

Enabling design characteristics and budget usefulness

Daniel Magalhães Mucci^{a,*}, Fábio Frezatti^a and
Diógenes de Souza Bido^b

^a*Departamento de Contabilidade e Ciências Atuariais, Universidade de São Paulo, São Paulo, Brazil, and*

^b*Centro de Ciências Sociais e Aplicadas, Universidade Presbiteriana Mackenzie, São Paulo, Brazil*

Received 18 April 2019
Revised 21 September 2019
18 February 2020
Accepted 17 June 2020

Abstract

Purpose – This study aims to investigate the influence of budgeting design characteristics on perceived budgeting usefulness, based on the enabling-coercive framework.

Design/methodology/approach – This paper develops a survey in one large publicly-listed Brazilian company that operates in the electric utility industry. The sample comprises 75 middle managers from different areas of this organization. This study uses structural equation modeling as the data analysis method.

Findings – The results indicate that internal and global transparencies determine middle managers' perceptions of budgeting usefulness, while no relationship was found for repair capacity and flexibility characteristics. This paper shows that managers, when provided with global and internal transparencies and independently of their level discretion regarding target revisions or the reallocation of resources, perceive budgeting systems as being useful for decision-facilitating and decision-influencing roles.

Practical implications – The findings might be relevant for budgeting professionals to review or design the budgeting system in terms of dribbling potential flaws and increasing its use in the organization.

Originality/value – The study explores the multidimensionality of the enabling-coercive budgeting design construct. This study provides a theoretical contribution to the literature by showing that budget alignment, integration, learning and information sharing are relevant such that an organization could improve the assertiveness using budgeting systems. Besides, this paper provides an opposing view about the supposed relation between flexible budgeting design and budgeting usefulness. Frequently, some management directions are offered by the literature and no guarantee is provided in terms of the connection



© Daniel Magalhães Mucci, Fábio Frezatti and Diógenes de Souza Bido. Published in *RAUSP Management Journal*. Published by Emerald Publishing Limited. This article is published under the Creative Commons Attribution (CC BY 4.0) licence. Anyone may reproduce, distribute, translate and create derivative works of this article (for both commercial and non-commercial purposes), subject to full attribution to the original publication and authors. The full terms of this licence may be seen at <http://creativecommons.org/licences/by/4.0/legalcode>

Coordenação de Aperfeiçoamento de Pessoal de Nível Superior.

The authors contributed to the paper in the following ways: Mucci, Daniel Magalhães, Conceptualization (Equal), Formal analysis (Lead), Investigation (Lead), Methodology (Lead), Writing-original draft (Lead), Writing-review and editing (Lead), Frezatti, Fábio, Conceptualization (Equal), Formal analysis (Equal), Investigation (Equal), Methodology (Equal), Supervision (Equal), Writing-original draft (Equal), Writing-review and editing (Equal), Bido, Diógenes de Souza, Formal analysis (Equal), Investigation (Equal), Methodology (Equal), Writing-original draft (Equal), Writing-review and editing (Equal).

Funding: This research was funded by Coordenação de Aperfeiçoamento de Pessoal de Nível Superior: CAPES – Finance Code 001. In addition, the second and third authors have “CNPq PQ Scholarship – Brazil”.



between the adoption and the usefulness of those mechanisms. Therefore, the findings shed more light on the practical developments in budgeting.

Keywords Budgeting, Middle managers, Budgeting usefulness, Enabling-coercive framework

Paper type Research paper

1. Introduction

The few past years have seen the emergence of literature focusing on the consequences of an enabling versus a coercive design and the use of management accounting practices (Burney, Radtke, & Widener, 2016; Chapman & Kihn, 2009; Henttu-Aho, 2016). The predominant logic of this literature is that an enabling control is a “good” thing (Burney et al., 2016), as it improves managers’ job performance (Wouters & Wilderom, 2008), increases the perceived success of the system (Chapman & Kihn, 2009) and helps managers to balance objectives of efficiency and flexibility in their work (Jørgensen & Messner, 2009). Enabling controls are also expected to foster positive attitudinal outcomes concerning managers (Adler & Borys, 1996; Henttu-Aho, 2016; Souza & Beuren, 2018) and organizational outcomes such as resilience (Beuren & Santos, 2019).

Adler and Borys (1996) state that the usability of a control mechanism can be determined by its ability to provide the user with internal transparency, global transparency, repair capacity and flexibility, which are constituent dimensions of an enabling control. Many management accounting practices have been studied under the umbrella of the enabling-coercive framework such as budgeting systems (Henttu-Aho, 2016; Chapman & Kihn, 2009; Hartmann & Maas, 2011).

Based on the enabling-coercive rationale, we argue that there is still an open debate about if budgeting systems would also be seen as “usable” by managers. The reason is that a budgeting system is usually seen as a cybernetic control in the sense that it is used to assess current outcomes based on preplanned objectives and standards (Malmi & Brown, 2008) and might be adopted to constrain operational management actions. On the other hand, there is also evidence that the use of flexible forms of budgeting might be beneficial to firms in several ways, as they introduce an enabling logic into a practice that is predominantly seen as coercive (Henttu-Aho, 2016).

Hence, the budgeting system can be seen as enabling or coercive, depending on the design dimensions discussed in Adler and Borys’s (1996) framework. In particular, are all the four above-mentioned enabling design dimensions determinants of a manager’s positive attitudes and perceptions regarding a control mechanism? There is still little evidence about how each enabling dimension relates to managers’ perceptions of usefulness (Chapman & Kihn, 2009; Jordan & Messner, 2012). Following Jordan and Messner’s (2012) rationale, internal and global transparencies might help managers to recognize, while repair and flexibility might help them to solve, the “incompleteness problem” of accounting information.

Although decentralization might be a feature of an enabling system, managerial control is better seen as enabling when it “attempts to mobilize local knowledge and experience” thorough internal and global transparency (Ahrens & Chapman, 2004, p. 296). Previous literature also shows empirical evidence that managers might see more benefit in rigid and fixed controls when they are used for performance evaluation (Marginson & Ogden, 2005; Frow, Marginson, & Ogden, 2010).

These dimensions could influence how managers, especially middle managers, see a budget system as a useful mechanism for the roles of accounting information, both the decision-facilitating and decision-influencing roles (van Veen-Dirks, 2010). Middle managers are central mediators across organizational boundaries, which implement intended

strategies through budgets (Fauré & Rouleau, 2011). Middle managers might use budgets as guidance to decision-making and actions or also as for performance evaluation, which, respectively, characterizes the decision-facilitating and decision-influencing roles (Demski & Feltham, 1976; van Veen-Dirks, 2010). Both these roles are related to the usefulness of managerial mechanisms such as budgets.

We argue that the usefulness that middle managers perceive in the budget mechanisms might be contingent on how the mechanism is designed (Chapman & Kihn, 2009). Based on this discussion, we propose the following research question:

RQ1. what is the influence of the enabling-coercive design characteristics of a budgeting system on middle managers' perceived budgeting usefulness?

Our study focuses on the single firm context of a large publicly listed company in Brazil, which operates in the electric utility industry, hereafter called Energy Corp. There is a lack of studies that focus on one organizational setting (Henttu-Aho, 2016; Souza & Beuren, 2018) and the middle management level (Frow et al., 2010; Fauré & Rouleau, 2011). Thus, our study complements the evidence that has been found at the firm level (Chapman & Kihn, 2009; Beuren & Santos, 2019).

We argue that there are variations in how managers in this organization perceive the enabling budgeting characteristics and usefulness. This variation might come from:

- how the different responsibility centers that compose the organizational structure of a large corporation interact with the budgeting system;
- how different organizational areas such as operations, finance and marketing, as well as managers with different backgrounds, dealing with the budgeting targets (Kihn, 2011); and
- how these enabling design characteristics might help managers to deal with the “incompleteness problem” of the information provided by the budgeting system (Jordan & Messner, 2012).

Therefore, this paper sheds more light on the discussion of budgeting usefulness by decoupling the design dimensions of the budgeting process based on the enabling-coercive framework. This topic is relevant, as there is still scarce evidence on how each enabling dimension is associated with a manager's attitudinal outcomes (Chapman & Kihn, 2009; Jordan & Messner, 2012) such as the use of the budgeting process to facilitate and influence decisions in the business. In addition, we address the claim from prior studies such as Wouters and Roijmans (2011, p. 712), who note that it is still a challenge to “understand what accounting means for different people and how it is used outside the finance and accounting domain” and also the claim to focus on one organizational setting (Kihn, 2011; Jørgensen & Messner, 2009).

2. Literature review and hypotheses development

The perceived usefulness construct has two facets that are related to the two main roles of accounting information, which are the decision-facilitating role and the decision-influencing role (Demski & Feltham, 1976; van Veen-Dirks, 2010). First, the decision-facilitating role is related to the provision of information to guide managerial decision-making and actions, to help managers to deal with uncertainties and opportunities (Demski & Feltham, 1976; van Veen-Dirks, 2010). Second, the decision-influencing role refers to the use of information by higher-level managers to measure and control subordinates' actions, which are used to evaluate subordinates' performance (Demski & Feltham, 1976; van Veen-Dirks, 2010).

Previous scholars have investigated the determinants of managers' perceptions about the usefulness of several management practices. For instance, the perceived usefulness construct has been studied in the context of budgeting systems (Magner, Welker, & Campbell, 1996), which particularly is the focus of this study. We focus on the design characteristics of budgets that might enhance both roles as mentioned above, treated as perceived budget usefulness, based on the enabling-coercive framework (Adler & Borys, 1996; Chapman & Kihn, 2009).

The enabling-coercive literature is positioned under the umbrella of bureaucratic and formal controls and offers a deep understanding of the duality between controls, by emphasizing organizational efficiency and innovation (Adler & Borys, 1996; Ahrens & Chapman, 2004). In short, the enabling-coercive framework looks at the duality between two types of controls, which are called coercive and enabling. The coercive view of controls involves managers performing specific tasks within which they have limited discretion over business processes and there is limited transparency. The enabling system perspective uses the logic of usability, efficiency and flexibility by enhancing users' experience and capabilities (Adler & Borys, 1996).

Previous empirical research in the field of management accounting has applied the enabling-coercive framework as the lens through which to investigate many accounting practices such as budgeting systems (Henttu-Aho, 2016; Chapman & Kihn, 2009; Hartmann & Maas, 2011) and Performance Measurement Systems (Englund & Gerdin, 2015; Jordan & Messner, 2012; Wouters & Roijmans, 2011; Wouters & Wilderom, 2008; Souza & Beuren, 2018; Beuren & Santos, 2019). In the sequence, we develop the hypotheses based on each dimension of the enabling design, which are repair capacity, internal transparency, global transparency and flexibility.

2.1 Research hypotheses

According to Adler and Borys (1996), repairs consist of changes in procedures related to new opportunities, improvements or deviations adjustments. Under the coercive logic, any deviation is seen as suspicious and procedures serve to inform superiors about whether subordinates are meeting targets. From the enabling perspective, procedures are designed to generate quick responses to threats and opportunities and deviations indicate an opportunity to review and modify inappropriate systems' patterns (Adler & Borys, 1996). For instance, repairs in a budgeting system might be illustrated:

- by changes in procedures that determine how managers evaluate performance based on the budgeting system during the current year and
- by changes in the targets previously established in the plan. Henttu-Aho (2016) suggests that repair capacity relates to the possibility of modifications in budgeted costs during the year.

Repairs might be considered as a remedy for the accounting information incompleteness "problem" (Jordan & Messner, 2012; Henttu-Aho, 2016). By solving the incompleteness problem of the accounting information, budget targets are adjusted to a more realistic base, which is expected to facilitate managers' decision-making and help them to deal with uncertainty (Frow et al., 2010; Henttu-Aho, 2016). Also, a "repaired" target might provide managers with the direction that they need to develop their managerial tasks and lead their team under the organizational goals (Kihn, 2011).

Under a coercive logic, top managers would require strict adherence from middle managers to the targets established in the budget plan, independent of any contingencies that might occur. This limitation regarding middle managers' repair capacity in the

budgeting system can lead to unrealistic budget targets, which can be seen as “incomplete” targets (Jordan & Messner, 2012). Managers would be reluctant to rely on these unrealistic budget targets or resources to guide their decisions and to lead their teams (Libby & Lindsay, 2010). Based on this literature, we hypothesize that:

H1. Repair capacity in the budgeting system positively influences perceived budgeting usefulness.

Internal transparency refers to procedures that make internal activities visible to users. The coercive perspective involves the formulation of “lists of duties” with a lack of detailed information, for example, on the manager’s targets. The enabling view involves the logic where users have access to information and the key components of the process are visible (Ahrens & Chapman, 2004). A budgeting system’s internal transparency depends on the level to which budget variances are estimated in meaningful categories and the effects of these variations on other processes’ parameters. For these authors, “the key to a successful design of internal transparency lies in giving layered access to information” (Ahrens & Chapman, 2004, p. 280).

Under the internal transparency enabling logic, budgeting should provide managers with clear information about their activities, allowing them to understand departmental targets and the internal functioning of the budget (Henttu-Aho, 2016). By having detailed information about what drives their departments’ performance, middle managers would realize that the budgeting system guides their decisions (decision-facilitating role) and helps them to lead their teams (decision-influencing role). Vandenbosch (1999) argues that control systems that aim to facilitate improvements and legitimize decisions and that can direct organizational attention – features of internal transparency – are perceived as being more useful by managers, in terms of both their utility for managing and the relevant information for decision-making.

Under a coercive logic, managers would not be offered detailed information about their departments’ targets and the attainment of these targets, but instead would be provided with a list of duties to perform (Chapman & Kihn, 2009; Adler & Borys, 1996). In this situation, managers would feel they lack the information they see as necessary to enhance decision-making. They would not have the possibility to identify problems such as incompleteness in the targets, which could be addressed or minimized by interactions (communication, meetings) among managers in the organization (Jordan & Messner, 2012). Therefore, budget targets would lose their relevance to operationalizing the firm’s strategies and managers would be deprived of the tools such as layered meaningful variance analysis, required to guide their decisions and manage their business areas. Hence, we hypothesize that:

H2. Internal transparency in the budgeting system positively influences perceived budgeting usefulness.

Global transparency refers to users’ understanding of the entire system. The coercive logic dictates asymmetric transparency because providing global transparency to subordinates is considered risky for the organization. Therefore, under the coercive logic, it is necessary to establish limits to information sharing about corporate processes. According to the enabling perspective, managers are immersed in diverse information that helps them act proactively. In this sense, business processes allow managers to understand how their tasks fit within and contribute to the organization as a whole (Adler & Borys, 1996).

Global transparency in the budgeting system might provide visibility regarding the interaction among processes and areas and offer a holistic view of the firm that could be used to draw up scenarios and put forward different priorities (Henttu-Aho, 2016). According to Ahrens and Chapman (2004), a budget’s global transparency goes beyond making it

“available on a strictly ‘need-to-know’ basis.” Also, it involves communicating key targets hierarchically and laterally among managers.

The budgeting system is usually implemented as an organizational practice that covers many business departments and interfaces with other management processes such as cost systems and Balanced Scorecards (Henttu-Aho, 2016). Under an enabling logic, managers would have a higher amount of information in their hands. Global transparency might improve the relevance of the information in the budget plan. Besides, providing contextual information regarding a departmental level need would raise manager awareness about the opportunities to improve their performance as managers and the performance of the business (Ahrens & Chapman, 2004; Henttu-Aho, 2016). Global transparency could help managers to identify incompleteness in the budgeting accounting information, which would minimize the adverse effects on their actions (Jordan & Messner, 2012).

On the other hand, under a coercive logic, top managers would establish limits to organizational information details sharing (Adler & Borys, 1996; Ahrens & Chapman, 2004). In this situation, managers would lack relevant information about the impact of their decisions on other areas, causing a detachment between departmental actions and the attainment of key organizational goals (Henttu-Aho, 2016). This scenario would lead to a weakening of the decision-facilitating and decision-influencing roles of budgeting systems in the organization, as the firm’s strategies would not be effectively hierarchically and laterally communicated among the firm’s levels and areas. Therefore, we hypothesize that:

H3. Global transparency in the budgeting system positively influences perceived budgeting usefulness.

Flexibility determines the level of discretion and autonomy that managers have as users of a management process. The coercive perspective assumes a more stable logic by defining detailed steps to be followed by the manager. It leaves no opportunity for manager discretion such as in budgeting reviews (Adler & Borys, 1996). The enabling logic of flexibility assumes that deviations are seen as both risks and learning opportunities for managers and the organization. Flexibility in budgeting systems would be related to the reallocation of budgeted resources among areas in an organization and the supply of resources to a specific area.

Henttu-Aho (2016) indicates that flexibility might relate to the use of stretched targets and revisions to non-compulsory fixed costs that were previously budgeted. Particularly regarding business controllers’ roles, flexibility in a budgeting system might also relate to the development of alternate scenarios that can be used to change the course of action of the organization (Henttu-Aho, 2016).

Flexibility is essentially a design characteristic related to resource reallocation to adapt the formal system to contingencies that might occur. It is also related to emergent strategies designed to take advantage of opportunities that may arise. Frow et al. (2010) claimed that flexible budgeting models (such as “continuous budgeting”) enabled managers to prioritize and make adaptations to meet strategic organizational objectives, thus increasing budgeting utility and usefulness. Flexibility might be related to empowering managers’ roles in the organization (Frow et al., 2010), in which they are able to reallocate the resources defined in the budget plan. We argue that this empowerment might also lead to a higher level of managers’ perceptions of budgeting usefulness (Wouters & Wilderom, 2008; Souza & Beuren, 2018). There is evidence that a budget with these characteristics can make “controllers experts in producing and delivering more realistic forward-looking information in the organization” (Henttu-Aho, 2016, p. 31), which has positive implications for managers’ activities concerning the relevance of the information available in the budgeting system.

Under the coercive logic, managers would not be given any degree of discretion over budget targets and would have to be accountable for the attainment of preplanned targets without being able to adjust their routes of action. This lack of flexibility in the budgeting system might put a straitjacket on managers by limiting their range of action plans, which would consequently create tensions regarding how managers deal with “incomplete” targets (Jordan & Messner, 2012). In this scenario, where the “incompleteness of budgeting targets” remains unsolved, a budget would lose its usefulness for managers (Jordan & Messner, 2012; Henttu-Aho, 2016; Frow et al., 2010). Based on the literature mentioned above, we hypothesize that:

H4. Flexibility in the budgeting system positively influences perceived budgeting usefulness.

In sum, we argue that managers are more likely to perceive the budgeting system as being useful (utility and relevant information) when it is designed to provide a sense of (Chapman & Kihn, 2009; Henttu-Aho, 2016):

- integration between local actions and broader concerns (global transparency);
- guidance or a glass-box (Englund & Gerdin, 2015) for local actions (internal transparency); and
- support for contingencies emerging at the organizational or environmental level that may require revisions of targets or norms (repair capacity) and the reallocation of resources to critical activities (flexibility).

Our theoretical model divides into four main hypotheses, which are presented in Figure 1.

3. Research design

3.1 Research setting

We conducted a survey with middle managers from one large Brazilian firm in which the budgeting process is one of the most important mechanisms used for managing the organization. A survey in one organization is important for studying complex phenomena

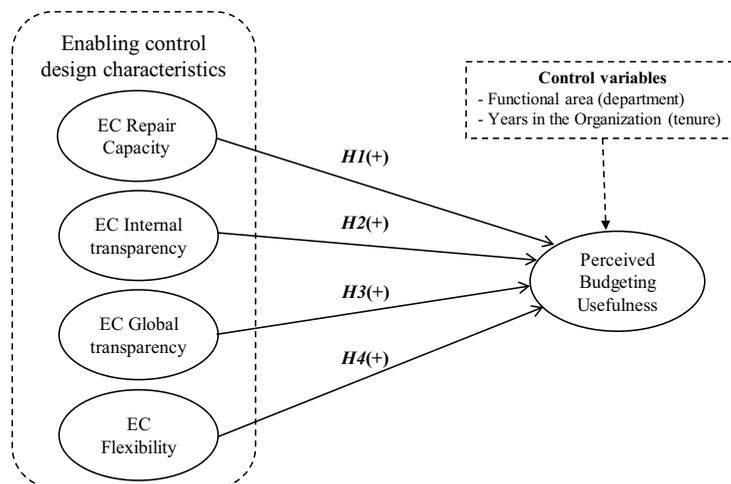


Figure 1.
Theoretical model

and capturing the differences in terms of departmental areas or responsibility centers (Nouri & Parker, 1998; Souza & Beuren, 2018), therefore extending the contributions of prior studies that have focused on multiple firms (Van der Stede, Young, & Chen, 2005).

The firm is a publicly listed corporation that trades shares on the Brazilian stock exchange and in other countries. Energy Corp is controlled by a Brazilian State Federation and operates in the electric utility industry (generation, transmission, distribution and trading). The organization has about 8,000 employees and an annual turnover of about 5bn dollars (2014 reference date). The complexity of the company and its processes are perceived as a distinct field for investigation. Moreover, Energy Corp is a large company with several management-level positions and business areas that interface with the budgeting system.

3.2 Sample selection

Our study uses an individual level of analysis, considering many respondents in one organization (Van der Stede et al., 2005). We focus on middle managers, as they are seen as mediators of top levels and operational levels to implement the organization's strategy, which might happen through budgets (Fauré & Rouleau, 2011). Middle managers are seen as "actors who combine access to top management with knowledge of operations" (Schmid, Floyd, & Wooldridge, 2010, p. 143). Prior literature has shown the importance of middle managers in planning and control practices such as strategic planning and budgeting (Fauré & Rouleau, 2011; Guggenberger & Rohlfing-Bastian, 2016). We argue that middle managers might experience and interpret the budgeting system differently in terms of consciousness and situationally (Kihn, 2011).

These managers are a relevant target population for this study, as they face pressure from superiors (top management team) and subordinates and they are accountable for departmental performance concerning budget attainment (Jordan & Messner, 2012). Our target population was formed by middle managers of the organization, which comprise a population of approximately 180 managers which was defined in the preliminary interview with the budgeting manager. Our final sample is composed of 75 middle managers who are divided into many functional areas, representing a response rate of 42%.

Based on our preliminary interview with the corporate budgeting manager, we consider those middle managers might vary in regard to their interface with the budgeting system in terms of the extent they:

- participate in the budgeting planning process;
- use the budgeting information in their activities;
- are accountable for budget performance to executives of the top management team and have to provide explanations about their performance variations; and
- depend on the attainment of budgeting targets (collective indicators) as the basis for part of their financial incentives.

3.3 Data collection

First, we presented an ethical protocol for the development of this study to the organization and obtained its agreement. This protocol provided information about the research scope, data collection procedures, schedule and analysis.

We followed Dillman's (2007) recommendations for the survey design and implementation. First, we applied a pre-test with the help of a controller and three PhD candidates that investigate management control systems. The changes in the questionnaire consisted of revisions of the assertions to better fit the Portuguese language. Next, we

applied a pilot test during the interviews that we conducted with nine middle managers in the organization, including the corporate budgeting manager. In this pilot test, no adaptation due to translation or interpretation was needed, so we considered the nine responses in our sample. We first sent a cover letter explaining the purpose of the research and inviting the managers to participate and then we sent two follow-up letters as reminders.

3.4 Measurement of variables

We used instruments that have been previously validated by empirical research. The measurement of enabling design characteristics of budgeting is based on 14 questions from [Chapman and Kihn \(2009\)](#), featuring two items for repair capacity (RC), four items for internal transparency (IT), six items for global transparency (GT) and two items for flexibility (FL).

We operationalized perceived budgeting usefulness based on two constructs. First, the measurement of perceived budget utility relies on the scale developed by [Swieringa and Moncur \(1975\)](#). Second, the budget information relevance construct is derived from the job-relevant information proposed by [Kren \(1992\)](#). Hence, we used two items for budget utility and three for budget information relevance that were also validated by [Magner et al. \(1996\)](#). As these constructs did not present discriminant validity, we treated the five items as one construct, called perceived budgeting usefulness (PBU). All the instruments are based on a five-point Likert scale. The instruments are available from the authors upon request.

We conducted Harman's single factor test to address concerns about common method bias ([Podsakoff, Mackenzie, & Podsakoff, 2012](#)). The first factor accounts for 46.8% and four principal components were extracted with eigenvalues higher than one. Therefore, even though we cannot say that there is no common method variance in the model, the Harman test shows that it should not be of great concern to the results.

As control variables, we included years in the organization (Tenure), which is related to the managers' experience and attitudes in the firm. Additionally, we controlled for the managers' main functional areas (Department), which is measured as a formative latent variable based on four dummies being Generation and Transmission Departments, Distribution and Trading Departments, Finance Departments and Corporate Management Departments – and others (n = 11) as the category of reference.

3.5 Data analysis method

We applied the multivariate technique of structural equation modeling based on partial least squares (PLS-SEM) to test the model proposed in the research and discuss the research hypotheses. We used SmartPLS 3.0 for the PLS-SEM analyzes ([Ringle, Wende, & Becker, 2015](#)).

PLS-SEM maximizes the explained variance of the endogenous variables, as it is done in multiple regression. Still, it can also estimate the measurement and structural models (relationships between latent variables) in the same procedure ([Hair, Black, Babin, Anderson, & Tatham, 2009](#); [Nitzl, 2016](#)). Missing values were addressed through mean replacement. This procedure is valid because the small number of missing responses were not concentrated in a specific respondent or variable.

The sample of 75 respondents is sufficient to detect a medium effect size ($f^2 = 0.17$) at the 5% significance level. We conducted the sensitivity analysis using the GPower 3VR software based on the following parameters ([Nitzl, 2016](#)) of statistical power equal to 0.8 (type II error lower than 20%) and five predictors in our model.

4. Results

4.1 Descriptive statistics

Table 1 shows the descriptive statistics of our respondents. Based on the characterization, we argue that the respondents have a solid academic education, hold key positions and have a significant amount of experience in the company, thus providing a sample that is diverse and relevant in the context of this research.

Sample characteristics	<i>n</i>	(%)
<i>Panel A. Tenure in the organization</i>		
Between 6 and 10 years	4	5
Between 11 and 20 years	5	7
Between 21 and 30 years	59	79
More than 31 years	5	7
Missing	2	3
<i>Panel B. Tenure as a manager in the current department</i>		
Between 1 and 2 years	21	28
Between 3 and 5 years	32	43
Between 6 and 10 years	13	17
Between 11 and 20 years	3	4
More than 21 years	4	5
Missing	2	3
<i>Panel C. Age</i>		
Between 30 and 40 years old	10	13
Between 41 and 50 years old	37	49
Between 51 and 60 years old	26	35
Missing	2	3
<i>Panel D. Functional area</i>		
Distribution and trading	26	35
Generation and transmission	15	20
Corporate management	13	17
Finance	9	12
Others	11	15
Missing	1	1
<i>Panel E. Educational background</i>		
Undergraduate	5	7
Graduate (as MBA)	55	73
Graduate (Master degree)	13	17
PhD	2	3
<i>Panel F. Educational area</i>		
Engineering	53	66
Business	15	19
Law	3	4
Accounting	3	4
Others	6	7

Notes: Generation, transmission, distribution and trading are operational areas. Finance and corporate management are considered as some of the corporate areas of energy corp. The other areas are legal, institutional relations and communication. No respondent is less than 30 years old and no respondent has been working for the firm for less than six years

Table 1.
Descriptive statistics
of respondents
(*n* = 75)

4.2 Measurement model assessment

We first validated the measurement model by looking at the convergent validity, which is based on the outer loadings and average variance extracted (AVE) and the reliability, considering the composite reliability (CR) parameter. In Table 2, we present the CR and AVE results, which meet the validation criteria from Hair, Hult, Ringle, and Sarstedt (2013), since they are respectively higher than 0.7 and 0.5.

We analyzed discriminant validity using cross-loadings (level indicators) and the Fornell-Larcker criterion, which requires the square roots of the AVE to be higher than the correlations between the latent variables (Hair et al., 2013). The results of the discriminant validity at the latent variable level are shown in Table 2 (values on the diagonal are higher than the off-diagonal values). The Heterotrait-Monotrait criterion also indicates discriminant validity (values lower than 0.85). The correlation coefficients show that the enabling characteristics of the budgeting mechanism are positively associated with each other, except for flexibility. Moreover, the correlations between both global and internal transparencies and perceived budgeting usefulness are strong and statistically significant at 5%.

4.3 Structural model analyzes

Once the validation of the measurement model was completed, we analyzed the structural model following four steps. First, the multicollinearity among the constructs was assessed using the Variance Inflation Factor (VIF), whose measures should be lower than five. Second, the path coefficients were determined based on the size and statistical significance of the coefficients. To run these results, we applied the bootstrapping procedure with 5,000 repetitions and a two-tailed test (Hair et al., 2013). Third, we used the coefficient of determination or R^2 , which indicates the percentage of a dependent variable's variance that is explained by the independent variables. Fourth, we used the effect size coefficient (f^2), which indicates the impact of an independent variable on the dependent variable, based on the omitted variable procedure (Hair et al., 2013). To evaluate these parameters, we used the classification suggested by Cohen (1988), divided into small effect ($f^2 = 0.02$), medium effect ($f^2 = 0.15$) and large effect ($f^2 = 0.35$).

Latent variables	1	2	3	4	5
1 - Repair capacity	0.829				
2 - Internal transparency	0.168	0.833			
3 - Global transparency	0.189	0.729	0.783		
4 - Flexibility	-0.392	-0.344	-0.509	0.750	
5 - Perceived budgeting usefulness	0.273	0.625	0.692	-0.479	0.887
<i>Controls</i>					
6 - Department	0.006	0.304	0.398	-0.201	0.219
7 - Tenure	-0.063	-0.211	-0.094	0.134	-0.040
AVE	0.687	0.694	0.613	0.562	0.786
Composite reliability	0.813	0.901	0.904	0.706	0.948

Table 2.
Latent variable correlations

Notes: Correlations greater than or equal to | 0.227 | are significant at 5% and correlations greater than or equal to | 0.296 | are significant at 1%. The values on the diagonal are the square roots of the average variances extracted; because these values are higher than the correlations between the latent variables (values outside the diagonal), there is discriminant validity (Hair et al., 2013)

In Table 3, we present the results for the structural equation model. We analyzed the effect of the independent variables on the dependent variable, controlling for the manager's tenure in the firm and functional areas. Our results show that the enabling characteristics of budgeting explain 51.3% of the variance in perceived budgeting usefulness, which is considered a high R^2 for social sciences (Cohen, 1988). As Table 3 shows, our control variables such as middle managers functional areas and tenure are not significantly related to perceived budgeting usefulness contradicting Kihn's (2011) rationale about consciousness and situationally, which enhances our argument that it is the design of the budgeting system that might influence PBU.

4.4 Test of hypothesis

4.4.1 Repair capacity. We found a non-significant association between repair capacity and perceived budgeting usefulness ($H1$). Prior literature on the enabling-coercive framework suggests that the understanding of repair capacity is controversial (Jordan & Messner, 2012; Henttu-Aho, 2016). Concerning this, previous empirical research has demonstrated that a high level of discretion is not related to perceived budgeting usefulness because, in a scenario in which the budget system is used for managers' performance evaluations, managers may benefit more from a stable orientation and fixed reference points, despite flexible targets (Marginson & Ogden, 2005; Englund & Gerdin, 2015), which might be the case of Energy Corp.

4.4.2 Internal transparency. We confirmed hypothesis $H2$ as being statistically significant, with a 5% significance level. Our results support a positive influence of internal transparency on perceived budgeting usefulness ($\beta = 0.289$, $f^2=0.083$, $p=0.044$). This reinforces the understanding that internal transparency in a budgeting system provides managers with clear and detailed information about their performance expectations and variations (Henttu-Aho, 2016), which leads to a higher level of perceived budgeting usefulness. Having a structure and orientation about performance targets is usually seen as valuable by middle managers (Marginson & Ogden, 2005). Finally, internal transparency might also be related to learning and accountability (Henttu-Aho, 2016; Frow et al., 2010; Beuren & Santos, 2019), which encourage managers to be motivated and lead their teams based on budget targets.

4.4.3 Global transparency. Our results support a significant positive influence of global transparency on perceived budgeting usefulness ($H3$). They indicate that the higher the global transparency, the higher the perceived budgeting usefulness ($\beta = 0.421$, $f^2=0.144$, $p = 0.010$). Therefore, by widening the scope and developing the integration between areas concerning budget targets, top managers could encourage middle managers to use budgeting information to guide their actions in the firm (Henttu-Aho, 2016).

Global transparency could assist in the deployment of a firm's strategies through budget targets to facilitate managers' decisions. It leads to a holistic view regarding managers'

Structural model relationships	H	Controls			Model			VIF	
		β	p -value	R^2 adj	β	p -value	f^2		R^2 adj
Department \rightarrow PBU		0.233	0.381	0.040	-0.069	0.487	0.009	0.513	1.201
Tenure \rightarrow PBU		-0.092	0.550		0.088	0.342	0.016		1.072
Repair capacity \rightarrow PBU	$H1$				0.090	0.466	0.015		1.196
Internal transparency \rightarrow PBU	$H2$				0.289	0.044	0.083		2.259
Global transparency \rightarrow PBU	$H3$				0.421	0.010	0.144		2.756
Flexibility \rightarrow PBU	$H4$				-0.156	0.228	0.035		1.565

Table 3.
Structural equation
model

responsibilities toward the firm and in leading their teams (Henttu-Aho, 2016; Beuren & Santos, 2019). When they have interactive and contextual information, managers perceive that the budgeting system provides them with relevant information.

4.4.4 Flexibility. Finally, contradicting previous literature (Frow et al., 2010; Jordan & Messner, 2012), we found a non-significant association between flexibility and perceived budgeting usefulness. Therefore, a more flexible design of the budget system, related, for example, to the reallocation of budgeted resources among the range of a firm's priorities, may be restricted to the top management team. However, they do not perceive that the level of autonomy in terms of managing resources influences their usefulness perceptions of this management practice (Marginson & Ogden, 2005).

5. Discussion

Our results provide empirical evidence that internal and global transparency enabling design characteristics are positively associated with budgeting usefulness, specifically with budget utility and budget information relevance. One of the main advantages of the budgeting system is that it creates a sense of the firm's direction in terms of deploying goals and operationalizing strategies from strategic planning. The budgeting system also makes managers' roles and responsibilities at a departmental level transparent, as well as showing the cause-effect of activities on the firm's performance, which are determinants of managers' perceptions of usefulness (Chapman & Kihn, 2009).

In contrast, our results do not support a statistically significant influence of either repair capacity or flexibility on PBU. Despite budgeting systems offer little opportunity for manager discretion, we would expect a significant association between those dimensions and perceived budgeting usefulness, as is currently advocated by criticisms of budgeting (Libby & Lindsay, 2010). Therefore, the question that remains unanswered is why repair capacity and flexibility do not influence PBU. This finding might be discussed in terms of different angles.

First, we suppose that the organization studied and its business units do not face a turbulent and unpredictable environment, given it operates in the energy utility industry (regulated market). Because of that, either the organizations do not implement a flexible design or managers do not perceive the benefits of a flexible budget design to the decision-making process (Marginson & Ogden, 2005).

Another debate on an organizational level that could explain these nonsignificant results is the discussion of multiple roles that budgets play in the organization (Hansen & Van der Stede, 2004; Mucci, Frezatti, & Dieng, 2016; Henri, Massicotte, & Arbour, 2019). Particularly, managers might benefit from repair capacity and flexibility to solve the incompleteness problem of accounting information (Jordan & Messner, 2012) when the budget is expected to serve the forecasting role but not for the performance evaluation role (Haka and Krishnan, 2005; Henri et al., 2019). In other words, constant revisions create a bias to a manager's performance evaluation expectations and might reduce managers' commitment to those goals (Haka and Krishnan, 2005; Marginson & Ogden, 2005), while on the other hand, it might benefit PBU in terms of forecasting.

This result is also aligned with prior empirical findings that repair capacity and flexibility design characteristics, despite mitigating accounting information incompleteness (Jordan & Messner, 2012) and improving effectiveness (Marginson & Ogden, 2005; Englund & Gerdin, 2015), may not increase perceptions of budget usefulness. A budget system might also be used to provide certainty and direction, which is required by managers in their activities (Marginson & Ogden, 2005; Frow et al., 2010). Stating differently, prior literature

has also suggested that managers tend to appreciate a higher level of detail and tightness in management control mechanisms than flexible systems (Marginson & Ogden, 2005).

6. Final remarks

This article investigates the association between budget enabling design characteristics and the budget usefulness perceived by middle managers from all business areas in a large corporation in Brazil that operates in the electric utility industry. Based on the enabling-coercive rationale, this study provides empirical evidence about the budgeting system's "usability," which is still an open debate in the literature (Libby & Lindsay, 2010).

Our findings contribute to the literature on budgeting systems by showing evidence about the design characteristics that drive the manager's perceptions of budget usefulness (internal and global transparency). The dimensions of transparency seem to mobilize operational and strategic knowledge in the firm, which enhances budgeting usefulness. Therefore, we provide a contribution to the literature by showing that budget alignment, integration, learning and information sharing are relevant such that an organization could improve the assertiveness using budgeting systems.

The nonsignificant relations found in the analyzes, particularly related to *H1* and *H4*, provide an opposing view about the supposed relation between flexible budgeting design and budgeting usefulness. This finding is interesting, as researchers frequently propose that "contemporary" management mechanisms are used by organizations (such as flexible budget systems). However, there is still little evidence about the connection between the adoption and the usefulness of those mechanisms in different organizational contexts.

Hence, this study sheds more light on the controversial debate between budgeting usefulness' determinants and budget criticisms which imperative usually rely on flexible forms of budgeting use (Frow et al., 2010). In addition, we suggest that when studying a corporate and multilevel mechanism such as budget systems, researchers should be aware of the multidimensionality of the practice and the organization's context (Sponem & Lambert, 2016) but also of the respondents' characteristics (Kihn, 2011).

Our findings need to be analyzed by taking into account the organizational setting of this study. Energy Corp operates in a more stable and regulated market, which might explain why flexibility and repair capacity may not be associated with budget usefulness compared to other industries that face a more uncertain context (Marginson & Ogden, 2005). Besides, we studied a large and complex business that applies formalized processes that middle managers have to follow and may not offer an opportunity to middle managers for discretion and target changes. Particularly in this context, transparency (both global and internal) may be viewed as more relevant to managers than their opportunity for discretion with respect to a budgeting system. This view is aligned with Ahrens and Chapman (2004), which argues that decentralization might not be the main feature of an enabling system, this instead of being the intensity with which the system mobilizes local knowledge and experience by providing internal and global transparency to its users.

Our study also advances prior literature on the enabling-coercive framework (Adler & Borys, 1996) by showing that enabling-coercive design is a multidimensional construct and that each different dimension might have an effect on a manager's attitudes and behaviors. Prior empirical studies have focused on enabling-coercive design-construct as a determinant of manager's attitudes and organizational outcomes (Beuren & Santos, 2019). Nevertheless, few studies have discussed each of the four dimensions independently (Chapman & Kihn, 2009). Particularly, the enabling-coercive framework might help researchers to look at different perspectives of a budget design, giving a sense about budget alignment and integration, learning and information sharing, flexibility among other design features.

As practical implications, this paper might be relevant for budgeting professionals to design or redesign the budgeting system, focusing on the determinants of middle manager's usefulness perceptions, mainly providing the budgeting system higher levels of internal and global transparencies. Then, in this sense, they could dribble potential flaws in the budgeting process and increase its use in the organization.

Our results should be interpreted in light of some limitations. First, we must be aware of the limitations that are intrinsic to the survey method design such as the use of perceptual measures, an unbalanced number of measures for each latent variable, common method bias and sampling, among other concerns. To address these issues, we applied validated instruments, which were evaluated in terms of composite reliability, internal and discriminant validity. We also developed a survey in only one organization and implemented statistical tests (such as the Harman test) for common method bias (Podsakoff et al., 2012). We focused on an organizational context in which each manager is responsible for one or many parts of the budgeting process. Therefore, their perceptions could be influenced by their role in the budget system (Kihn, 2011; Chapman & Kihn, 2009), which represents a particular contribution of this study to the existing literature on the enabling use of budget systems.

Based on these limitations, we raise some questions that could be addressed by future investigations. We suggest further research of the enabling-coercive framework (Adler & Borys, 1996), both in the budget system and in other management accounting mechanisms (Henttu-Aho, 2016). Another relevant point to consider when interpreting the results of this research is that budgeting design and use might be influenced by many other aspects such as dimensions, purposes and organizational contingencies. Finally, there are opportunities to study how managers from various areas of the company who interface with the budgeting process interpret this process and its targets (Wouters & Roijmans, 2011; Kihn, 2011).

References

- Adler, P. S., & Borys, B. (1996). Two types of bureaucracy: Enabling and coercive. *Administrative Science Quarterly*, 41(1), 61–89, doi: <https://doi.org/10.2307/2393986>.
- Ahrens, T., & Chapman, C. S. (2004). Accounting for flexibility and efficiency: A field study of management control systems in a restaurant chain. *Contemporary Accounting Research*, 21(2), 271–302, doi: <https://doi.org/10.1506/VJR6-RP75-7GUX-XH0X>.
- Beuren, I. M., & Santos, V. D. (2019). Sistemas de controle gerencial habilitantes e coercitivos e resiliência organizacional. *Revista Contabilidade & Finanças*, 30(81), 307–323, doi: <https://doi.org/10.1590/1808-057x201805850>.
- Burney, L. L., Radtke, R. R., & Widener, S. K. (2016). The intersection of 'bad apples', 'bad barrels', and the enabling use of performance measurement systems. *Journal of Information Systems*, 31(2), 25–48, doi: <https://doi.org/10.2308/isys-51624>.
- Chapman, C. S., & Kihn, L. A. (2009). Information system integration, enabling control and performance. *Accounting, Organizations and Society*, 34(2), 151–169, doi: <https://doi.org/10.1016/j.aos.2008.07.003>.
- Cohen, J. (1988). *Statistical power analysis for the behavioral sciences*, Mahwah, NJ: Lawrence Earlbaum.
- Demski, J. S., & Feltham, G. A. (1976). *Cost determination: A conceptual approach*, Ames: Iowa State University Press.
- Dillman, D. A. (2007). *Mail and internet surveys: the tailored design method*, New York, NY: John Wiley.
- Englund, H., & Gerdin, J. (2015). Developing enabling performance measurement systems: On the interplay between numbers and operational knowledge. *European Accounting Review*, 24(2), 277–303, doi: <https://doi.org/10.1080/09638180.2014.918517>.

- Fauré, B., & Rouleau, L. (2011). The strategic competence of accountants and middle managers in budget making. *Accounting, Organizations and Society*, 36(3), 167–182, doi: <https://doi.org/10.1590/1808-057x201908210>.
- Frow, N., Marginson, D., & Ogden, S. (2010). Continuous' budgeting: Reconciling budget flexibility with budgetary control. *Accounting, Organizations and Society*, 35(4), 444–461, doi: <https://doi.org/10.1016/j.aos.2009.10.003>.
- Guggenberger, M., & Rohlfsing-Bastian, A. (2016). Delegation of strategic decision-making authority to middle managers. *Journal of Management Control*, 27(2-3), 155–179, doi: <https://doi.org/10.1007/s00187-015-0223-0>.
- Hair, J. F., Hult, T. M., Ringle, C. M., & Sarstedt, M. (2013). *A Primer on Partial Least Squares Structural Equation Modeling (PLS-SEM)*, Sage Publications: Newbury Park, California, US.
- Hair, F., Jr, Black, W. C., Babin, B. J., Anderson, R. E., & Tatham, R. L. (2009). *Análise multivariada de dados* (6th ed.). Porto Alegre: Bookman.
- Haka, S., & Krishnan, R. (2005). Budget type and performance – the moderating effect of uncertainty. *Australian Accounting Review*, 15(35), 3–13, doi: <https://doi.org/10.1111/j.1835-2561.2005.tb00247.x>.
- Hansen, S. C., & Van der Stede, W. A. (2004). Multiple facets of budgeting: An exploratory analysis. *Management Accounting Research*, 15(4), 415–439, doi: <https://doi.org/10.1016/j.mar.2004.08.001>.
- Hartmann, F., & Maas, V. (2011). The effects of uncertainty on the roles of controllers and budgets: An exploratory study. *Accounting and Business Research*, 41(5), 37–41, doi: <https://doi.org/10.1080/00014788.2011.597656>.
- Henri, J. F., Massicotte, S., & Arbour, D. (2019). Exploring the consequences of competing uses of budgets. *Australian Accounting Review*, 30(4), doi: <https://doi.org/10.1111/auar.12287>.
- Henttu-Aho, T. (2016). Enabling characteristics of new budgeting practice and the role of controller. *Qualitative Research in Accounting & Management*, 13(1), 31–56, doi: <https://doi.org/10.1108/QRAM-09-2014-0058>.
- Jordan, S., & Messner, M. (2012). Enabling control and the problem of incomplete performance indicators. *Accounting, Organizations and Society*, 37(8), 544–564, doi: <https://doi.org/10.1016/j.aos.2012.08.002>.
- Jørgensen, B., & Messner, M. (2009). Management control in new product development: The dynamics of managing flexibility and efficiency. *Journal of Management Accounting Research*, 21(1), 99–124, doi: <https://doi.org/10.2308/jmar.2009.21.1.99>.
- Kihn, L. A. (2011). How do controllers and managers interpret budget targets? *Journal of Accounting & Organizational Change*, 7(3), 212–236, doi: <https://doi.org/10.1108/18325911111164187>.
- Kren, L. (1992). Budgetary participation and managerial performance: The impact of information and environmental volatility. *Accounting Review*, 67, 511–526. Retrieved from [jstor.org/stable/247975](https://www.jstor.org/stable/247975)
- Libby, T., & Lindsay, R. M. (2010). Beyond budgeting or budgeting reconsidered? A survey of North-American budgeting practice. *Management Accounting Research*, 21(1), 56–75, doi: <https://doi.org/10.1016/j.mar.2009.10.003>.
- Magner, N., Welker, R. B., & Campbell, T. L. (1996). Testing a model of cognitive budgetary participation processes in a latent variable structural equations framework. *Accounting and Business Research*, 27(1), 41–50, doi: <https://doi.org/10.1080/00014788.1996.9729530>.
- Malmi, T., & Brown, D. A. (2008). Management control systems as a package—opportunities, challenges and research directions. *Management Accounting Research*, 19(4), 287–300, doi: <https://doi.org/10.1016/j.mar.2008.09.003>.
- Marginson, D., & Ogden, S. (2005). Coping with ambiguity through the budget: The positive effects of budgetary targets on managers' budgeting behaviours. *Accounting, Organizations and Society*, 30(5), 435–456, doi: <https://doi.org/10.1016/j.aos.2004.05.004>.

- Mucci, D. M., Frezatti, F., & Dieng, M. (2016). As múltiplas funções do orçamento empresarial. *Revista de Administração Contemporânea*, 20(3), 283–304, doi: <https://doi.org/10.1590/1982-7849rac2016140121>.
- Nitzl, C. (2016). The use of partial least squares structural equation modelling (PLS-SEM) in management accounting research: Directions for future theory development. *Journal of Accounting Literature*, 37, doi: <https://doi.org/10.1016/j.acclit.2016.09.003> 0737-4607/ã.
- Nouri, H., & Parker, R. J. (1998). The relationship between budget participation and job performance: The roles of budget adequacy and organizational commitment. *Accounting, Organizations and Society*, 23(5-6), 467–483, doi: [https://doi.org/10.1016/S0361-3682\(97\)00036-6](https://doi.org/10.1016/S0361-3682(97)00036-6).
- Podsakoff, P. M., MacKenzie, S. B., & Podsakoff, N. P. (2012). Sources of method bias in social science research and recommendations on how to control it. *Annual Review of Psychology*, 63(1), 539–569, doi: <https://doi.org/10.1146/annurev-psych-120710-100452>.
- Ringle, C. M., Wende, S., & Becker, J.-M. (2015). *SmartPLS 3. Software*, SmartPLS GmbH.
- Schmid, T., Floyd, S. W., & Wooldridge, B. (2010). Putting the manager back into the picture: The value of a strategy process perspective. In P. Mazzola, & F. W. Kellermanns, (Eds), *Handbook of research on strategy process* (pp. 142–164). Cheltenham: Edward Elgar.
- Souza, G. E., & Beuren, I. M. (2018). Reflexos do sistema de mensuração de desempenho habilitante na performance de tarefas e satisfação no trabalho. *Revista Contabilidade & Finanças*, 29(77), 194–212, doi: <https://doi.org/10.1590/1808-057x201805850>.
- Spomen, S., & Lambert, C. (2016). Exploring differences in budget characteristics, roles and satisfaction: A configurational approach. *Management Accounting Research*, 30, 47–61, doi: <https://doi.org/10.1016/j.mar.2015.11.003>.
- Swieringa, R. J., & Moncur, R. H. (1975). *Some effects of participative budgeting on managerial behavior*, National Association of Accountants.
- Van der Stede, W. A., Young, S. M., & Chen, C. X. (2005). Assessing the quality of evidence in empirical management accounting research: The case of survey studies. *Accounting, Organizations and Society*, 30(7-8), 655–684, doi: <https://doi.org/10.1016/j.aos.2005.01.003>.
- van Veen-Dirks, P. (2010). Different uses of performance measures: The evaluation versus reward of production managers. *Accounting, Organizations and Society*, 35(2), 141–164, doi: <https://doi.org/10.1016/j.aos.2009.02.002>.
- Vandenbosch, B. (1999). An empirical analysis of the association between the use of executive support systems and perceived organizational competitiveness. *Accounting Organizations and Society*, 24(1), 77–92, doi: [https://doi.org/10.1016/S0361-3682\(97\)00064-0](https://doi.org/10.1016/S0361-3682(97)00064-0).
- Wouters, M., & Roijmans, D. (2011). Using prototypes to induce experimentation and knowledge integration in the development of enabling accounting information*. *Contemporary Accounting Research*, 28(2), 708–736, doi: <https://doi.org/10.1111/j.1911-3846.2010.01055.x>.
- Wouters, M., & Wilderom, C. (2008). Developing performance-measurement systems as enabling formalization: A longitudinal field study of a logistics department. *Accounting, Organizations and Society*, 33(4-5), 488–516, doi: <https://doi.org/10.1016/j.aos.2007.05.002>.

***Corresponding author**

Daniel Magalhães Mucci can be contacted at: danielmmucci@usp.br

Associate editor: Wilson Nakamura

For instructions on how to order reprints of this article, please visit our website:

www.emeraldgrouppublishing.com/licensing/reprints.htm

Or contact us for further details: permissions@emeraldinsight.com