen and Rantanen (2007), and of Rhodes, Walsh and Lok (2008), highlight the fact that an authoritarian management style might also facilitate the implementation of tools such as the BSC, since there is a set of rules that should be followed, leaving little room to act independently.

**TABLE 8** – Leadership style vs. BSC implementation

Leadership style	Use	Statistics				
		N	Average	Typical deviation	T test	Sig.
Consultative	Uses it or intends to use it	82	3.75	0.566	2.899	0.004
	Does not use it	150	3.50	0.657		
Authoritarian	Uses it or intends to use it	83	3.32	0.739	-1.314	0.190
	Does not use it	151	3.54	0.725		

Source: The authors.

*H7: The BSC implementation in Portuguese organizations depends on the superior qualification of their members.*

To prove the hypothesis regarding the association between the degree of qualification and the implementation of the BSC, we have used the t test. The obtained results allow us to conclude that the organizations that use or intend to use the BSC have a higher percentage of employees with superior education qualifications (p-value = 0.023), while those that do not use the BSC have a higher percentage of employees with basic education qualifications (p-value = 0.003).

In the case of employees with secondary level qualifications, the test has not presented significant statistics (they work in our analysis as neutral). As highlighted by Shields (1998) and O’Connor, Chow and Wu (2004), the level of qualification has an important role in the expansion of modern Management Accountability techniques. Therefore, in this case, our results might be considered as indication of the influence of the so-called normative isomorphism, and we can observe the influence of the normative pressures due to the fact that the organizations having more employees with superior education qualifications are those using the BSC the most.



**TABLE 9** –Level of qualification vs. Implementation of the BSC

Qualification	Use	Statistics				
		N	Average	Typical deviation	T test	Sig.
Superior	Uses it or intends to use it	69	29.72	21.850	2.299	0.023
	Does not use it	125	22.56	18.672		
Secondary	Uses it or intends to use it	69	29.88	21.954	1.371	0.173
	Does not use it	125	25.67	17.457		
Basic	Uses it or intends to use it	69	40.26	28.788	-3.010	0.003
	Does not use it	125	52.84	26.146		

Source: The authors.

### 4.3 Multivariate analysis

Through literature review and the bivariate analysis conducted, we have proved that the use of the BSC is a complex phenomenon influenced by a broad set of contingent and institutional factors. Accordingly, in order to statistically generally foresee which factor or factors significantly influence the use of the BSC, we have used the multivariate technique, using the regression analysis. Therefore, in order to prove the relation that exists between independent variables (considered potential influencing factors) and the use of the BSC (dependent variable), we have elaborated a model where there is a set of explanatory variables that influence the dependent variable.

As we intend to study the statistic relation of a dichotomic dependent variable with more than one explanatory variable, we have decided to use the binary logistic regression model (Logit Model). The dependent variable "BSC" refers to the use of the BSC by the sample organizations,

assuming the value 1 in the case in which the organization uses the BSC, and the value 0 otherwise. The independent variables considered in the model are all those resulting significant in the bivariate analysis of the investigation hypothesis.

Initially, each independent variable was separately included in order to observe whether such variable is significant in the regression model. That is, in a first phase we have evidenced if each independent variable, separately, influences the dependent variable. Some variables are not statistically significant at a significance level of 5% (as the test statistics, the Wald statistics was used). In that manner, the different models were estimated without considering such variables, obtaining a final model (the one regarded as the most significant taking into consideration the different combinations of variables). Thus, having done different combinations among significant variables separately, we have obtained the following optimal combination of variables for all the organizations (global model).

**TABLE 10** – Results of the binary logistic regression of the global model

	B	S.E.	Wald	Df	Sig.	Exp(B)	95% C.I. for Exp (B)
"cent/dec(3)"	1.512	0.734	4.246	1	0.039	4.537	1.007-19.118
"diff(1)"	0.918	0.406	5.113	1	0.024	2.504	1.130-5.549
"diff(2)"	1.345	0.540	6.216	1	0.013	3.839	1.333-11.054
"formbas"	-0.17	0.006	7.281	1	0.007	0.983	0.971-0.995
Constant	-1.168	0.712	2.693	1	0.101	0.311	1.178-8.305

Source: The authors.

In this case, the regression equation is specified as follows:

$$Z = -1.168 + 1.512\text{cent/dec}(3) + 0.918\text{diff}(1) + 1.345\text{diff}(2) - 0.17\text{formbas}$$

Where,

“cent/dec” – is a categorical variable that assumes the value 1 when the decision-making process in the organization is characterized as centralized, the value 2 when the degree of concentration in the decision-making process is regarded as medium, and the value 3 when the decision-making process in the organization is characterized as decentralized.

“diff” – is a categorical variable that characterizes the degree of vertical differentiation of the organization. It assumes the value 1 when the organization has some hierarchical levels, and 2 when the organization has many or quite many hierarchical levels.

“formbas” – is a quantitative variable that represents the number of employees with basic level qualification (1<sup>st</sup>, 2<sup>nd</sup> and 3<sup>rd</sup> cycles).

According to the Wald test, all the variables are significant for a significance level of 5%. In addition, the *Nagelkerke R Square* coefficient has a value of 0.235, that is, 23.5% of the dependent variable variation (“BSC”) is explained by the model.

In order to evaluate whether the model is appropriate, we have also checked whether the observed probabilities are close to the foreseen ones. To that end, we have used the *Hosmer and Lemeshow* test, which defines as null hypothesis (H0) the non-existence of differences between the observed values and the foreseen values, and as alternative hypothesis (Ha), the existence of such difference.

In our study, the obtained value was 5.739 for a significance level of 0.676, which means that we cannot reject the null hypothesis, i.e., the model is appropriate for the information provided. Therefore, based on the analysis of the coefficients of the model variables presented in the previous table, we can conclude that, in general, the probability of BSC utilization:

- is higher in organizations with decentralized organizational structures (understood as autonomy delegated in decision-making);
- increases insofar the vertical differentiation degree of the organization increases (understood as the number of hierarchical levels existing in the organization). That is, the organizations that have many or quite many hierarchical levels are those more prone to use the BSC;
- is smaller in organizations that have a higher percentage of employees with basic level qualifications.

## 5 CONCLUSIONS

The statement of Atkinson et al. (1997), and of Olson and Slater (2002) that the BSC deserves an intensive investigation continues to be valid nowadays. We don't quite know to which degree the BSC and the related systems affect the organizational performance, and how such management tool is affected by other variables of the organization and of the environment in which it operates. As a matter of fact, despite the great number of books, articles, presentations, workshops, etc., which have addressed the BSC from different perspectives and for different scopes, and the large range of IT solutions that have been developed in recent years, there is a lack of theoretical and empirical studies about the steps followed in the adoption of the BSC, and about the factors that influence favorably and/or negatively its success.

Under such circumstances, the BSC possible adaptation to the particular case of Portugal has raised our interest. Our point of view coincides with the one of Mooraj, Oyon and Hostettler (1999) that the BSC is a necessary “asset” in the organizations, if used as a focus or

guide in the implementation and communication of the strategy, and as a system to understand what actually adds value to the organizations, and not only as a mere performance measurement system. Accordingly, we have the opinion that the BSC is "good" if adding value to the organization, and "necessary" if it is essential to improve its management. Like in other countries, the Portuguese organizations face multiple internal and external challenges to be successful in doing business (in particular, the quick change of market conditions, the increase of competition, and the expectations of customers/users). As the result, the challenge of managers is to know how to compete in such a dynamic and competitive environment.

As for the empirical study conducted, although recognizing that the answer rate was smaller than expected, we believe that it is possible to draw some important conclusions out of it.

Firstly, we can state that, in line with the studies of Sousa (2001), Silva (2003), Russo and Martins (2005), Santos (2006), and Quesado and Rodrigues (2009), the results show a little use of the BSC in Portugal (only 41.7% of the private organizations and 29.5% of the public ones use or intend to use the BSC). However, it is noteworthy that our study shows rates of the BSC utilization higher than those recorded in other prior studies conducted in Portugal, which indicates that the popularity of such management tool is increasing in the past few years.

Secondly, in line with what was pointed out by Speckbacher, Bischof and Pfeiffer (2003), and Quesado and Rodrigues (2009), in the big companies analyzed, the decision on not adopting or abandoning the BSC implementation process was essentially due to the existence of other systems which already provide some of the data that could be provided by the BSC. In SMES and in public organizations, the reduced knowledge on the tool is highlighted. On the other hand, we have observed that in most of the public organizations the BSC implementation process is at the development stage, while in most of the private organizations that have decided to implement the BSC, the process is regarded as finished. On the other hand, the mentioned

process is very recent. As the main cause for the adoption of the BSC, the interviewees highlighted the increase of efficiency and control of costs, highlighting the role the BSC can perform to identify opportunities of cost reduction.

As for the confirmation of the investigation hypothesis, the obtained results indicate that the BSC implementation is smaller in public organizations than in private ones. Furthermore, we got empirical evidence that confirms the association between the BSC implementation and the degree of vertical differentiation; the degree of decentralization; the degree of formalization; the existence of an open organizational culture, and a consultative and active leadership, and the degree of employees' qualifications. Nonetheless, at the multivariate analysis level, we have evidenced that, in general, the only variables with significant influence in the explanation of the probability of using the BSC are, in line with the propositions of the Contingencies Theory, the degree of decentralization and the vertical differentiation; along with the influence of the degree of the employees' superior qualification, which can be considered an indication of the existence of the normative isomorphism proposed by the Institutional Theory.

The results of this study should be evaluated in light of a set of limitations related to the investigation process, the analyzed literature and the empirical analysis conducted. The fact that the empirical study was limited to Portuguese organizations and the reduced size of the sample made difficult to analyze and generalize the obtained results for the study universe. Therefore, one should be careful in reading and interpreting the results and conclusions of this study.

From the study conducted, the conclusions obtained and the limitations previously raised, a series of questions and curiosities has appeared, evidencing initially unimaginable problems, as well as different aspects that might be the object of future investigation in regard to this matter. Thus, the fact that the BSC implementation is relatively new in Portugal, along with the increasing importance of this tool in the modern business environment, raises many questions that might be

explored in future works, especially the extension of the study to other type of organizations and industries, as well as to the international context. Therefore, both the inclusion of new variables, and the conduction of longitudinal works and the study of cases will allow to enrich the model and to perform dynamic comparisons, in order to understand or reflect on the complexity of the organization as a whole.

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## NOTES

1. We have selected the works that seemed to us more relevant from the viewpoint of our investigation objectives. We actually highlighted those studies conducted with the use of a questionnaire.
2. Considering the small number of sample organizations that are in that situation, we will present all the results grouped per sector: private (big companies and SMES) and public (local governments, MC/IMC and hospitals).