

# The influence of budgets' coercive and enabling characteristics on empowerment and creativity

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## Abstract

**Objective:** To analyze the influence of budget coercive and enabling characteristics on managers' empowerment and creativity.

**Method:** A survey was conducted, and 100 valid responses were obtained from managers enrolled in the Brazilian Association of Information Technology Companies (Assespro). Data were analyzed using structural equations modeling through Partial Least Squares (PLS).

**Results:** The results show that the budget's coercive characteristics improved the creativity of managers of technology companies; however, the influence of the budget's enabling characteristics was significantly greater. The mediating test revealed that empowerment did not mediate the relationship between budget's coercive characteristics (planning) and creativity but partially mediated the relationship between budget's enabling characteristics (dialogue) and creativity.

**Contributions:** This study contributes to the theoretical sphere by showing that a business budget can be perceived in two different lights. It can promote a feeling of empowerment among employees and boost their creativity, encouraging them to use resources sustainably and innovatively.

**Keywords:** Coercive Control; Enabling Control; Budget Role; Empowerment; Creativity.

## 1. Introduction

A budget is an instrument used to fulfill the objectives of planning (planning, coordination, resources allocation, and establishment of operational volumes) and dialogue (communication, awareness-raising, motivation) (Ekholm & Wallin, 2011). The theory of bureaucratic formalization may be in line with the budget's usefulness (Adler & Borys, 1996). In this sense, a budget that is useful for planning has a coercive form because it provides rigid processes with a hardly interactive role (Radke & Widener, 2016).

This denotes adequate budgetary control to comply with previously specified standards (Ahrens & Chapman, 2004). The study argues that a budget establishes an environment characterized by self-management and freedom within established boundaries, promoting empowerment (Simons, 1994). Mundy (2010) states that a budget with the dialogue attribute provides clarity and understanding within the work environment.

Recent studies report empirical evidence that the combination of different management controls with different weights in its system support creativity (Henri 2006; Widener 2007; Mundy 2010; Bedford, 2015; Kruis et al., 2016; Curtis & Sweeney, 2017; Janka & Guenther 2018; Muller-Stewens et al., 2020). A dialogue-based budget can be linked to the enabling model because it shares responsibility and gives employees autonomy (Radke & Widener, 2016).

Therefore, the roles of an enabling budget include establishing a dialogue to support decision-making and encourage interaction among an organization's hierarchical entities (Adler & Borys, 1996). Creativity among collaborators is crucial for successful organizations; thus, implementing managerial controls is often a dilemma faced within this process (Amabile, Conti, Coon, Lazenby & Herron, 1996).

The dilemma faced by firms is linked to the fact that the specific nature of creative production requires the substantial use of formal control, while such control may harm creativity (Grabner & Speckbacher, 2016). However, Dysfunctional behavior demands formal control to coordinate and effectively regulate employees' behavior (Adler & Chen, 2011).

In this context, budgetary control enables goals to be aligned with the employees' behavior to achieve more efficiency (Speklé, Elten & Widener, 2017). Behavioral literature indicates that freedom at work, which can be facilitated by managerial controls, enables individuals to be creative, while rigid controls may impede creative thinking (Amabile et al., 1996).

The literature suggests that managers' behavior is affected by formal controls communicating restrictions and limitations on the power to develop tasks (Koestner, Ryan, Bernieri & Holt, 1984). Additionally, budgetary control can make employees feel empowered because it indicates that their effort can guide their choices and expectations. As proposed in the Self-Determination Theory, empowerment support self-regulated behavior (Sierens, Vansteenkiste, Goossens, Soenens & Dochy 2009).

It is essential to understand the effects of an enabling budget and a coercive budget on the managers' creativity and empowerment. Recent evidence indicates that the Management Control System (MCS) may favor empowerment and creativity (Adler & Chen, 2011; Marginson, Aulay, Roush & Zijl, 2014; Grabner & Speckbacher, 2016; Cools, Stouthuysen & Van Abbeele, 2017; Speklé et al., 2017), however, how does budgetary control behave in this process, considering that it is a component of the Management Control System?

An MCS information can be used in a coercive manner to ensure that the organization is on the right path to achieve its goals, but also in an enabling manner to ensure that the top management's information and concerns are vertically shared (Muller-Stewens, Widener, Moller&Steinmann, 2020). In this sense, this study's research problem is: **What is the influence of budgets with coercive and enabling characteristics on the managers' creativity?** This study aims to analyze the influence of budgets with coercive and enabling characteristics on the managers' empowerment and empowerment.

This study contributes to the theoretical field by showing that a business budget can be perceived in two different ways, promoting employees' empowerment and creativity and facilitating the sustainable and innovative consumption of resources through the creative initiative of employees. This study's results suggest that a budget itself is an instrument that promotes greater organizational creativity. In this aspect, there are accounting practices that reconcile mechanical and organic characteristics (Ahrens & Borys, 1996).

In practical terms, this study contributes to providing information regarding the management process, which provides appropriate instruments for business continuity. The primary evidence suggests that an enabling budget more easily promotes organizational creativity than a coercive budget. These roles enable discussing potential decisions, encourage interaction among hierarchical entities (Ahrens& Chapman, 2004), and promote autonomy and learning (Radker&Widener, 2016).

## 2. Theoretical Framework and Establishment of Hypotheses

### 2.1 Budget Roles and Two types of Formalization

Corporate budgeting plays various roles, characterized as cyber control, to signal goals, analyze deviations, and make corrections (Kruis, Widener&Speklé, 2016), as well as to influence behaviors, motivate, promote debates, and disseminate knowledge to the entire organization (Arnold & Gillenkirch, 2015).

Ekholm and Wallin (2011) argue that a budget plays two roles within organizations, namely: planning (planning, coordination, resource allocation, and establishment of operational volumes) and dialogue (communication, create awareness, and motivate). These roles present the possibility to inform, reconciling bureaucracy positive and negative aspects according to two types of formalization: coercive and enabling. Budget roles are analyzed according to the framework proposed by Adler and Borys (1996), who studied the characteristics of formalization, design process, and system implementation.

Additionally, the design and use of managerial controls affect organizational behavior (Hall, 2008). Enabling systems can facilitate responsibilities (Adler & Borys, 1996; Burney, Radtke & Widener, 2017), different from what happens with control devices used by the top management (Free, 2007; Chapman & Kihn, 2009). Managerial control through enabling formalization has power over individuals' behavior (Hempel, Zhang & Han, 2012), leading employees to feel they have some degree of freedom within existing rules and systems (Wouters & Wilderom, 2008). Additionally, they enable greater interaction between users and the system and between the managers at different hierarchical levels, encouraging problem-solving capacity because it provides feedback and reveals improvements (Adler & Borys, 1996; Wouters&Wilderom, 2008; Hartmann & Maas, 2011).

Adler and Borys (1996) predict that enabling formalization consists of procedures that help employees deal with their workplaces' contingencies to fulfill their tasks and enables organizational memory that captures learned lessons with experiences. The enabling type facilitates employee motivation despite the existence of rules (Wouters & Wilderom, 2008).

Therefore, rules facilitate the structure and refine the employees' behavior without hierarchical commitment (Adler & Borys, 1996). Van der Hauwaert and Bruggeman (2015) suggest that enabling managerial controls support organizational environments conducive to motivation, competence, and relationships.

Control mechanisms such as corporate budgeting are categorized as enabling versus coercive continuum (Sánchez, Velez & Ramón-Jerónimo, 2012). The budgetary process is characterized as coercive when it restricts managerial action's freedom and determines how employees and managers ought to behave.

A budget can be considered enabling when it enables discussing potential decisions and encourage interaction among hierarchical entities (Ahrens & Chapman, 2004). Coercive formalization seeks employees' compliance (Wouters & Wilderom, 2008); that is, rules to forcibly conduct the fulfillment of specified standards (Ahrens & Chapman, 2004).

Therefore, the information inherent to a budget can play different roles, enabling compliance with pre-established standards when planning (coercive) or enabling dialogue (enabling). In summary, the coercive use of a budget may be restricted to employees' behavioral control, and the enabling use of a budget promotes autonomy and learning (Radke & Widener, 2016).

## 2.2 Empowerment and Creativity

The Self-Determination theory explains how the individuals' perceptions of stimulus to actions and decision contexts influence intentional behavior, especially their intrinsic involvement and commitment to actions and effort (Ryan & Deci, 2000). Positive involvement with a task depends on a sense of self-determination, which in turn depends on the satisfaction of three human needs (autonomy, competence, and relationship), as explained by Deci and Ryan (1987).

Regarding autonomy, there is a belief that actions are inherent and do not depend on an individual's perseverance. In terms of competence, people believe in their ability to perform tasks and on their degree of control over their actions' results. On the other hand, relationships denote a social environment that brings a sense of security and support (Ryan & Deci, 2000).

The concept of self-determination at the workplace is related to the notion of empowerment, determining the extent to which employees believe they can perform their tasks autonomously (Speklé et al., 2017). This theory associates various behavioral aspects to self-determined motivation, including social development and well-being (Ryan & Deci, 2000).

In this sense, psychological empowerment is understood as an individual's intrinsic motivation toward his/her work environment, manifested by cognitions of meaning, competence, self-determination, and impact (Spreitzer, 1995). Studies by Hall (2008), Mahama and Cheng (2013), Appuhami (2017), Souza, Anzilago, and Beuren (2017) report inferences that lead to conclusions regarding the effects of managerial controls on the dimensions of psychological empowerment. On the other hand, Beuren, Santos, and Bernd (2020) suggest that an enabling perception of managerial controls is associated with psychological empowerment, indicating that managerial controls' characteristics affect managers' work.

Thus, the way companies use budgets can change their collaborators' sense of social development and well-being. Managerial control can promote self-determination for varied behaviors, including the production of creative ideas (Amabile et al., 1996). Creativity can be induced through empowerment and feelings of ownership and control over one's work (Amabile et al., 1996). These authors also suggest that empowerment encourages employees to use unconventional ways to perform their work.

Annarelli and Nonino (2016) proved that enabling managerial control affects organizational resilience, understood by an organization's ability to prepare itself, respond to, and recover from unexpected events. In this sense, organizational resilience occurs due to its employees' attitude and engagement; thus, these individuals' creativity may be reinforced by enabling managerial control.

Limnios et al. (2014) highlight that resilience depends on the characteristics of the organizational system and its ability to respond to the environment in an offensive (adaptive) or defensive (reactive) manner. In this sense, resilience can be promoted by the individuals' creativity based on the organizational system's characteristics. It is assumed that managerial control with a flexible characteristic favors changes and support individuals to be more creative to deal with the daily challenges experienced within organizations.

### 2.3 Establishment of the Study's Hypotheses

The use of a budget creates an environment characterized by self-management and freedom within established limits, which promotes empowerment (Simons, 1994). Annarelli and Nanino (2006), Mundy (2010), Limnios et al. (2014) support this notion by indicating that managerial controls are essential to simultaneously direct and train managers and employees, which can facilitate creativity and at the same time restrict inappropriate behavior.

The budget's role, together with planning, has been characterized by cyber control (Bedford, 2015). Hence, it may be linked to the cyber perspective of control, which is essential to plan operationally and assess performance (Arnold & Artz, 2019). That is, intended to direct compliance with established standards (Ahrens & Chapman, 2004).

In this context, Wouters and Roiimans (2011) suggest that the establishment of goals can promote problem-solving capacity and experimentation. Grabner and Speckbacher (2016) suggest that pre-established objectives are used to assess performance in creative environments. Working towards a goal gives autonomy and promotes the team's creativity to develop innovative solutions to ensure organizational perpetuity (Amabile, 1997; Cools et al., 2017).

The idea is that these aspects result from the creation of an environment that supports autonomy to promote intrinsic motivation and self-regulated behaviors, as opposed to "controlling" environments (Simons, 1995). Hence, employees have the opportunity to make choices regarding their actions within certain boundaries (Amabile et al., 1996).

Cools et al. (2017) conclude that a budget focused on planning clarifies the goals, objectives, and restrictions that lead to the structuring of decision problems so that creative thinking is precise, considering that solutions do not adjust to all decision parameters (Speklé et al., 2017). The authors also state that these can guide and improve understanding of the relationship between actions and results, which promotes creative behavior even more.

Therefore, the following hypothesis is proposed:

- **H1– The budget's roles focused on planning influence creativity.**

Research in social psychology and organizational behavior has addressed various aspects of creativity (Abbey& Dickson, 1983; Amabile et al., 1996; Hirst, van Knippenberg & Zhou, 2009). These studies conclude that having a feeling of autonomy is important, but the work environment itself also plays a significant role (Amabile & Pillemer, 2012).

A budget's roles focused on dialogue are characterized as organic control (Bedford, 2015). A budget, as an enabling control mechanism, enables dialogue to support decision-making and encourages interaction among hierarchical entities (Ahrens&Chapman, 2004) and facilitates employees' motivation, despite existing rules (Wouters&Wilderom, 2008).

In this sense, giving explicit instructions, recognizing creative thinking, encouraging a discourse that supports creativity, and generating ideas are all favorable aspects (Amabile et al., 1996). These roles enable exchanging information in an environment where individuals are incited to challenge the *status quo* and participate in debates and discussions to devise creative solutions for daily challenges.

Organizations intending to facilitate creativity should create a process to exchange information that stimulates and supports creativity. Empirical evidence reported by Simons (1994) and Gong, Cheung, Wang, and Huang (2012) suggests that information exchange is necessary for the teams to become more creative. In this sense, the following hypothesis is proposed:

- **H2 – A budget's roles focused on dialogue influence creativity more strongly than roles focused on planning.**

Sanchez, Velez, and Ramón-Jerónimo (2012) categorize budget as a continuum going from enabling to coercive. A budget as a control mechanism plays different roles, such as imposing limits on managerial actions and promoting dialogue, interaction, and motivation (Radke & Widener, 2016; Ahrens & Chapman, 2004). This study proposes that the coercive and enabling uses of a budget support autonomy.

A budget's roles focused on planning, communicate goals in terms of critical performance measures to guide behavior, and providing feedback to facilitate learning (Simons, 1995). Hence, giving employees opportunities to believe that they can choose within established boundaries (as shown in empowerment) and providing organizational encouragement and supervision was considered an essential stimulus for creativity in organizational environments (Amabile et al., 1996).

Additionally, empowerment represents autonomous motivation as it supports individuals' autonomy (Gagne & Deci, 2005). Facilitating and expanding access to information at different levels is necessary to empower (Spreitzer, 1995). Hence, sharing information strengthens one's sense of competence and purpose, a valuable element within organizations (Spreitzer, 1995).

Some studies in the accounting field (Hall, 2008; Mahama&Cheng, 2013; Mouang, 2015; Appuhami, 2017; Souza et al., 2017; Souza &Beuren, 2018) suggest that design and managerial control interfere in the individuals' empowerment. Hempel et al. (2012) add that organizational formalization can promote empowerment because it can direct the organization, regardless of whether it is centralized or not.

Thus, enabling managerial controls can minimize differences in power within the organization because it broadens the sharing of knowledge, skills, and rewards among all organizational levels (Adler & Borys, 1996). Broadening the boundaries of employees' decision-making reflects on empowerment, self-esteem, and the establishment of organizational tasks (Kantur&Iseri-Say, 2012). The individuals feel greater empowerment when they perceive themselves as a significant part of the organization, which implies minimum formalization of tasks based on goals and responsibility (Spreitzer, 1996). In this sense, the following hypothesis is proposed:

- **H3 – Empowerment mediates the relationship between the budget’s roles focused on planning and creativity**

Recent studies report evidence that the combination of controls with different weights in the managerial control system supports creativity (Kruis et al., 2016; Bedford, 2015). A budget with its roles focused on dialogue communicates the concerns of managers in all the organizational units. These employees become aware of the opportunities and potential threats to achieving goals (Speklé, Elten & Widener, 2017).

A budget’s roles focused on dialogue can encourage individuals to think unconventionally and find unusual solutions and approaches (Burroughs, Dahl, Moreau, Chattopadhyay & Gorn 2011; Cools et al., 2017). Marginson et al., (2014) suggest that the interactive use of budget with roles can broaden the feeling of empowerment. Hall (2008) explains that the use of a diversified set of performance measures in a business’ various units makes managers experience greater freedom, autonomy, and the opportunity to perform tasks.

Previous studies support the notion that employees become more creative when they feel empowered and perceive that they have the freedom to perform tasks (Alge, Ballinger, Tangirala & Oakley, 2006). The consequence is that if an organization is interested in encouraging creativity, the work environment should be based on empowerment. Hence, giving explicit instructions, recognizing creative thinking, encouraging a discourse that supports creativity, and the generation of ideas are all aspects that concern organizational incentive to creativity (Amabile et al., 1996; Alge et al., 2006).

In addition to providing opportunities for employees to believe that they can make choices regarding their actions within established boundaries (as shown in empowerment), organizational incentives, and supervision, were considered an essential stimulus for organizational creativity (Amabile et al., 1996).

Consequently, the managerial control system is designed and presented to be internalized and assimilated, which supports and improves self-determination and the perception of empowerment. Therefore, it requires the managerial control structure to support autonomy (Deci & Ryan, 1987) and provide a proper structure to support the decision-making individuals face (Sierens et al., 2009). It is easy to promote creative behavior in a conducive (interactive) work environment, where the notion that freedom also affects the managers’ level of empowerment emerges. Hall (2008) states that a set of diversified performance measures in a business various units makes managers experience greater freedom and autonomy to perform their tasks.

Marginson et al. (2014) report positive results between the interactive use of non-financial performance measures and self-determination, suggesting that the interactive use of budget can improve a sense of empowerment, which is associated with intrinsic and self-determined motivation.

Interactively using a budget creates a work environment where employees need to be creative. The diagnostic use, goals, objectives, and performance boundaries do not need to be seen as negative restrictions, but can, in the presence of interactive support control, be perceived as challenges that only generate instigating problems, encouraging individuals to think unconventionally (Burroughs, Dahl, Moreau, Chattopadhyay & Gorn 2011; Cools et al., 2017).

Given the previous discussion, the following hypothesis is proposed:

- **H4 – Empowerment mediates the relationship between budget roles focused on dialogue and creativity.**

### 3. Methodological Procedures

A survey was conducted with managers belonging to Assespro. The organizations' data are available at the website of each regional Assespro (São Paulo, Bahia, Sergipe, Pernambuco, Paraíba, Rio Grande do Sul, and Brasília). The study's instrument was applied via telephone from December 2018 and February 2019. A total of 100 questionnaires were answered and validated.

#### 3.1 Research Instrument

This study is based on the survey presented in Appendix A. The statements were rated on a seven-point Likert scale. The questions adapted from Ekholm and Wallin (2011) concerning budget roles were used in the instrument. The authors divided the budget roles presented by Ax and Kullven (2005) into two variables called planning and dialogue. In planning, the budget must be linked to strategies, coordinate the units, allocate resources, and determine the organization's operational volumes (Ekholm & Wallin, 2011). In dialogue, it is supposed to raise awareness of what is essential to achieve, communicate objectives and ideas, remuneration, assign responsibilities, and motivate the personnel (Ekholm & Wallin, 2011).

As for empowerment, the instrument's three first questions were developed by Spreitzer (1995) and the other two were developed by Speklé, Elten, and Widener (2017). The questions assessed independence and freedom to make choices at work. The instrument focused on creativity was based on Farmer, Tierney, and Kung-McIntyre (2003), with questions addressing the development of new ideas and solutions for problems in the managers' work.

#### 3.2 Data Analysis Procedures

Data were treated in a unidimensional way, with internal consistency validated by confirmatory factor analysis. The Structural Equations Modeling technique, which is appropriate to understand complex relations, was applied to test the hypotheses (Hair Jr Black, Babin, Anderson & Tatham, 2009). These relationships' parameters indicate the effect of independent variables on the dependent variables (Marôco, 2010).

Data reliability was verified using Composite Reliability (CR). Composite Reliability accepts values above 0.7 and measures the items' internal consistency. Convergent validity was calculated using Average Variance Extracted (AVE), which refers to the general variance in the indicators and suggests values above 0.5 (Hair Jr et al., 2016).

Additionally, the discriminant validity test (HTMT) was performed to obtain evidence that the construct is unique and captures phenomena other measures do not. Discriminant Validity means that the individual items present only one latent construct (Hair et al., 2009). The method suggested by Fornell and Larcker (1981) was used to apply this test because it compares the percentage of the extracted variance to any two constructs with the squared estimation of the correlation between these constructs. The variance estimates should be greater than the quadratic estimation of the correlation. Another indicator that reinforces this validity is Heterotrait-Monotrait Ratio (HTMT), suggested by Henseler et al. (2016).

As suggested by Mackenzie and Podsakoff (2012), the Harman test was performed because data from a survey with exogenous and endogenous variables from the same source (same respondent, response format, collection method, and at the same time) were used. In this method, the structural model (the relationship between latent variables) and the measurement model (the relationship between the indicators and latent variables) are disregarded, estimating the Exploratory Factor Analysis (EFA) with all the items in the same analysis employing the unrotated principal components method (Bido, Mantovani & Cohen, 2018). Therefore, the method considers bias when the solution results in a single factor extracted or a single factor extracts most of the variance in the set of variables (Podsakoff, Mackenzie, Lee & Podsakoff, 2003).

#### 4. Analysis and Discussion of Results

The descriptive analysis of data is presented to facilitate the understanding of the respondents' profile (Table 1).

Table 1  
**Descriptive statistics of the study's variables**

| Description | Mean | Median | Minimum | Maximum | Standard Deviation |
|-------------|------|--------|---------|---------|--------------------|
| Plan_1      | 6.32 | 7.00   | 1.00    | 7.00    | 0.99               |
| Plan_2      | 6.24 | 7.00   | 1.00    | 7.00    | 1.05               |
| Plan_3      | 6.17 | 6.00   | 1.00    | 7.00    | 1.17               |
| Plan_4      | 6.24 | 6.00   | 3.00    | 7.00    | 0.90               |
| Diálogo_1   | 6.10 | 7.00   | 1.00    | 7.00    | 1.20               |
| Diálogo_2   | 6.11 | 6.00   | 3.00    | 7.00    | 0.93               |
| Diálogo_3   | 6.37 | 7.00   | 1.00    | 7.00    | 0.95               |
| Diálogo_4   | 5.86 | 6.00   | 1.00    | 7.00    | 1.41               |
| Diálogo_5   | 5.70 | 6.00   | 1.00    | 7.00    | 1.57               |
| Emp_1       | 5.82 | 6.00   | 1.00    | 7.00    | 1.33               |
| Emp_2       | 5.57 | 6.00   | 1.00    | 7.00    | 1.64               |
| Emp_3       | 5.78 | 6.00   | 1.00    | 7.00    | 1.40               |
| Emp_4       | 5.58 | 6.00   | 1.00    | 7.00    | 1.63               |
| Emp_5       | 6.21 | 7.00   | 1.00    | 7.00    | 1.17               |
| Criat_1     | 6.24 | 7.00   | 1.00    | 7.00    | 1.07               |
| Criat_2     | 5.94 | 6.00   | 1.00    | 7.00    | 1.23               |
| Criat_3     | 6.15 | 7.00   | 1.00    | 7.00    | 1.31               |
| Criat_4     | 6.39 | 7.00   | 1.00    | 7.00    | 0.96               |
| Criat_5     | 5.94 | 6.00   | 1.00    | 7.00    | 1.27               |

**Note:** Plan=Planning; Dialog=Dialogue; Emp=Empowerment; Criat=Creativity.

Source: Study's data.

Concerning the planning role, the statement with the highest mean (6.32) refers to the planning item. The highest mean (6.37) obtained in the dialogue role refers to the statement creation of what is important to achieve. The statement with the highest mean (6.21) in empowerment refers to the high degree of initiative allowed within the organization. The highest mean (6.39) obtained in the creativity construct refers to the interaction between managers concerning new ideas' development.

In general, the constructs presented high means, indicating that the managers addressed in this study perceive both the use of a budget divided into different roles (planning and dialogue) and also that the organization enables a creative environment that promotes empowerment.

The minimum sample tests were performed using G-power with the parameters: effect size (0.15), level of significance at  $\alpha=5\%$ , and sample power of  $1-\beta=0.8$  (Faul, Erdfelder, Buchner & Lang, 2009). The minimum number of respondents required to proceed with the analysis was 77. We verified that the answers to the first 20% and the last 20% did not present significant differences, not indicating non-response bias.

We also found that there is no bias in the common method since after considering the variables in the theoretical model as dependent at different times, none of them presented items with VIF higher than 3.3. The same was confirmed by Harman's single factor test (Gomez-Conde, Lunkes & Rosa, 2019). After meeting the criteria, we continued with structural equation modeling.

The structural equation modeling was operationalized into two stages. The first stage assesses the measurement model, verifying the instrument's reliability and validity (Hair Jr. et al., 2016). When above 0.70, the index of composite reliability attests to the instrument's reliability. Validity convergence is confirmed when AVE is higher than 0.50, while Cross Loading and Fornell and Larcker matrices attest discriminant validity (Hair Jr. et al., 2016). Table 2 presents the measurement model.

**Table 2**  
**Measurement model**

| Constructs  | CC    | AVE   | Discriminant validity |              |              |              |
|-------------|-------|-------|-----------------------|--------------|--------------|--------------|
|             |       |       | Planning              | Planning     | Empowerment  | Dialogue     |
| Planning    | 0.755 | 0.518 | <b>0.720</b>          |              |              |              |
| Planning    | 0.870 | 0.575 | 0.478                 | <b>0.758</b> |              |              |
| Empowerment | 0.886 | 0.613 | 0.387                 | 0.640        | <b>0.783</b> |              |
| Dialogue    | 0.822 | 0.541 | 0.394                 | 0.536        | 0.437        | <b>0.736</b> |

Source: Study's data

The results presented in Table 2 show that the measurement model criteria were met. The constructs' reliability was confirmed as composite reliability was above 0.70 (Hair Jr et al. 2016). The constructs' validity was also confirmed with AVE above 0.50 and Farnell and Larcker and Cross Loading matrices were consistent with what Hair Jr et al. (2016) propose. Compliance with convergent validity shows that the constructs explain more than 50% of the statements' variances. The fact that discriminant validity was confirmed shows that the constructs are different from each other. Additionally, there is no collinearity between each construct's items, considering that VIF was below 0.5 in all the models (Hair Jr et al. 2016).

Additionally, Heterotrait-Monotrait Ratio (HTMT) was initiated as suggested by Henseler et al. (2016), reinforcing the constructs' validity. The HTMT ratio is shown below, as shown in Table 3.

Table 3

**Heterotrait-Monotrait Ratio (HTMT)**

| Constructs  | Planning | Creativity | Empowerment |
|-------------|----------|------------|-------------|
| Creativity  | 0.544    |            |             |
| Empowerment | 0.427    | 0.706      |             |
| Dialogue    | 0.460    | 0.631      | 0.434       |

Source: Study's data.

The indicators in Table 3 confirm the constructs' validity as they were below the threshold of 0.85 (Henseler *et al.*, 2016), which denotes the constructs are different. It is important to note that meeting the measurement model criteria is a prerequisite to initiating bootstrapping. After meeting these requirements, we proceeded with the structural model analysis.

The structural model serves as a parameter for the rotation of 5,000 subsamples and 5,000 interactions based on a confidence interval with bias-corrected and accelerated with the two-tailed test at a 5% significant level (Hair Jr. *et al.*, 2016). These parameters are initialized using the Bootstrapping technique to confirm the hypotheses or not. Table 4 presents the relationship between the constructs.

Table 4

**Relationship between the constructs**

| Constructs                          | Coef. | T-Value | P-Value  | Hypothesis             |
|-------------------------------------|-------|---------|----------|------------------------|
| Planning → Creativity               | 0.202 | 2.230   | 0.026**  | H1 Confirmed           |
| Dialogue → Creativity               | 0.261 | 2.731   | 0.006*** | H2 Confirmed           |
| Planning → Empowerment → Creativity | 0.114 | 1.600   | 0.110    | H3 Not confirmed       |
| Dialogue → Empowerment → Creativity | 0.151 | 2.596   | 0.009*** | H4 Partially confirmed |

Note 1: \*p<0.10; \*\*p<0.05; \*\*\*p<0.01.

R<sup>2</sup>= Creativity (0.523); Empowerment (0.246)

Q<sup>2</sup>= Creativity (0.240); Empowerment (0.110)

Source: Study's data.

Hypothesis H1 conjectured that the budget's roles focused on planning influence creativity. The findings show that the budget's roles focused on planning increase the creativity of managers in technological companies ( $\beta=0.202$ ,  $p<0.026$ ). At a 5% significance level, this evidence enables not rejecting H1. Hence, we infer that the usefulness of the budget embodied in planning induces coercive logic of control, enabling the standardization of processes. This standardization enables the establishment of balance (Simons, 1995), which sustains creativity. At the same time that managers are given freedom, it is also necessary to standardize tasks to the point that managers become creative at work (Simons, 1995; Adler & Borys, 1996).

This finding confirms that a budget used to restrict expenditure and plan organizational goals promotes the emergence of creative alternatives on the part of managers to achieve satisfactory results, even with scarce resources (Amabile, 1997; Grabner & Speckbacher, 2016; Cools *et al.*, 2017). Inferences by Wouters and Roijmans (2011) and Speklé *et al.*, (2017) were confirmed; that is, establishing goals on a budget encourages the emergence of innovative ideas to experience and solve problems.

The second hypothesis postulated that the budget roles focused on dialogue exert a greater influence on creativity than roles focused on planning. The statistical results enable not rejecting  $H_2$ , considering that the influence of dialogue on creativity was greater than planning ( $\beta=0.261$ ,  $p<0.006$ ). These findings lead to the conclusion that even though a budget's role focused on planning leads to creativity, the dialogue dimension presents enabling characteristics that promote greater freedom and independence among managers.

There is evidence that the feeling of autonomy generated by the enabling use of budgetary controls is essential for companies. However, an environment that favors dialogue plays a fundamental role in promoting creative skills (Amabile et al., 1996; Hirst, Van Knippenberg & Zhou, 2009; Amabile & Pillemer, 2012).

These findings suggest that an enabling budgetary control promotes interaction among hierarchical entities (Ahrens & Chapman, 2004), which motivates managers to implement creative ways to deal with complex decisions (Wouters & Wilderom, 2008; Speklé et al., 2017).

The third hypothesis concerned the mediation role of empowerment in the relationship between a budget's roles in planning and creativity. The findings enabled rejecting  $H_3$ , as empowerment did not mediate the relationship between the budget's coercive characteristic (planning) and creativity ( $\beta=0.114$ ,  $p<0.110$ ). It suggests that empowerment makes the enabling use of a budget restrict a potential direct effect on organizational creativity.

Empowered managers restrict the freedom of managerial action, making the enabling budget, which already lacks dialogue, into a factor that does not promote creativity (Radke & Widener, 2016; Ahrens & Chapman, 2004); contradicting evidence that empowerment represents autonomous motivation (Sun, Zhang, Qi & Chen (2012). In this sense, organizations adopting enabling budgets need to be careful with how managers are empowered to prevent creative attitudes are occluded.

Hypothesis  $H_4$ , which postulated empowerment mediates the relationship between the budget's roles focused on dialogue and creativity, was partially confirmed. Bido and Silva (2019) noted that partial mediation occurs when the direct effect has a significant relationship at the same time as the indirect relationship. In conclusion, a budget's roles in dialogue communicate the top managers' concerns in all the organizational units.

These employees become aware of the potential opportunities and threats to achieve goals and conceive creative skills to overcome daily challenges (Speklé, Elten & Widener, 2017). Therefore, enabling budgetary controls empowers managers, stimulating them to think in unorthodox solutions and approaches (Burroughs et al., 2011; Cools et al., 2017).

There is evidence from Hall (2008) and Marginson et al., (2014) that using a budget based on dialogue can broaden the feeling of empowerment, making managers feel freer, more autonomous, and with greater opportunities to perform tasks. Note that the enabling characteristics of a budget based on dialogue lead to greater empowerment, boosting creativity.

The dimensions of a budget focused on dialogue suggest that managers in technological environments use budgets to communicate objectives better, sensitize about goals, and promote personal motivation (Ekholm & Wallin, 2011). These enabling characteristics increase the level of autonomy (Speklé, Elten & Widener, 2017) and creativity (Farmer, Tierney & Kung-McIntyre, 2003; Speklé, Elten & Widener, 2017). In general, empowerment partially reinforces the relationship between dialogue and creativity.

Regarding the model adjustment, the model's independent variables explained creativity with a large effect ( $R^2=0.52$ ). Concerning accuracy, creativity presented a  $Q^2$  equal to 0.24, which indicates the model's predictive relevance.

## 5. Final Considerations

A budget promotes the managers' greater creativity, regardless of its use. In this sense, budgets can be used to promote organizational creativity. However, even though both types of budgets promote creativity, the enabling budget more easily promotes organizational creativity than the coercive type.

The results also indicate that empowerment does not affect the relationship between the coercive use of a budget and organizational creativity. The difficulty in promoting creativity may be related to the lack of dialogue the coercive use of a budget promotes, caused, in this case, by the distance created by managers with a feeling of empowerment.

On the other hand, we conclude that companies adopting an enabling budget promote organizational dialogue, enabling empowered managers to obtain an effect different from that obtained by companies that only use budgets focused on the planning role (coercive). It confirms that empowerment has a mediating effect on the relationship between a budget's roles in dialogue and organizational creativity.

### 5.1 Theoretical and practical implications

This study has implications for the literature in the field as it shows that the enabling use of budgets is greater than the coercive use. A budget encourages greater interaction among hierarchical entities (Ahrens & Chapman, 2004), while empowerment partially reinforces the relationship between the enabling use of budgets and creativity.

It shows that a budget has mechanical and organic characteristics, which aligns with generating new ideas, searching for unconventional ways to solve problems, greater independence, and searching for learning (Ahrens & Borys, 1996; Ahrens & Chapman, 2004). These occurrences were reported by Simons (1995) and Ahrens and Borys (1996), as they state that managerial control increases creativity.

The implications from a practical point of view include suggestions that dynamic environments where individuals are encouraged to seek creative ideas, using the coercive and enabling characteristics of budgets, encourage organizations to achieve objectives. This would make organizations capable of understanding how to use the budget and lead managers to make an effort to promote empowerment and creativity.

## 5.2 Limitations and suggestions for future studies

This study focuses on the relationships proposed here; however, further analyzes can verify whether the participating managers' characteristics and those of the organizations in general influence the proposed relationships. The budgets' enabling and coercive characteristics were addressed here because these can promote or restrict behaviors. Therefore, this proposal is exposed to the scrutiny of more researchers in the field; at the same time, it suggests future studies to explore budgets' coercive and enabling characteristics. Future studies can also explore how the use of a budget can enhance organizational learning.

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## Appendix A

### Utility of the budget focused on planning (Ekholm & Wallin, 2011)

For each of the statements below, indicate how useful you find the budget for the following goals. Consider the scale between 1=Not useful at all and 7=Very useful

1. Planning linked to company strategies
2. Coordination of business units
3. Resource allocation to the units
4. Determination of operational volumes

### Utility of the budget focused on dialogue (Ekholm & Wallin, 2011)

For each of the statements below, indicate how useful you find the budget for the following goals. Consider the scale between 1=Not useful at all and 7=Very useful

1. Attribution
2. Communication of objectives and ideas
3. Create awareness of what is importante to achieve
4. Staff motivation
5. Remuneration

### Empowerment (Spreitzer, 1995; Speklé, Elten and Widener & 2017)

For each of the statements below, indicate the independence and freedom to make choices in your work. Consider the scale between 1= I disagree and 7= I totally agree

1. Has significant autonomy to determine how to execute the work
2. Decides by himself how to execute the work
3. Has many possibilities of Independence and freedom in how to execute the work
4. Making important decisions on how to operate is allowed
5. A high degree of initiative is allowed

### Creativity (Farmer, Tierney & Kung-McIntyre, 2003)

For each of the statements below, indicate the development of new ideas and solutions to problems in your work.

- Consider the scale between 1= I disagree and 7= I totally agree
1. Thinks of other ways to solve problems when confronted with obstacles
  2. Has new perspectives on old problems
  3. Deals with several new ideas and problems at the same time
  4. Helps other people to develop new ideas
  5. Has many new ideas