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# Do types of budgeting affect the usefulness of their bundled functions in organizational planning and dialogue?

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## Abstract

This study aims to identify whether the type of elaboration (fixed and/or flexible) affects the usefulness of planning and dialogue functions in Brazilian information technology organizations. Data collection was performed through a questionnaire applied to 101 managers, members of the Association of Brazilian Information Technology Companies - ASSESPRO. Data analysis was carried out using descriptive statistics, confirmatory factor analysis to bundle the budget functions in planning or dialogue, and parametric test of difference of means to ascertain whether there are differences between budget functions in organizations who prepare the budget by fixed or flexible type. The research concluded that most companies adhere to the budget on an annual basis. It is suggested that the elaboration of the budget by the fixed or flexible type is identical in utility for the planning functions. However, the usefulness of the budget for dialogue functions occurs in companies that prepare a flexible budget. This study provides evidence that budget functions are useful, regardless of the type of budgeting. As a practical implication, it appears that the different types of budgeting cannot be seen as rivals in the efficient and effective implementation of organizational resources. The continuous budget is more appropriate for fostering corporate debate, encouraging the exchange of information, disseminating knowledge, and developing strategic actions.

**KEYWORDS:** Budget Types. Budget Functions. Fixed Budget. Flexible Budget. Management Control.

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## **Tipos de elaboração do orçamento afetam a utilidade de suas funções agrupadas no planejamento e diálogo organizacional?**

### **Resumo**

Este estudo busca identificar se o tipo de elaboração (fixo e/ou flexível) afeta a utilidade das funções de planejamento e de diálogo em organizações brasileiras de tecnologia da informação. A coleta de dados foi realizada por meio de questionário aplicado a 101 gestores pertencentes à Associação das Empresas Brasileiras de Tecnologia da Informação (Assespro). A análise dos dados foi feita por meio da estatística descritiva, da análise fatorial confirmatória para agrupar as funções do orçamento em planejamento ou diálogo e do teste paramétrico de diferença de médias para averiguar se existem discrepâncias entre as funções do orçamento em organizações que elaboram o orçamento pelo tipo fixo ou flexível. Concluiu-se que a maioria das empresas adere ao orçamento na periodicidade anual. Sugere-se, então, que a elaboração do orçamento pelo tipo fixo ou flexível é idêntica na utilidade para as funções de planejamento. Contudo, a utilidade do orçamento para as funções de diálogo ocorre nas empresas que elaboram o orçamento flexível. Este estudo oferece evidências de que as funções do orçamento são úteis, o que independe do tipo de elaboração dele. Como implicação prática, infere-se que os diferentes tipos de elaboração do orçamento não podem ser vistos como rivais na implementação eficiente e eficaz dos recursos organizacionais. Já o orçamento flexível é mais adequado para fomentar o debate corporativo, incentivar o intercâmbio de informações, disseminar conhecimento e emergir ações estratégicas.

**PALAVRAS-CHAVE:** Tipos de orçamento. Funções do orçamento. Orçamento fixo. Orçamento flexível. Controle gerencial.

## **¿Los tipos de presupuestación afectan la utilidad de sus funciones agrupadas en la planificación y el diálogo organizacionales?**

### **Resumen**

Este estudio tiene como objetivo identificar si el tipo de presupuestación (fija y/o flexible) afecta la utilidad de las funciones de planificación y diálogo en las organizaciones brasileñas de tecnología de la información. La recolección de datos se realizó mediante un cuestionario aplicado a 101 gerentes pertenecientes a la Asociación Brasileña de Empresas de Tecnología de la Información - ASSESPRO. El análisis de datos se realizó mediante estadística descriptiva, análisis factorial confirmatorio para agrupar las funciones presupuestarias en planificación o diálogo y la prueba paramétrica de diferencia de medias para verificar si existen diferencias entre las funciones presupuestarias en organizaciones que preparan el presupuesto por tipo fijo o flexible. Se concluye que la mayoría de las empresas se adhieren al presupuesto anualmente. Se sugiere que la presupuestación por tipo fijo o flexible es idéntica en utilidad para las funciones de planificación. Sin embargo, la utilidad de la presupuestación para funciones de diálogo se da en empresas que preparan presupuestos flexibles. Este estudio proporciona evidencia de que las funciones presupuestarias son útiles, independientemente del tipo de preparación presupuestaria. Como implicación práctica, se infiere que los diferentes tipos de presupuestación no pueden ser vistos como rivales en la implementación eficiente y efectiva de los recursos organizacionales. La presupuestación flexible, en cambio, es más adecuada para fomentar el debate empresarial y el intercambio de información, difundir conocimientos y hacer emerger acciones estratégicas.

**PALABRAS CLAVE:** Tipos de presupuesto. Funciones presupuestarias. Presupuesto fijo. Presupuesto flexible. Control gerencial.

## INTRODUCTION

Academic investigations on the applicability of the flexible budget have been scarce (SIVABALAN et al., 2009), especially when it comes to the reasons that make the usefulness of the flexible budget important in specific functions (PAVLATOS and KOSTAKIS, 2021). In addition, many companies have adhered to the flexible budget, with a predominance of quarterly and monthly reviews (HANSEN, 2011). These companies approve the utility of flexible budgeting (BHIMANI, SIVABALAN and SOONAWALLA, 2018), as it is considered more useful in combating contemporary challenges (HANSEN, OTLEY and VAN DER STEDE, 2003).

The flexible budget makes it easier for the company to deal with the informational needs of management control and with the preparation and review of strategic planning (BHIMANI et al., 2018). Evidence indicates that most organizations use the annual budget complemented by the flexible budget to control specific areas (WAGNER et al., 2021).

Budget functions are not homogeneous and act in different ways in organizations (SILVA and LAVARDA, 2020). Ekholm and Wallin (2011) guide the concept by suggesting two main reasons for using the budget: a) the budget as a planning function (coordination, allocation of resources and determination of operating volumes) and b) the budget as a dialogue function (communication, awareness creation, motivation). It is believed that different priorities emerge according to the usefulness of these functions, which can be useful for operational reasons and in the search for new opportunities (MÜLLER-STEWENS et al., 2020).

Merchant and Van der Stede (2007) explain that organizations can conduct flexible budgeting for planning, control and evaluation purposes. They consider the budget important to coordinate resources at the planning stage (COVALESKI, EVANS and LUFT, 2006) and to help formulate action plans (COVALESKI and DIRSMITH, 1983). It can also help control production capacity (MERCHANT and VAN DER STEDE, 2007). Marginson and Ogden (2005) understand that the budget promotes innovative behavior, which emphasizes areas/units/sectors having greater or lesser allocation of resources.

It is assumed that the utility of the budget in the planning function leads to the achievement of organizational goals. The budget utility in the dialogue function allows for a more dynamic discussion in environments of uncertainty. However, the multiple functions of the budget can be perceived differently by executives within the same company (WAGNER et al., 2021), and this can vary according to the way the companies prepare the budget. Therefore, the study aims to identify whether the type of elaboration (fixed and/or flexible) affects the utility of planning and dialogue functions in Brazilian information technology organizations.

Pavlatos and Kostakis (2021) speak of the scarcity of research on the reasons that emerge from the utility of certain budget functions, a factor that justifies the relevance of identifying the type of budgeting that is associated with the utility of certain functions. Therefore, it is suggested that the annual budget remains the most used by organizations. Secondly, the utility functions, according to the type of budget, are different in companies that prepare the budget with quarterly, monthly and/or annual review. It contributes by indicating that the different types of budgeting (fixed and flexible) should not be treated as rivals, but rather as complements, in which each one can lead to a different type of budget analysis and functionality by managers and companies.

In addition, in highly dynamic environments, where greater organizational dialogue is required, the flexible budget becomes more efficient than the fixed one (BHIMANI et al., 2018). In theoretical terms, many criticize the potential role of the budget artifact in organizations and the findings indicate the need to adapt the budget to each type of functionality, that is, depending on the business environment, the budget needs to be revised differently.

## THEORETICAL REFERENCE

The budget is a planning and control mechanism (MERCHANT and VAN DER STEDE, 2017). Thus, it can have different functions in companies, such as planning, forecasting operational activities, determining bonus payments, and evaluating performance (BECKER et al., 2016). The budget helps achieve organizational goals and objectives; coordinate the activity; train and motivate employees and managers; offer control of the activity; make better decisions; identify the deviation from what is budgeted and adopt and implement corrective measures (LIDIA, 2015).

Hansen and Van der Stede (2004) divide the budget into four stages, according to utility. The first two are for the short term: i) operational planning and ii) performance evaluation. The other two reach the long term: iii) communication of goals and iv) formation of strategies. While Sivabalan et al. (2009) divide it into three, which are: planning, control, and evaluation.

Ekholm and Wallin (2011) group the budget utilities in planning and dialogue. In planning, the utilities of planning, coordination, allocation of resources and determination of operational volumes are gathered. In the dialogue, the utilities of communication, creation of awareness, motivation are classified (SILVA and LAVARDA, 2020). This investigation considers the functions addressed by Ekholm and Wallin (2011) because they cover a significant part of the operations reported in previous studies, in addition to aggregating them in planning and dialogue.

In this context, it is understood that continuous forecasts of key values can relate to the budget at a time period in the future, while flexible budgets specifically link these updates to the budget. Thus, continuous forecasting maintains a constant forecast time horizon, usually 12 to 18 months (HANSEN, 2011). However, studies on this topic focus on the descriptive level of the flexible budget, which categorizes the nature of the organizations that elaborate it and the review period (LIBBY and LINDSAY, 2010; SIVABALAN et al., 2009).

Research on flexible budgets is seen as a broad part of beyond budgeting in organizations (OSTERGREN and STENSAKER, 2011). Given its significant application and apparent usefulness, even though the annual budget continues to be applied (LORAIN, 2010), flexible budgets require focused research, independently of beyond budgeting practices (BHIMANI et al., 2018). These organizations can drive flexible budgets to get different functions.

Kihn (2011) explains that the perception of ex ante utility of information based on planning, coordination, and allocation of resources (budget functions) is in line with organizational strategies, while the perception of ex post utility is closer to the dialogue, as it involves functions relevant to actions, monitoring and control to achieve the defined objectives. From the perspective of control, budgets are important to help organizations manage costs (GOVINDARAJAN and FISHER, 1990). They also help the board of directors to monitor (SIVABALAN et al., 2009), evaluate the team (HOPWOOD, 1972) and the business units (SIVABALAN et al., 2009). In this context, budget

functions are associated with forecasting, efficiency, and guidance for short-term goals, but also contribute to promoting creativity, transparency, learning and adaptability (ABERNETHY and BROWNELL, 1999). The alternative role of the budget is called, by Simons (2013), as interactive, when there is a continuous exchange of information and ideas between top management and lower hierarchical levels.

Given these various roles and possible benefits, it can be expected that all organizations will adopt a formal budgeting practice, with multiple uses of functionality, regardless of the type of budgeting. Bhimani et al. (2018) suggest that one can expect convergence between the utility of budget functions for each type of budget, especially for quarterly and monthly budgets. Arguments advocate that the usefulness of flexible budgeting (quarterly and monthly) in uncertain environments should follow the same direction, but perhaps at different levels of sensitivity. The authors also present arguments about the divergences between the usefulness of budget functions according to their type of elaboration.

Organizations that prepare quarterly budgets may not have the ability to monitor and update their numbers in uncertain environments, for this reason, they carry out budget updates with less utility (BHIMANI et al., 2018). The authors Bhimani et al. (2018) also report that budget functions are more important for organizations that perceive them to be useful on a monthly basis.

While there are claims that the annual budget is detrimental to innovation and learning (HOPE and FRASER, 2003), Marginson and Ogden (2005) found that they can be incorporated into a control framework as a way to address the interplay between budget and innovation. This means that budgetary control can be exercised in a traditional way, which does not prevent the search for new opportunities in the dynamic environment. Dugdale and Lyne (2008) also found evidence indicating that the annual budget is not harmful to the competitiveness of organizations.

Ekholm and Wallin (2011) suggest that fixed and flexible budgets do not need to be mutually exclusive, which is in line with this study. As in the practical field there is evidence that most organizations realize the usefulness of the flexible and fixed budget together (SIVABALAN et al., 2009), it is understood that there is no difference in utility itself, but rather in the function that the budget exercises for the company. Consequently, the following hypotheses are proposed:

**H1 – The usefulness of the annual budget is greater when it performs the planning function.**

**H2 – The usefulness of the flexible budget is greater when it exercises the function of dialogue.**

## **METHODOLOGICAL PROCEDURE**

The research problem is of a quantitative nature. As for the objectives, the research is descriptive; in terms of procedures, it is classified as a survey. For that, a questionnaire was applied to medium and high-level managers of 638 organizations belonging to the Association of Brazilian Information Technology Companies (Assespro). Company data were obtained from the website of each regional Assespro (São Paulo, Bahia, Sergipe, Pernambuco, Paraíba, Rio Grande do Sul and Brasília).

The sample is non-probabilistic due to accessibility. Of the 101 responses received, some questions were not answered, and respondents classified in the survey are responsible for profits, losses, revenues, costs, and budgets. This finding shows their relevance in the integration with the companies' management accounting system, that is, they are individuals who understand and can contribute to the understanding of budgeting practices.

Data collection was carried out by the Center for Studies and Research in Administration (Cepa), an agency linked to the School of Administration of the Federal University of Rio Grande do Sul (EA/UFRGS). The research instrument was applied by three interviewers, by telephone, during the months of December 2018 to February 2019. Table 1 presents the characterization of the respondents.

**TABLE 1**  
**Characterization of the respondents**

Variables	N	Min.	Max.	Average	Standard deviation
Age	99	25	67	39.393	11.389
Time working in the role	101	0.2	40	7.517	6.414
Time in the organization	101	1	25	7.355	5.702
Employees they supervise	98	0	76	10.061	1.661
Total employees in the organization	99	2	2,500	95.191	288.893
Time of operation of the organization	101	1.5	55	19.755	9.912

Source: Elaborated by the authors.

From Table 1, it is highlighted that the average time of the respondent in the role of manager is 7.5 years. In general terms, they have management experience and supervise, on average, 10 employees. In addition, it can be seen that the respondents are mature, due to their average age of over 39 years, and experienced, due to their working time in the organization being over 19 years. Finally, it is observed that companies have, on average, an intermediate size because they have more than 95 employees.

The research instrument consists of two blocks with 20 questions in total. The budget functions construct is described in Table 2. The first block deals with the budget functions construct, consisting of 11 questions based on the study by Ekholm and Wallin (2011) and tested by Mucci, Frezzatti and Dieng (2016) and Silva and Lavarda (2020).

Regarding the functions of the budget, the instruments used by Ekholm and Wallin (2011) were used as a reference, and they divide the functions of the budget into 11 items and two variables, in this case, functions of planning and dialogue, on a scale from 1 to 7, where 1 corresponds to the category "not at all useful" and 7, "very useful". The authors mentioned were based on the functions reported by Ax and Kullven (2005) and suggest a design regarding the multiple functions of the budget. To confirm the grouping of budget functions in planning and dialogue, the confirmatory factor analysis method was used.



TABLE 2

## Characterization of the variables adopted in the investigation regarding measurement and theoretical foundation

Budget Function Variables	Measurement	Theoretical Basis
(FC1) - Planning linked to company strategies	Likert-type scale from 1 to 7 (Not at all useful - Very useful)	Ekholm and Wallin (2011)
(FC2) - Coordination of the company's units		
(FC3) - Resource allocation to units		
(FC4) - Determination of operating volumes		
(FC5) - Assignment of responsibility		
(FC6) - Monitor to facilitate quick fixes		
(FC7) - Communicate goals and ideas		
(FC8) - Create awareness of what is important to achieve		
(FC9) - Operationalization of objectives		
(FC10) - Staff motivation		
(FC11) - Act as a basis for compensation and bonus systems		

Source: Elaborated by the authors.

To complement the crossing of proposed information, managers were asked to identify how the budget was prepared in the company. In the questionnaire, a multiple-choice question is provided for the manager to indicate whether the company prepares the budget on an annual, half-yearly/ every four months, quarterly and/or monthly basis. With this, it is possible to determine and classify the companies that create the fixed budget (annual) from those with the flexible budget (monthly, quarterly, half-yearly or four-monthly).

Thus, in data analysis, three quantitative procedures are used. To identify budget functions, descriptive statistics are used. Subsequently, factor analysis is adopted to confirm the grouping of questions between the dialogue and planning functions suggested by Ekholm and Wallin (2011).

In the end, to meet the objective of the research, it was necessary to verify if there is a difference in the perception of the budget utility functions, according to each type of elaboration of this managerial artifact, and the parametric test of difference in means, called t -student. All statistical procedures were created using SPSS software.

## RESEARCH RESULTS

Initially, it was identified how the companies under study develop their budget, considering that there may be a predominance of a type of budget review.

Table 3 shows the descriptive statistics of the types of budgeting in the investigated companies.



**TABLE 3**  
**Descriptive analysis of budgeting types**

Type of Budget Preparation	Annual	Half-yearly/ Every four months	Quarterly	Monthly	Total
N.	48	11	26	16	101
%	47.53%	10.89%	25.74%	15.84%	100%

Source: Elaborated by the authors.

Table 3 highlights that the largest number of organizations adheres to the annual periodicity for preparing the budget (47.53%), followed by 26 companies that develop the budget on a quarterly basis and 16, with monthly review. Finally, some organizations make the budget every four months or on a half-yearly basis, which represents 10.89%.

The annual budget predominates over the flexible one, however, if it is considered that the preparation of the half-yearly/four-monthly, quarterly and/or monthly budget is more flexible than the annual one, it is concluded that flexibility in budgeting is more present (52.47%) in companies in the information technology sector. It is necessary to consider that this may be linked to this sector of activity that requires very rapid changes to remain competitive.

Evidencing the results, the annual budget has been the most useful for organizations in the technology area (LIBBY and LINDSAY, 2010). For Ekholm and Wallin (2011), the annual and flexible budgets should be seen as complements, not as rivals. Thus, there is no support for the critics' claim that the annual budget should be replaced (SIVABALAN et al., 2009), given that it has great utility in the practice of organizations (BHIMANI, 2018).

Next, we seek to observe what is the utility of the budget by the investigated companies. Table 4 presents the results of the budget functions. In general terms, it is concluded that the managers of information technology companies perceive, for the most part, the usefulness of all the functions that the budget can offer. Complementarily, it is suggested predominance in the perception of managers that the budget has the primary functions of creating awareness of what is important to be achieved (FC8), operationalizing the objectives (FC9) and monitoring actions to facilitate quick corrections (FC6). Ekholm and Wallin (2011) found similar results indicating that these tasks would be in line with companies that prepare fixed-type budgets.

On the other hand, managers have less perception of the budget's usefulness in compensation and bonus functions (FC11) and staff motivation (FC10). The result is in line with the motivation function of the studies by Ekholm and Wallin (2011), Dal Magro and Lavarda (2014, 2015) and Mucci et al. (2016). Ekholm and Wallin (2011) and Mucci et al. (2016) explain the existence of a personal character and of the area itself. As an example, the motivation function may be more related to the commercial area and little linked to the operational support area (BARRETT and FRASER, 1977).

Because this investigation covers managers from different areas, this result depends on the manager himself, his activity and area. Dal Magro and Lavarda (2015) also clarify that motivation is not perceived as a priority by a portion of managers, a factor justified by the problems of organizational impediment that the instrument can cause.

**TABLE 4**  
**Usefulness of budget functions for managers**

Budget Functions		Respostas pela Escala							Total < 4 > 4		
		1	2	3	4	5	6	7			
		Not at all useful						Very useful			
FC1	N.	2	-	-	3	15	23	58	101	2	96
	%	2	0	0	3	14.9	22.8	57.4	100	2	95
FC2	N.	1	1	-	2	16	27	54	101	2	95
	%	1	1	0	2	15.8	26.7	53.5	100	2.	94
FC3	N.	2	1	-	4	10	34	50	101	3	94
	%			0	4	9.9	33.7	49.7	100	3	93.1
FC4	N.	-	-	1	4	14	32	50	101	3	94
	%	0	0	1	4	13.9	31.7	49.5	100	3	93.1
FC5	N.	2	-	1	5	17	25	51	101	3	93
	%	2	0	1	5	16.8	24.8	50.5	100	3	92
FC6	N.	1	-	-	3	16	27	54	101	1	97
	%	1	0	0	3	15.8	26.7	53.5	100	1	96
FC7	N.	-	-	1	6	15	37	42	101	1	94
	%	0	0	1	5.9	14.9	36.6	41.6	100	1	93.1
FC8	N.	1	-	1	1	10	30	58	101	2	98
	%	1	0	1	1	9.9	29.7	57.4	100	2	97
FC9	N.	1	-	1	1	12	33	53	101	2	98
	%	1	0	1	1	11.9	32.7	52.5	100	2	97
FC10	N,	4	-	2	7	15	31	42	101	6	88
	%	4	0	2	6.9	14.9	30.7	41.6	100		87.20
FC11	N.	4	3	5	3	15	33	38	101	12	86
	%	4	3	5	3	14.9	32.7	37.6	100	12	86

**Note:** FC1 – Planning linked to strategies; FC2 – Coordination of units; FC3 – Resource allocation to units; FC4 – Determination of operating volumes; FC5 – Assignment of responsibility; FC6 – Monitor to facilitate quick fixes; FC7 – Communicate goals and ideas; FC8 – Create awareness of what is important to achieve; FC9 – Operationalization of objectives; FC10 – Staff motivation; FC11 – Act as a basis for compensation and bonus systems.

**Source:** Elaborated by the authors.

Therefore, it is suggested that the budget is more used in the functions of financial and resource control, as well as to achieve planning. In this sense, it becomes evident that companies find it difficult to consider the budget useful as an instrument to promote organizational dialogue.

Next, a confirmatory factor analysis is carried out to identify the functions that are related to planning and those linked to organizational dialogue (HAIR et al., 2009). This procedure is designed with the purpose of grouping and differentiating budget functions linked to planning from those associated with dialogue.

In Table 5, the principal component analysis for the budget functions is described. The results point to two factors, with a percentage of information of 32.849% in the first factor; and the second factor with 47.733%. Thus, it is confirmed that the 11 budget functions put into question are grouped into just two factors, which are conceptually called planning and dialogue.

**TABLE 5**  
**Principal component analysis for budget functions**

Component	Initial Eigenvalue			Sums Extracted from Loadings		
	Total	% of variance	Accumulated %	Total	Quadratics	
					% of variance	Accumulated %
1	3.613	32.849	32.849	3.613	32.849	32.849
2	1.637	14.884	47.733	1.637	14.884	47.733
3	1.302	11.834	59.567			
4	0.955	8.682	68.249			
5	0.764	6.949	75.198			
6	0.683	6.209	81.407			
7	0.573	5.208	86.615			
8	0.442	4.022	90.636			
9	0.413	3.757	94.393			
10	0.341	3.103	97.496			
11	0.275	2.504	100.000			

Source: Elaborated by the authors.

To confirm this grouping, the varimax rotation matrix method is used to analyze the correlation coefficients. The factor loadings determine the patterns and the degree of involvement between the variables. The varimax rotation matrix shows which variables are highly involved in terms of the factor loadings in each pattern (SHIMADA, CHIUSOLI and MESSETTI, 2010). For that, Table 6 shows the result of the factorial groupings by the varimax rotary component matrix.

**TABLE 6**  
**Result of factorial groupings by varimax rotary component matrix**

	Components	
	(1) Dialogue	(2) Planning
(FC1) - Plan		0.781
(FC2) - Coordinate		0.712
(FC3) - Allocate		0.587
(FC4) - Determine		0.431
(FC5) - Assign	0.698	
(FC6) - Monitor	0.561	
(FC7) - Communicate	0.714	
(FC8) - Create	0.620	
(FC9) - Operationalize		0.677
(FC10) - Motivate	0.763	
(FC11) - Reward	0.641	

Source: Elaborated by the authors.

The results obtained by factorial analysis confirm the existence of two factors: factor 1 called budget utility for the dialogue function and factor 2, budget utility for the planning function. Next, Table 7 shows the validation tests for each factor of the budget functions, confirming the results obtained in the factorial analysis.

**TABLE 7**  
**Validation test of budget functions factors**

Steps and Techniques or Statistics	Validation Rules	Factors
Dimensionality		
Main components	Only one eigenvalue must exist on the scale	Two eigenvalues on the scale (eigenvalue equal to 14.88, which explains 47.73% of the variance).
KMO index	Greater than 0.7: desirable Less than 0.5: unacceptable	KMO equal to 0.738: desirable

Continue

Steps and Techniques or Statistics		Validation Rules	Factors
Bartlett's Sphericity Test			Chi-square equal to 297.738 with a significance level equal to 0%
<b>Reliability</b>			
Cronbach's alpha			Cronbach's alpha equal to 0.770: desirable
<b>Convergence</b>			
Pearson coefficient	Pearson coefficients > 0		All Pearson coefficients are positive and significant

Source: Elaborated by the authors.

Then, the descriptive statistics of the functions that were grouped by factor analysis in planning and dialogue are elaborated, seeking to verify if there is a preference of the organizations in relation to the usefulness of the budget for a certain function. Table 8 presents the descriptive statistics of the dimension entitled budget utility for the planning and dialogue function.

**TABLE 8**  
**Descriptive statistics of the planning and dialogue dimensions**

Dimension	N	Minimum	Maximum	Average	Standard deviation
Planning	101	1	7	6.25	0.54
Dialogue	101	1	7	6.07	0.58

Source: Elaborated by the authors.

Through the results described in Table 8, it can be inferred that the managers of information technology organizations perceive the usefulness of the functions of the form budget, since the averages were higher than the average, which highlights that both dimensions approached the maximum value (7).

In addition, the test for the difference in average (t-student) of independent samples is performed to verify whether the type of budgeting using the fixed or flexible model impacts the budget's utility in the planning and dialogue function. Table 9 shows the test for the difference in means of budget functions by type of preparation.

In general, the findings indicate that the perceived usefulness of the budget in the planning function does not differ when the company prepares its budget using the fixed or flexible type. In this sense, the development of the budget in a fixed or flexible way does not impact its usefulness in the planning function and does not support "H1 – The annual budget utility is greater when performing the planning function".

This function has a control perspective, so budgets are considered important to help organizations control costs (GOVINDARAJAN and FISHER, 1990). They are used as an aid to boards of directors as a monitoring device (SIVABALAN et al., 2009). In this functionality,

the budget works as an evaluation mechanism, which facilitates the analysis of the process for corrections (HOPWOOD, 1972).

**TABLE 9**  
**Difference tests of means of budget functions by type of preparation**

Budget Functions	Type of Budget Preparation	N.	Average	Standard deviation	Test t sig.
Planning	1 (Fixed)	48	6.271	0.6959	0.655
	2 (Flexible)	53	6.238	0.6814	
Dialogue	1 (Fixed)	48	5.857	0.9327	0.015*
	2 (Flexible)	53	6.259	0.6420	

Source: Elaborated by the authors.

On the other hand, the evidence indicates that there is a difference in the perceived usefulness of the budget for the dialog function between companies that prepare the budget in a fixed or flexible way, as presented in “H2 – The usefulness of the flexible budget is greater when it performs the function of dialogue”. It is suggested that flexible budgeting is more associated with the preference for its usefulness in the dialogue function, that is, those companies that focus on budgeting in the dialogue function are generally more linked to flexible budgeting. The functions sought in the dialogue are understood as the alternative role of the budget (MULLER-STEWENS et al., 2020), in which it allows continuous exchange of information and ideas between top management and lower hierarchical levels.

Bhimani, Sivabalan and Soonawalla (2018) explain that organizations that realize the usefulness of flexible budgeting tend to have the ability to monitor and update their numbers in dynamic environments. Fostering dialogue, organizational debate and encouraging the exchange of information can contribute to the dissemination of knowledge, distribution and communication of information and the emergence of strategic actions (SIMONS, 2013), which may be essential for the elaboration of a flexible budget.

For the sensitivity analysis, additional tests are designed. First, we seek to verify whether the companies that develop the flexible budget present differences in the perception of usefulness for the functions of planning and/or dialogue. To this end, the budget is segregated between companies that perform it on a monthly basis and those with a quarterly, four-monthly or half-yearly review. Table 10 shows the test for the difference in means of the budget functions by the type of flexible preparation, segregated by the monthly model and other flexible models.

**TABLE 10**  
**Difference tests of budget functions means by flexible elaboration type**

Budget Functions	Type of Budget Preparation	N.	Average	Standard deviation	Test t sig.
Planning	1 (Monthly)	17	6.357	0.702	0.654
	2 (3-/6-/4-month)	36	6.195	0.678	
Dialogue	1 (Monthly)	17	6.107	0.866	0.183
	2 (3-/6-/4-month)	36	6.315	0.541	

Source: Elaborated by the authors.

The results indicate that the way of revising the flexible budget does not show any difference in the perceived usefulness for the planning function or in the dialogue. It is concluded that, regardless of the periodicity of revision of the flexible budget, its function for planning and dialogue does not change. This finding suggests that the promotion of dialogue as a budget utility occurs when it is prepared in a flexible way, and that the periodicity of the review does not become a determining factor. The result is in line with the study by Bhimani et al. (2018), who reported that budget functions are more important for organizations that perceive them to be useful on a monthly basis and that other companies that prepare quarterly budgets may not have the ability to monitor and update their numbers in uncertain environments, for this reason, they conduct budget updates less frequently.

According to the findings, it is inferred that the annual budget can be incorporated into a control structure in order to plan (COVALESKI et al., 2006) and support the formulation of action plans (COVALESKI and DIRSMITH, 1983), thus offering a diagnostic view of control (SILVA and LAVARDA, 2020). It is also concluded that organizations can perceive the usefulness of making a flexible and annual budget jointly (SIVABALAN et al., 2009), in which some functions are highlighted according to the type of budget. Thus, certain functions are privileged, depending on the type of budget adopted, as found in the dimension of dialogue in companies that use it flexibly.

As competitive markets require strict cost control to maintain the profit margin, while the dynamic environment stresses the need for a high rate of strategic adaptation and change (MARGINSON and OGDEN, 2005), the flexible budget has the facility to deal with the needs of management information and with the elaboration and revision of organizational planning, which are more limited for the annual budget (MERCHANT and VAN DER STEDE, 2004). In this way, budget functions aimed at dialogue lead to discussion and motivate the development of ideas and creativity within an acceptable domain (LAITINEN, LANSILUOTO and SALOEN, 2016).



## FINAL CONSIDERATIONS

This study aims to identify whether the type of elaboration (fixed and/or flexible) affects the usefulness of planning and dialogue functions in Brazilian information technology organizations. The results show that, in these companies, the flexible budget had a higher average for the dialogue utility when compared to the fixed budget. In this way, these organizations perceive greater utility for the functions of the budget. It is still observed that there is no difference in the period of elaboration of the flexible budget in relation to the functions. These companies may not have the ability to constantly monitor and update their numbers and, for this reason, choose to conduct continuous budget updates less frequently, as explained by Bhimani et al. (2018).

It is also inferred that the organizations in the sample use fixed and flexible budgets mutually, as suggested by Sivabalan et al. (2009) and Ekholm and Wallin (2011), so that some functions may be identical and exclusive according to the type of budget. In this sense, budgeting, either fixed or flexible, is equal in utility to the planning function. However, there is a difference in the usefulness of the dialogue function between organizations that budget flexibly. Therefore, different priorities emerge for each type of budget, which makes considering operational reasons and the search for new opportunities.

This study provides evidence that budget functions are useful according to the type of design used. Secondly, it signals that the annual budget continues to be beneficial for most organizations. Along these lines, it expands theoretical discussions on the usefulness of both traditional and flexible budgeting, as well as helping to make gaps between practice and prescription more transparent, which is suggested by Tucker and Lowe (2014).

In the practical field, the study indicates that organizations realize the usefulness of the flexible budget alongside the fixed (annual) budget, as pointed out by Sivabalan et al. (2009), and that there is exclusivity of functions according to the type of budget. Different budget types cannot be seen as rivals in the efficient and effective implementation of organizational resources (planning functions), but flexible budgeting has been most useful to organizations to foster dialogue, organizational debate, motivation, to encourage exchange of information, contribute to the dissemination of knowledge, distribution and communication of information and the emergence of strategic actions (functions of dialogue).

The main limitation of the investigation is the fact that it involves only Brazilian information technology organizations, as well as the limitation of the research strategy used, based on the perception of respondents to the questions presented. One suggestion is to carry out a case study in these organizations in a way that involves data triangulation, such as a survey with employees, interviews with managers, document analysis and observation.

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