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Influence of the performance measurement system on job satisfaction and organizational commitment

Influência do sistema de mensuração do desempenho na satisfação no trabalho e no comprometimento organizacional

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Abstract

Purpose: This study analyzes the influence of diagnostic and interactive use of the performance measurement system (PMS) on job satisfaction and affective organizational commitment.

Originality/value: The study provides empirical evidence that contributes to highlighting the contrasting findings in the literature on how the use of PMS influences job satisfaction and the affective organizational commitment of individuals.

Design/methodology/approach: A survey was carried out with middle-level managers of companies featured in the Best Companies to Work For ranking by the *Você S/A* magazine, where a sample of 167 valid responses was obtained. We applied the structural equation modeling to test the hypotheses.

Findings: The results show a direct relationship between the interactive use of PMS and job satisfaction. They also indicate a direct connection between job satisfaction and affective organizational commitment. Furthermore, they show that diagnostic use directly impacts affective organizational commitment, while interactive use indirectly impacts affective organizational commitment by mediating job satisfaction. These results contribute to the literature by revealing that PMS's diagnostic and interactive uses result in different psychological consequences, such as job satisfaction and affective organizational commitment. They also contribute by reinforcing the previous literature regarding the complementarity and interdependence of the dual role of the PMS in the organizational context since the interactive use provides a flexible basis for the performance of activities, and the diagnostic use requires alignment of individual behaviors with organizational standards.

Keywords: performance measurement system, diagnostic use, interactive use, job satisfaction, affective organizational commitment

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Resumo

Objetivo: Este estudo analisa a influência dos usos diagnóstico e interativo do sistema de mensuração do desempenho (PMS) na satisfação no trabalho e no comprometimento organizacional afetivo.

Originalidade/valor: O estudo traz evidências empíricas que contribuem para o deslinde dos achados contrastantes da literatura sobre como o uso do PMS influencia na satisfação no trabalho e no comprometimento organizacional afetivo de indivíduos.

Design/metodologia/abordagem: Uma *survey* foi realizada com gestores de nível intermediário de empresas classificadas no *ranking* Melhores Empresas para Trabalhar da revista *Você S/A*, em que se obteve uma amostra de 167 respostas válidas. Para testar as hipóteses, aplicou-se a modelagem de equações estruturais.

Resultados: Os resultados mostram relação direta entre o uso interativo do PMS e a satisfação no trabalho. Também apontam relação direta entre a satisfação no trabalho e o comprometimento organizacional afetivo. Ainda, evidenciam que o uso diagnóstico afeta diretamente o comprometimento organizacional afetivo, enquanto o uso interativo afeta indiretamente o comprometimento organizacional afetivo, pela mediação da satisfação no trabalho. Esses resultados revelam que os usos diagnóstico e interativo do PMS implicam diferentes consequências psicológicas, como satisfação no trabalho e comprometimento organizacional afetivo. Também reforçam a literatura prévia quanto à complementaridade e interdependência do duplo papel do PMS no contexto organizacional, visto que o uso interativo fornece uma base flexível para o desempenho das atividades e o uso diagnóstico impõe alinhamento dos comportamentos individuais aos padrões organizacionais.

Palavras-chave: sistema de mensuração do desempenho, uso diagnóstico, uso interativo, satisfação no trabalho, comprometimento organizacional afetivo

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INTRODUCTION

Performance measurement systems (PMS) are managerial control mechanisms present in the work context to influence the actions and performance of individuals toward the achievement of organizational goals (Franco-Santos & Otley, 2018). PMS is interconnected to almost all organizational factors and, in this way, is essential for the development and survival of organizations (Sandalika & Jayasekara, 2017). As an integral and critical part of management control systems (MCS), PMS provides periodic information (Burney & Matherly, 2007), capable of influencing motivations and cognitions (Hall, 2008) that lead to the improvement of organizational and individual performance (Rompho & Siengthai, 2012).

PMS are important mechanisms for human development (Shrivastava, 2018), but individual reactions to these controls can have different forms (Tessier & Otley, 2012). Beuren et al. (2018) argue that employee involvement in organizational characteristics (*e.g.*, in PMS) results in positive reactions at work. In this regard, a recent stream of research has examined how PMS positively affects individual behaviors and attitudes (Rompho & Siengthai, 2012; Sandalika & Jayasekara, 2017; Santos et al., 2019). These studies conceive the role of PMS as a mechanism for support and motivation (Hall, 2008) that induces alterations in the mental models of individuals (Franco-Santos & Otley, 2018) and leads them to exhibit different behavioral patterns.

In this context, research has investigated how PMS influences affective commitment (Fletcher & Williams, 1996), job satisfaction (Burney & Matherly, 2007), work skills (Rompho & Siengthai, 2012), creativity (Frare & Beuren, 2021), and employee performance (Santos et al., 2019). They also investigated the indirect effects of PMS on individual outcomes through intervening variables such as the availability of information (Burney & Matherly, 2007), the clarity of roles (Hall, 2008), and psychological empowerment (Souza & Beuren, 2018). However, these studies focused on specific characteristics and components of PMS (*e.g.*, performance evaluation, participation in decision-making, rewards system, and performance measures) and not on how these systems are used (Marginson et al., 2014).

In this study, we analyze the use of PMS following the model of levers proposed by Simons (1995), explicitly addressing diagnostic and interactive uses. The diagnostic use of PMS aims to monitor performance and assist in identifying conduct deviations (Marginson et al., 2014), while the interactive use of PMS stimulates the search for opportunities by instigating learning

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and creativity (Moulang, 2013). While the purpose of both uses seems contrasting, theoretical and empirical evidence shows that they are complementary and interdependent (Widener, 2007; Müller-Stewens et al., 2020), serving different purposes concomitantly (Henri, 2006; Kaveski et al., 2020) and operate in balance (Simons, 1995).

Control can cause positive, negative, or neutral reactions in individuals, so different uses of MCS can cause different reactions (Tessier & Otley, 2012). We assume that diagnostic and interactive uses of PMS are predictors of job satisfaction and affective organizational commitment. Some studies have considered this approach (Dahlan, 2018; Gupta et al., 2019; Martyn et al., 2016; Moulang, 2013) but focused on interactive use. Marginson et al. (2014) highlight that analyzing these different modalities of use together can contribute to explaining the psychological state of individuals in the organizational context.

Guenther and Heinicke (2019) point out that diagnostic and interactive uses of PMS are valuable and have positive impacts. However, the literature findings are ambiguous and contradictory, highlighting the need for more research. Thus, the question that guides the present study is:

- What is the influence of diagnostic and interactive use of PMS on job satisfaction and affective organizational commitment?

We tested direct and indirect relationships between the constructs to answer this question. The study's relevance is in seeking to understand the psychological consequences of interactive and diagnostic uses of PMS in individuals by upper management.

The empirical results of this study contribute to the existing literature, in particular to the emerging stream of research exploring psychological consequences of PMS use (Beuren et al., 2018; Frare & Beuren, 2021; Gupta et al., 2019; Marginson et al., 2014). Martyn et al. (2016) found that the literature on the subject focused on the interactive use of MCS. When considering diagnostic use, it was restricted to examining organizational results to the detriment of individual results and psychological consequences. Thereby, this study seeks to broaden discussions about elements of the Levers of Control model proposed by Simons (1995) when explaining how the dual role of control (Beuren et al., 2022; Tessier & Otley, 2012) can promote higher levels of job satisfaction and affective organizational commitment.

In the field of management practice, this study seeks to contribute to organizations by highlighting the importance of using MCS, which can generate positive psychological impacts. We understand that organizational

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performance begins at the individual level. According to theoretical assumptions and empirical evidence, characteristics such as satisfaction and commitment of individuals can present themselves as factors that generate competitive advantage in the long term for organizations (Burney & Matherly, 2007; Fletcher & Williams, 1996; Rompho & Siengthai, 2012; Su et al., 2015). Therefore, our contribution is to highlight how using PMS can foster individual behaviors that benefit organizations.

THEORETICAL FRAMEWORK AND HYPOTHESES

MCS are mechanisms used to maintain or change organizational standards, primarily focusing on fulfilling an organization's goals (Simons, 1995). They range from management accounting systems, communication and planning systems, budgeting, and project management to information about performance measurement (Henri, 2006). Simons (1995) presents a model of MCS titled Levers of Control, which comprises four levers: belief systems, boundary systems, diagnostic control systems, and interactive control systems.

Simons (1995) proposes that managers use these four control levers as negative and positive forces organizational tensions (Tessier & Otley, 2012). Negative controls are diagnostic control systems and boundary systems, which are not considered bad controls but work for coercing, punishing, prescribing, and controlling. Positive controls are belief systems and interactive control systems, which act in motivation, reward, and orientation while promoting learning (Tessier & Otley, 2012). The premise is that these levers are used in conjunction to implement an organizational strategy (Simons, 1995).

In line with previous studies (*e.g.*, Beuren et al., 2018; Guenther & Heinicke, 2019; Gupta et al., 2019; Henri, 2006; Kaveski et al., 2020; Marginson et al., 2014; Müller-Stewens et al., 2020; Pazetto et al., 2020), this study focuses on diagnostic and interactive uses. The characteristics of diagnostic and interactive uses of MCS generate organizational and individual consequences (Marginson et al., 2014). Studies at the individual level have identified that these uses may reflect on the ambiguity of roles (Marginson et al., 2014; Beuren et al., 2018), individual creativity (Moulang, 2013), and psychological *empowerment* (Beuren et al., 2018; Marginson et al., 2014; Moulang, 2013).

The scope of MCS has led researchers to consider a specific type of system to analyze the psychological consequences, such as using PMS (Marginson

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et al., 2014; Martyn et al., 2016). In the present study, we assume that the diagnostic and interactive uses of PMS are predictors of job satisfaction and affective organizational commitment. We expected that job satisfaction could mediate the relationship between PMS's diagnostic and interactive uses and affective organizational commitment.

PMS use and job satisfaction

The diagnostic and interactive uses are typical of performance and *feedback* measurement systems (Martyn et al., 2016). The diagnostic use of systems implies that the information is used to monitor the results and correct deviations from standards (Simons, 1995). It consists of directing managerial efforts to monitor the factors that help (or prevent) the implementation of the organizational strategy (Widener, 2007). It communicates and monitors critical success factors (Martyn et al., 2016; Tuomela, 2005). It facilitates efficient managerial attention and information processing since it focuses on risk management and environmental uncertainties (Widener, 2007). Henri (2006) and Müller-Stewens et al. (2020) point out that a diagnostic use motivates and directs performance and assists in the feedback and rewards for achieving goals.

Managers adopt the interactive use of systems in decision-making activities since it stimulates dialogue between organizational areas and debates about strategic uncertainties (Simons, 1995). It helps identify which opportunities will be beneficial when formulating, directing, and expanding emerging strategies (Dahlan, 2018). In this conception, an MCS directs attention to strategically important information, which can stimulate experimentation and the rise of new initiatives and ideas (Moulang, 2013; Matsuo et al., 2021). Thus, they represent a positive force that acts in the search for learning and opportunities, resulting in organizational creativity and inspiration (Henri, 2006).

Such ways of using systems can be seen in different lights by employees in the work context (Beuren et al., 2022; Shrivastava, 2018). Tessier and Otley (2012) claim that the characteristics of these uses can lead individuals to exhibit different emotional and psychological responses. For Shrivastava (2018), job satisfaction is one of the psychological consequences resulting from the evaluation and measurement of performance. A PMS increases individual satisfaction levels by providing complete information about performance measurement (Burney & Matherly, 2007). In this respect, studies have identified how the dimensions of PMS and their use can affect job

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satisfaction (Gupta et al., 2019; Sandalika & Jayasekara, 2017; Shrivastava, 2018; Souza & Beuren, 2018).

Sandalika and Jayasekara (2017) emphasized the importance of PMS having complementary characteristics since they are responsible for the development and motivation of individuals and are related to several organizational factors. Souza and Beuren (2018) point out that even in mechanistic environments, marked by the search for high-efficiency and standardized processes, it is important to understand how managerial practices make individuals feel more satisfied. Shrivastava (2018) highlights that organizations need to design and use effective PMS that help resolve conflicts and reduce dissatisfaction and that, in addition to leading individuals to develop high levels of satisfaction, it can impact those who feel satisfied (or not).

Gupta et al. (2019) analyzed the impacts of MCS on the job satisfaction of South African employees. They used arguments from the Organizational Information Processing Theory to examine the effects of the agility of Information Systems and the interactive and diagnostic use of PMS on job satisfaction. The results indicated that the agility of the information systems positively impacted the two uses of PMS, which, in turn, positively affected job satisfaction. Therefore, diagnostic and interactive uses of PMS can simultaneously act as mechanisms that promote satisfaction. Considering the arguments provided here and the theoretical-empirical evidence presented, we believe that:

- H_{1a}: There is a direct and positive influence of diagnostic uses of PMS on job satisfaction.
- H_{1b}: There is a direct and positive influence of interactive uses of PMS on job satisfaction.

Job satisfaction and affective organizational commitment

Job satisfaction is an emotional state arising from individuals' characteristics and work environment (Sandalika & Jayasekara, 2017). It results from the assessment that individuals make of the combination of general or specific aspects of their working conditions, which results in an affective state concerning their work (Shrivastava, 2018). Satisfaction is considered a determining factor of organizational efficiency and effectiveness (Sandalika & Jayasekara, 2017; Cruz et al., 2022). For Rompho and Siengthai (2012), (un)satisfied employees have (lower) higher levels of effort, which (negatively) positively affects individual and organizational performance.

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Previous studies point to the multidimensional role of job satisfaction in individual outcomes and, therefore, in organizational outcomes (Fabi et al., 2015; Koo et al., 2019; Mahmood et al., 2019). In a systematic review of the literature, Mowday et al. (1979) found that job satisfaction is the variable that has the most significant power to explain affective organizational commitment. Subsequent studies confirmed the findings of Mowday et al. (1979) that job satisfaction is the greatest predictor of commitment (Fabi et al., 2015; Koo et al., 2019; Mahmood et al., 2019).

Koo et al. (2019) investigated the antecedents and consequences of job satisfaction of hotel employees in South Korea. They verified that satisfaction could be used as a rational resource in achieving organizational goals, and as such, it is necessary to understand its driving forces and their consequences. The results indicated that satisfied employees have higher performance levels, are highly committed, and do not want to leave organizations. They inferred that it is advantageous for hotels' organizational performance to keep employees satisfied and committed. Similar results were found in the studies of Fabi et al. (2015) and Mahmood et al. (2019), which support the thesis that:

- H_2: There is a direct and positive influence of job satisfaction on affective organizational commitment.

Use of PMS and affective organizational commitment

Affective organizational commitment refers to a cognitive process of identification and affective bonding that binds the employee to the organization (Mowday et al., 1979; Meyer & Allen, 1991). It consists of three factors: 1. strong belief and acceptance of organizational values and goals; 2. willingness to exert great effort in favor of the organization; and 3. desire to maintain the employment relationship (Mowday et al., 1979). It is also defined as individuals' attachment, involvement, and loyalty to their work organization (Su et al., 2015). Although there is no universal definition (Meyer & Allen, 1991), the literature converges to characterize this behavior as the commitment of employees to achieve organizational goals (Dahlan, 2018; Fletcher & Williams, 1996; Kleine & Weißenberger, 2014; Mowday et al., 1979; Meyer & Allen, 1991).

Dahlan (2018) highlights that affective organizational commitment is a key factor in gaining competitive advantage and increasing performance and that using PMS can influence such relationships. Gupta et al. (2019) state

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that upper management can use PMS to stimulate employee commitment. Kleine and Weißenberger (2014) point out that the literature has highlighted the role of MCS in stimulating commitment to organizational goals. Following this logic, studies have examined how the use of MCS can promote an increase in the levels of individual commitment (Dahlan, 2018; Fletcher & Williams, 1996; Kleine & Weißenberger, 2014; Su et al., 2015).

Under the theoretical lens of the organizational life cycle, Su et al. (2015) investigated the effects of using MCS on affective organizational commitment in a sample of Australian managers. They used a taxonomy composed of three control approaches: input controls, behavioral controls, and output controls. The results indicated that only input controls have a significant effect on commitment. Thus, controls related to the training and development of employees so that they perform their activities in the desired way lead individuals to exhibit higher levels of affective commitment to their organization (Su et al., 2015).

The characteristics of the input controls analyzed by Su et al. (2015) share similarities with diagnostic use. For that reason, we expected that they also influence affective organizational commitment. Widener (2007) expresses that diagnostic use seeks to motivate individuals to align their performance and behavior with organizational goals. In a case study, Tuomela (2005) employed the levers of control to understand how the design and use of PMS affect organizational strategy. They found evidence that diagnostic and interactive uses of PMS help improve management and result in higher levels of commitment to goals.

By finding a strong association between the interactive use of PMS and affective organizational commitment in a sample of employees of Indonesian private companies, Dahlan (2018) concludes that with interactive use of PMS, top management provides an effective means of communication, which can induce individuals to work hard and loyally to achieve organizational goals. Based on the theoretical and empirical evidence presented (Dahlan, 2018; Kaveski et al., 2020; Kleine & Weißenberger, 2014; Mowday et al., 1979; Simons, 1995; Tuomela, 2005; Widener, 2007), we believe that both uses of PMS can impact affective organizational commitment, namely:

- H_{3a}: There is a direct and positive influence of the diagnostic use of PMS on affective organizational commitment.
- H_{3b}: The interactive use of PMS on affective organizational commitment has a direct and positive influence.

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The mediating role of job satisfaction

Research on the influence of PMS uses on affective organizational commitment should not limit itself to analyzing direct relationships between these variables since such relationships can be mediated. Fletcher and Williams (1996) point out that it is important to consider psychological variables that explain the indirect effects of PMS elements on other variables, such as commitment. Research in the scope of MCS confirms these indirect effects of interactive and diagnostic uses (Beuren et al., 2018; Kaveski et al., 2020; Marginson et al., 2014; Matsuo et al., 2021; Moulang, 2013; Sitepu et al., 2020). Their results revealed how cognitive and motivational mechanisms explain the indirect effects of MCS on other variables.

For Meyer and Allen (1991), commitment stems from characteristics present in the organizational structure (*e.g.*, PMS) and personal characteristics (*e.g.*, satisfaction). In finding associations between MCS and commitment, Kleine and Weißenberger (2014) inferred that MCS, in conjunction with individual characteristics, leads to higher levels of commitment. Shrivastava (2018) offers that the materialization of an organizational vision and mission through PMS allied to job satisfaction can be essential to increase the effective organizational commitment of individuals. In this context, studies have analyzed the effects of management mechanisms on affective organizational commitment through the mediation of job satisfaction (Fabi et al., 2015; Mahmood et al., 2019).

Fabi et al. (2015) examined the influence of high-performance work systems (HPWS) on job satisfaction and organizational commitment. They defined HPWS as different management practices that act in a complementary way to promote the motivation and commitment of human capital. In addition to direct interactions between HPWS and satisfaction, they found an indirect effect of HPWS on commitment through job satisfaction. These results resemble those of Mahmood et al. (2019), who found a mediating effect of job satisfaction on the relationship between elements of HPWS and affective commitment. These pieces of evidence allow us to infer the influence of diagnostic and interactive uses of PMS on affective organizational commitment, mediated by job satisfaction, as follows:

- H_{4a}: Job satisfaction positively mediates the relationship between diagnostic uses of PMS and affective organizational commitment.
- H_{4b}: Job satisfaction positively mediates the relationship between interactive uses of PMS and affective organizational commitment.

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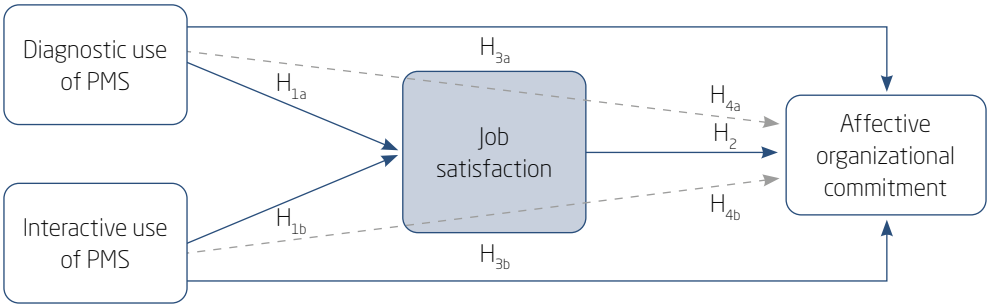
In line with the theoretical-empirical evidence and the hypotheses presented, Figure 1 illustrates the theoretical model of the research.

Figure 1

Theoretical research model



METHODOLOGICAL PROCEDURES

Population and sample

We carried out a survey with intermediate-level managers of companies listed in the Best Companies to Work For 2018 ranking by *Você S/A* magazine. The ranking, composed of different-sized companies from 21 economic sectors, is obtained by weighting the employee happiness index, considering the criteria of work environment quality (65% of the final grade) and people management quality (35% of the grade). We believe that these characteristics delineate an organizational environment in which managerial practices can result in positive psychological consequences, in line with the scope of the present study. This choice is also consistent with studies (Fabi et al., 2015; Kleine & Weißenberger, 2014; Santos et al., 2019; Sitepu et al., 2020) which pointed out the importance of analyzing individual results from heterogeneous samples composed of different sectors, with a view to greater generalization and external validity of the results.

Data was collected between January and May 2019 on LinkedIn's professional network, where analysts, supervisors, coordinators, and managers from different functional areas of the ranked companies were selected. 3.010 invitations were sent, and 1.794 professionals expressed interest in participating in the study. Those who accepted the invitation were sent the link to the survey instrument – the QuestionPro platform – which resulted in a

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sample of 167 valid responses, compatible with the minimum sample of 119 responses defined by the G*Power software.

Survey instrument and measurement of variables

The theoretical model of the research consists of the constructs: use of PMS, job satisfaction, and affective organizational commitment. The assertions were translated and adapted from previous studies and anchored in a Likert-type scale of seven points. The elaboration and validation of these assertions occurred in the context of the original studies. To ensure that the questionnaire was easy for respondents to understand, a pre-test was carried out, where specific changes were suggested in the wording of the statements before making the research instrument available on the QuestionPro platform.

The construct of PMS, segregated into the variables diagnostic use and interactive use of PMS, was measured based on the 11 assertions of Henri (2006), previously validated in the Brazilian context (*e.g.*, Beuren et al., 2018). Respondents assessed the extent to which the company's top management uses some performance measures on a scale from 1 = not at all to 7 = a great extent. Examples of assertions for the diagnostic use of PMS are: "Tracks progress towards goals"; and for the interactive use of PMS: "Promotes discussions in meetings between superiors, subordinates, and peers." Cronbach's alpha was 0.877 for diagnostic use and 0.904 for interactive use.

For the job satisfaction construct, we used eight assertions by Roh et al. (2016), in which respondents indicated their degree of satisfaction with intrinsic and extrinsic elements of their work on a scale ranging from 1 = strongly disagree to 7 = strongly agree. We chose this instrument because it requested information on general characteristics (*e.g.*, appreciation, achievement, remuneration, chances of promotion), similar to that carried out in the studies of Souza and Beuren (2018) and Cruz et al. (2022). An example of assertion is: "My work gives me a sense of accomplishment." This construct presented a 0.882 Cronbach's alpha.

In order to measure the construct of affective organizational commitment, we used the Organizational Commitment Questionnaire (OCQ) developed by Mowday et al. (1979), with 15 assertions about behaviors and feelings related to the organization where they work (*e.g.*, effort to achieve goals, loyalty, pride, concern for the future of the organization), on a scale ranging from 1 = strongly disagree to 7 = strongly agree. An example of assertion is: "I am willing to give much more than is normally expected to help this

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organization succeed." This instrument, previously validated in the Brazilian context (*e.g.*, Kaveski et al., 2020), had a 0.885 Cronbach's alpha.

Data analysis procedures

In order to minimize the potential for possible biases that may impair the validity of the responses, we adopted some procedures recommended by Podsakoff et al. (2003): preservation of the anonymity of the respondents, guarantee that there are no right or wrong answers, use of reverse statements; and a pre-test. As the same respondents reported all constructs, standard method bias is possible (Podsakoff et al., 2003); for that reason, we performed the Harman single-factor test. The test results indicated the presence of four factors, represented by the four study variables, with 70.43% total explained variance, with the first factor explaining 46.13%. Therefore, no single factor represents the entire variance, which indicates that the bias of the common method does not represent a problem in the data analysis (Podsakoff et al., 2003).

We used structural equation modeling (SEM) estimated from partial least squares (PLS) in the SmartPLS software to analyze the hypotheses. Analysis of the PLS-SEM model comprises two sequential steps, the measurement, and structural models, obtained in the Algorithm, *Bootstrapping* and *Blindfolding* modules in SmartPLS (Hair et al., 2017). This sequence ensured the constructs' reliability and validity before analyzing and interpreting the structural paths (Bido & Silva, 2019). Direct and indirect relationships were analyzed in the hypothesis test, following the recommendations of t-value > 1.96 and p-value < 0.05 (Hair et al., 2017).

DATA ANALYSIS

Demographic information revealed that respondents work in various economic sectors of companies, with emphasis on services (26.95%), health services (13.77%), and consumer goods (10.78%). As for the positions, the sample is composed of managers (35.93%), analysts (24.55%), coordinators (22.75%), and supervisors (16.77%) from different functional areas, with a predominance of production (11.98%), sales (11.38%), controllership (8.38%) and logistics (6.59%). Most respondents were male (74.85%) and had an average age of 37.7 years (standard deviation of 8.3). On average, they had worked for the company for 8.3 years (standard deviation of 7.4)

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and had been in the position for 4.1 years (standard deviation of 3.5). From the information above, we assume that the respondents are in a condition to answer the research instrument.

Measurement model

The evaluation of the measurement model consists of verifying the reliability (internal and composite) and validity (convergent and discriminating) of the constructs. Table 1 shows the discriminant validity for the cross-loading Matrix.

Table 1

Crossed loads

Assertions	DU	IU	JS	AOC
DU1	**0.906**	0.609	0.419	0.510
DU2	**0.889**	0.496	0.337	0.419
DU3	**0.855**	0.579	0.301	0.359
DU4	**0.809**	0.601	0.371	0.429
IU1	0.517	**0.672**	0.293	0.307
IU2	0.677	**0.777**	0.368	0.377
IU3	0.515	**0.845**	0.469	0.467
IU4	0.466	**0.819**	0.474	0.489
IU5	0.505	**0.845**	0.433	0.430
IU6	0.605	**0.860**	0.427	0.443
IU7	0.463	**0.761**	0.463	0.471
JS1	0.377	0.475	**0.745**	0.529
JS2	0.289	0.344	**0.827**	0.551
JS3	0.306	0.418	**0.864**	0.572
JS4	0.193	0.315	**0.510**	0.330
JS5	0.298	0.398	**0.616**	0.489
JS6	0.391	0.471	**0.873**	0.712
JS7	0.249	0.285	**0.771**	0.530

(continues)

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Table 1 (conclusion)

Crossed loads

Assertions	DU	IU	JS	AOC
JS8	0.399	0.505	**0.859**	0.675
AOC01	0.436	0.471	0.621	**0.706**
AOC02	0.514	0.507	0.557	**0.846**
AOC03	0.321	0.304	0.389	**0.567**
AOC05	0.397	0.442	0.463	**0.758**
AOC06	0.455	0.466	0.525	**0.843**
AOC08	0.492	0.540	0.698	**0.798**
AOC09	0.125	0.157	0.320	**0.493**
AOC10	0.285	0.316	0.561	**0.733**
AOC11	0.230	0.206	0.490	**0.629**
AOC12	0.336	0.383	0.431	**0.674**
AOC13	0.371	0.431	0.635	**0.781**
AOC14	0.273	0.315	0.460	**0.703**
AOC15	0.199	0.237	0.415	**0.591**

Note. DU = diagnostic use of PMS; IU = interactive use of PMS; JS = job satisfaction; AOC = affective organizational commitment.

Two assertions (COA4 and COA7) were excluded from the model since they had factor loadings below 0.4 and impaired the quality of the measurement model. Table 1 shows satisfactory discriminant validity values for the cross-loading Matrix (cross-loading), as the factorial loads (in bold) are larger than the off-diagonal cross loads (Hair et al., 2017). These authors state that assertions above 0.4 and below 0.7 can be maintained in the model if there is no damage to the validity and reliability levels. Table 2 shows the values of the constructs' mean, standard deviation, reliability, validity, and correlation.

Descriptive statistics (mean and standard deviation) indicate that the use of PMS in the analyzed companies occurs in a diagnostic and interactive way, corroborating evidence of interdependence and complementarity of these forms of PMS use (Marginson et al., 2014; Müller-Stewens et al., 2020; Pazetto et al., 2020; Tessier & Otley, 2012; Widener, 2007). In order to analyze the reliability, we initially verified the internal reliability of the construct

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by Cronbach's alpha, and all values were above the acceptable limit of 0.7. Satisfactory levels of composite reliability are also attested since all values are above the acceptable limit of 0.7. These results indicate that the proposed model is reliable (Bido & Silva, 2019; Hair et al., 2017).

Table 2

Measurement model results

Variables	Mean	Standard deviation	Cronbach's alpha	Composite reliability	AVE	Discriminating validity			
						DU	IU	JS	AOC
DU	5.92	1.22	0.889	0.923	0.750	**0.866**			
IU	5.47	1.34	0.905	0.925	0.639	0.661	**0.799**		
JS	5.81	1.28	0.895	0.918	0.590	0.418	0.531	**0.768**	
AOC	5.74	1.53	0.915	0.928	0.503	0.503	0.541	0.731	**0.709**

Note. DU = diagnostic use of PMS; IU = interactive use of PMS; JS = job satisfaction; AOC = affective organizational commitment; and AVE = average variance extracted.

The convergent validity, which indicates how much a construct is correlated to itself (Hair et al., 2017), was confirmed since all values of the average variance extracted (AVE) are above 0.5. Discriminant validity, which indicates how distinct a construct is from the others (Hair et al., 2017), was confirmed using Fornell-Larcker's criterion, with the values of the square root of the AVE (values in bold on the diagonal) greater than those of the correlation between the other constructs. These results attest to the validity of the proposed model. Together, the measurement model results indicate that the constructs have satisfactory levels of reliability and validity, which shows the model is adequate (Bido & Silva, 2019; Hair et al., 2017).

Structural model

The Bootstrapping module was used to analyze the structural model and test the hypotheses, considering 5,000 subsamples, a Bias-Corrected and Accelerated (BCA) Bootstrap confidence interval, and a two-tailed test at a 0.05 significance level (Hair et al., 2017). In Bootstrapping, we obtained the values for structural coefficients (β), the t-value, and the p-value of each relationship tested. We also evaluated the structural model from effect size (f^2) obtained in the algorithm module, coefficient of determination (R^2) received at the Bootstrapping module, which indicates the explanatory

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power of exogenous variables, and the predictive relevance (Q^2) obtained in the Blindfolding module, which indicates the accuracy of the model (Hair et al., 2017). Table 3 shows these results.

Table 3

Structural model results

Panel A: Hypothesis testing					
Hypotheses	Structural relations	*β*	*t-Statistics*	*p-value*	f^2
H_{1a}	DU→JS	0.118	1.108	0.268	0.011
H_{1b}	IU→JS	0.453	5.301	0.000	0.163 (medium effect)
H_2	JS→AOC	0.601	9.557	0.000	0.619 (large effect)
H_{3a}	DU→AOC	0.187	2.264	0.024	0.047 (small effect)
H_{3b}	IU→AOC	0.098	1.176	0.240	0.011
H_{4a}	DU→JS→AOC	0.071	1.106	0.269	no mediation
H_{4b}	IU→JS→AOC	0.272	4.428	0.000	total mediation
Panel B: Evaluation of the structural model					
			JS		AOC
	R^2 adjusted		0.282		0.578
	Q^2		0.163		0.267

Note. DU = diagnostic use of PMS; IU = interactive use of PMS; JS = job satisfaction; AOC = affective organizational commitment.

For the relationship between diagnostic use of PMS and job satisfaction, no statistical significance was found (H_{1a}; p-value > 0.05), which suggests that there is a lower level of satisfaction when the systems are used in a cybernetic logic of control, focused on the traditional role of feedback to monitor and correct deviations. H_{1b}, which predicts the direct and positive influence of the interactive use of PMS on job satisfaction, was accepted (p-value < 0.001), which indicates that using PMS as a positive force stimulates seeking opportunities and learning and focus on constant debates and dialogues favor higher levels of job satisfaction.

H_2, which predicts a direct and positive influence between job satisfaction and affective organizational commitment, was accepted (p-value < 0.001), which indicates that satisfied individuals have a positive emotional state,

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which reflects in higher levels of commitment so that they wish to maintain the link with the organization, accept the organizational beliefs and values and are willing to contribute to the organization.

H_{3a}, which postulates a direct and positive influence between the diagnostic use of PMS and affective organizational commitment, was accepted (p-value < 0.05). This indicates that the use of PMS to monitor and coordinate the implementation of strategies and align individual behaviors with organizational objectives leads individuals to exhibit a greater affective commitment to the organization. We found no statistical significance for the relationship between the interactive use of PMS and affective organizational commitment (H_{3b}; *p-value* > 0.05), which leads to the inference that when the use of PMS is focused on the search for emerging strategies and the redefinition of objectives and key success factors, individuals may feel less effectively committed.

The mediating effect of job satisfaction on the relationship between the diagnostic use of PMS and affective organizational commitment has not been confirmed (H_{4a}; p-value > 0.05). H_{4b}, which provides for mediation of job satisfaction in the relationship between the interactive use of PMS and affective organizational commitment, was accepted (p-value < 0.001). As no statistically significant influence was found for the direct relationship between the interactive use of PMS and organizational commitment, only for the indirect relationship, total mediation is signaled (Bido & Silva, 2019; Hair et al., 2017)

To evaluate the structural model, we used the effect size (f^2), which determines how useful each variable is for model fit (Hair et al., 2017), and presented small and large effects here. The coefficient of determination (R^2), which explains the combined impact of exogenous variables on the endogenous variable (Hair et al., 2017), shows that the model explains 28.2% of the variation in job satisfaction and 57.8% of the variation in affective organizational commitment. To evaluate the accuracy of the model, predictive relevance (Q^2, also known as the indicator of Stone-Geisser, should present values above zero (Hair et al., 2017). All Q^2 values were satisfying.

RESULTS DISCUSSION

As a way to provide theoretical and empirical arguments that explain the relationships we found, Figure 2 was elaborated.

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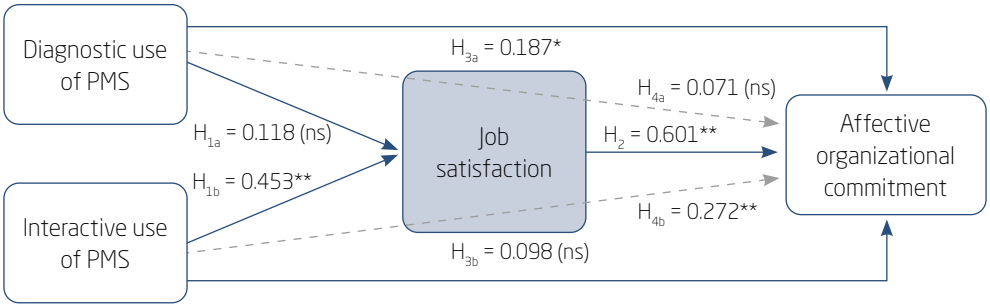
Figure 2

A theoretical model with results



Note. p < *0.05, **0.01. The dotted arrow illustrates the indirect relationship.

No significant relationship was found between the diagnostic use of PMS and job satisfaction, which diverges from the results of Sandalika and Jayasekara (2017) and Gupta et al. (2019). A possible explanation lies in the theoretical arguments of Fletcher and Williams (1996) that when organizations use systems whose main functions are achieving goals and increased performance, a characteristic associated with diagnostic use, individuals feel that these systems neglect their development and well-being and, in line with the findings of the present study, may reflect on lower levels of job satisfaction.

The results indicated a direct and significant influence of the interactive use of PMS on job satisfaction, which corroborates the theoretical assumptions and empirical evidence (Gupta et al., 2019; Simons, 1995). Moulang (2013) and Sitepu et al. (2020) describe that by using PMS interactively, top management discourages restrictive behaviors and provides freedom for individuals to perform their activities. These characteristics come from the high informational access provided by PMS (Frare & Beuren, 2021), which helps in fulfilling personal needs, in addition to leading individuals to exhibit higher levels of performance and satisfaction (Matsuo et al., 2021; Souza & Beuren, 2018).

For H_2, the results denote job satisfaction's direct and significant influence on affective organizational commitment. This corroborates the results of Fabi et al. (2015), Koo et al. (2019), and Mahmood et al. (2019), and the importance of the complementary role of satisfaction in the organizational context is highlighted (Cruz et al., 2022). Sandalika and Jayasekara (2017) point out that job satisfaction stimulates employees to achieve organizational goals in addition to being essential for organizational success. According to Rompho

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and Siengthai (2012), satisfied employees use their work skills to add value to the organization.

No statistical significance was found (p-value > 0.05) between the interactive use of PMS and affective organizational commitment. Therefore, the findings of Dahlan (2018) are not corroborated. Interactive use helps managers pay attention to the constant changes that occur in dynamic and innovative environments, which assists them in reviewing plans and creating new objectives (Martyn et al., 2016; Müller-Stewens et al., 2020; Pazetto et al., 2020). Fletcher and Williams (1996) point out that the lack of clarity in organizational objectives can cause a decrease in employee commitment.

The diagnostic use of PMS directly and significantly influenced affective organizational commitment. This result corroborates theoretical and empirical evidence that the diagnostic use of PMS increases the clarity of objectives (Marginson et al., 2014), stimulates the alignment of individual behavior with organizational goals (Widener, 2007), and thus influences employee commitment (Gupta et al., 2019; Kaveski et al., 2020). Individuals who are affectively committed to the organization have the desire to maintain the bond to accomplish their goals (Mowday et al., 1979).

No mediating effect of job satisfaction was observed in the relationship between the diagnostic use of PMS and affective organizational commitment. It follows that if the independent variable (diagnostic use) does not affect the mediating variable (satisfaction), it is not possible to have indirect effects on the independent variable (Hair et al., 2017). Therefore, there was no mediation of job satisfaction in the relationship between the diagnostic use of PMS and commitment since the direct effect is significant, but the indirect effect is not.

However, the results reveal that job satisfaction mediates the relationship between the interactive use of PMS and affective organizational commitment. This is consistent with the studies of Fabi et al. (2015), Koo et al. (2019), and Mahmood et al. (2019), who found mediation of job satisfaction in this relationship. According to Fabi et al. (2015), by investing in the use of managerial practices, organizations can increase levels of job satisfaction, which, in turn, contributes to higher levels of commitment.

We can observe that the effects of diagnostic and interactive uses of PMS on affective organizational commitment differ because while the diagnostic use influences the commitment directly, the interactive use impacts only indirectly through the mediation of job satisfaction. This indicates that if top management uses PMS interactively, employees will be engaged only if they are satisfied. Meyer and Allen (1991) have already warned that, for

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commitment to occur, a combination of organizational and individual factors is often necessary.

The results of this study have implications for the existing literature by revealing positive influences of diagnostic and interactive uses of PMS. Martyn et al. (2016) highlight that the initial conception of the Simons (1995) model did not consider the impacts that diagnostic and interactive uses have on the behavior of individuals and that studies that address such impacts may have interesting implications for the literature. This study provided empirical evidence on how the use of PMS influences job satisfaction and the affective organizational commitment of individuals.

Another implication stems from the analysis of the different impacts that control mechanisms can have on affective organizational commitment. The results denote that the use of PMS can, directly and indirectly, affect individual commitment. Previous studies (Kleine & Weißenberger, 2014; Mahmood et al., 2019; Meyer & Allen, 1991) already highlighted that higher levels of commitment come from combining individual and organizational characteristics. Thus, analyzing the mediating role of job satisfaction is another contribution of the study.

The results also present practical implications for companies by evidencing the interdependence and complementarity of different forms of MCS use in organizations (Beuren et al., 2022). Widener (2007) points out that it is necessary to understand the role and impacts of diagnostic and interactive uses of PMS since organizations compete with complex business models and in environments of intense change. The study also contributes to management practice by providing evidence of how job satisfaction represents a motivational factor for the affective commitment of individuals to organizations.

The theoretical model adopted and the methodological choices of the study present limitations that should be considered in the analysis of the results. Although the proposed relationships were based on theoretical assumptions and empirical findings, the cross-sectional design allows statistical inferences between the structural paths tested and the analyzed companies. It may present different psychological consequences in other organizations and contexts. In addition, the same respondents evaluated the dependent and independent variables of the study, which may generate a common method bias. We recommend that alternative research methods, such as longitudinal case studies or experiments, superimpose limitations.

The variables are chosen, and their measurement denotes another study limitation, which leads to further research. Franco-Santos and Otley (2018)

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point out the importance of considering the dysfunctional consequences of PMS (*e.g.*, data manipulation or organizational slack) and providing new evidence. Other types of MCS (*e.g.*, budget), satisfaction (*e.g.*, with colleagues, bosses, salary), and commitment (*e.g.*, normative, calculative) can be studied. Job satisfaction and organizational commitment can derive from other factors, such as motivation, organizational culture, and leadership styles. Other variables of pro-organizational behaviors can be investigated, such as organizational citizenship behavior, work engagement, and contextual performance.

FINAL CONSIDERATIONS

In this study, we observed direct relationships between interactive uses of PMS and job satisfaction and between job satisfaction and affective organizational commitment. The mediation analysis results indicated that diagnostic uses of PMS directly affect affective organizational commitment. In contrast, interactive uses of PMS indirectly affect commitment by mediating job satisfaction.

These results point to the importance of senior management understanding that they should be used diagnostically and interactively to maximize the benefits of PMS. They also suggest that to maximize its benefits, the interactive use of PMS must be accompanied by job satisfaction. This implies that organizations create an environment in which the use of PMS can favor job satisfaction since, in addition to impacting affective organizational commitment, job satisfaction helps explain the indirect effects of PMS use.

In the companies surveyed, commitment seems to be a conditional process resulting from personal characteristics and different uses of MCS. This reinforces the need to balance management practices consistent with goal achievement and flexibility (Simons, 1995). Kleine and Weißenberger (2014) have already highlighted that MCS affects commitment differently. Based on the results and aligned with the theoretical-empirical evidence, we conclude that diagnostic and interactive uses of PMS are interdependent and complementary and, when used in balance, can positively affect the psychological variables studied. This denotes the importance of the dual role of control in organizations (Beuren et al., 2022; Tessier & Otley, 2012).

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https://doi.org/10.1590/1678-6971/eRAMG240205.en

REFERENCES

Beuren, I. M., Anzilago, M., & Dal Vesco, D. G. (2018). Efeitos do uso diagnóstico e interativo de medidas de avaliação de desempenho na ambiguidade de papéis e no empoderamento psicológico. *Cuadernos de Administración*, *31*(56), 55–80. https://doi.org/10.11144/Javeriana.cao.31-56.ucdim

Beuren, I. M., Santos, V., & Bernd, D. C. (2022). Effects of using the management control system on individual performance with the intervenience of feedforward and organizational learning. *Journal of Knowledge Management*, *26*(4), 1042–1060. https://doi.org/10.1108/JKM-01-2021-0055

Bido, D. S., & Silva, D. (2019). SmartPLS 3: Especificação, estimação, avaliação e relato. *Administração: Ensino e Pesquisa*, *20*(2), 1–31. https://doi.org/10.13058/raep.2019.v20n2.1545

Burney, L. L., & Matherly, M. (2007). Examining performance measurement from an integrated perspective. *Journal of Information Systems*, *21*(2), 49–68. https://doi.org/10.2308/jis.2007.21.2.49

Cruz, A. P. C. D., Frare, A. B., Accadrolli, M. C., & Horz, V. (2022). Efeitos dos controles informais e *empowerment* psicológico na satisfação no trabalho. *Revista Contabilidade & Finanças*, *33*(88), 29–45. https://doi.org/10.1590/1808-057x202114660

Dahlan, M. (2018). Interactive use of performance measurement systems and its impact to firm performance: Evidence from West Java Province Local-Owned Enterprise, Indonesia. *The Journal of Social Sciences Research*, *4*(2), 148–152. https://doi.org/10.32861/jssr.spi2.148.152

Fabi, B., Lacoursière, R., & Raymond, L. (2015). Impact of high-performance work systems on job satisfaction, organizational commitment, and intention to quit in Canadian organizations. *International Journal of Manpower*, *36*(5), 772–790. https://doi.org/10.1108/IJM-01-2014-0005

Fletcher, C., & Williams, R. (1996). Performance management, job satisfaction and organizational commitment. *British Journal of Management*, *7*(2), 169–179. https://doi.org/10.1111/j.1467-8551.1996.tb00112.x

Franco-Santos, M., & Otley, D. (2018). Reviewing and theorizing the unintended consequences of performance management systems. *International Journal of Management Reviews*, *20*(3), 696–730. https://doi.org/10.1111/ijmr.12183

Frare, A. B., & Beuren, I. M. (2021). Fostering individual creativity in startups: Comprehensive performance measurement systems, role clarity and strategic flexibility. *European Business Review*, *33*(6), 869–891. https://doi.org/10.1108/EBR-11-2020-0262

ISSN 1678-6971 • RAM. Rev. Adm. Mackenzie, São Paulo, *25*(1), eRAMG240205, 2024
https://doi.org/10.1590/1678-6971/eRAMG240205.en

Guenther, T. W., & Heinicke, A. (2019). Relationships among types of use, levels of sophistication, and organizational outcomes of performance measurement systems: The crucial role of design choices. *Management Accounting Research*, *42*, 1–25. https://doi.org/10.1016/j.mar.2018.07.002

Gupta, S., Kumar, S., Kamboj, S., Bhushan, B., & Luo, Z. (2019). Impact of IS agility and HR systems on job satisfaction: An organizational information processing theory perspective. *Journal of Knowledge Management*, *23*(9), 1782–1805. https://doi.org/10.1108/JKM-07-2018-0466

Hair, J. F., Jr., Hult, G. T. M., Ringle, C. M., & Sarstedt, M. (2017). *A primer on partial least squares structural equation modeling* (PLS-SEM) (2nd ed.). Sage.

Hall, M. (2008). The effect of comprehensive performance measurement systems on role clarity, psychological empowerment and managerial performance. *Accounting, Organizations and Society*, *33*(2–3), 141–163. https://doi.org/10.1016/j.aos.2007.02.004

Henri, J.-F. (2006). Management control systems and strategy: A resource-based perspective. *Accounting, Organizations and Society*, *31*(6), 529–558. https://doi.org/10.1016/j.aos.2005.07.001

Kaveski, I. D. S., Beuren, I. M., Gomes, T., & Lavarda, C. E. F. (2020). Influência do uso diagnóstico e interativo do orçamento no desempenho gerencial mediado pelo comprometimento organizacional. *Brazilian Business Review*, *18*(1), 82–100. https://doi.org/10.15728/bbr.2021.18.1.5

Kleine, C., & Weißenberger, B. E. (2014). Leadership impact on organizational commitment: The mediating role of management control systems choice. *Journal of Management Control*, *24*, 241–266. https://doi.org/10.1007/s00187-013-0181-3

Koo, B., Yu, J., Chua, B.-L., Lee, S., & Han, H. (2019). Relationships among emotional and material rewards, job satisfaction, burnout, affective commitment, job performance, and turnover intention in the hotel industry. *Journal of Quality Assurance in Hospitality & Tourism*, *21*(4), 371–401. https://doi.org/10.1080/1528008X.2019.1663572

Mahmood, A., Akhtar, M. N., Talat, U., Shuai, C., & Hyatt, J. C. (2019). Specific HR practices and employee commitment: The mediating role of job satisfaction. *Employee Relations: The International Journal*, *41*(4), 420–435. https://doi.org/10.1108/ER-03-2018-0074

Marginson, D., McAulay, L., Roush, M., & van Zijl, T. (2014). Examining a positive psychological role for performance measures. *Management Accounting Research*, *25*(1), 63–75. https://doi.org/10.1016/j.mar.2013.10.002

Martyn, P., Sweeney, B., & Curtis, E. (2016). Strategy and control: 25 years of empirical use of Simons' levers of control framework. *Journal of Accounting & Organizational Change, 12*(3), 281–324. https://doi.org/10.1108/JAOC-03-2015-0027

Matsuo, M., Matsuo, T., & Arai, K. (2021). The influence of an interactive use of management control on individual performance: Mediating roles of psychological empowerment and proactive behavior. *Journal of Accounting and Organizational Change, 17*(2), 263–281. https://doi.org/10.1108/JAOC-06-2020-0079

Meyer, J. P., & Allen, N. J. (1991). A three-component conceptualization of organizational commitment. *Human Resource Management Review, 1*(1), 61–89. https://doi.org/10.1016/1053-4822(91)90011-Z

Moulang, C. (2013). Performance measurement system use in generating psychological empowerment and individual creativity. *Accounting & Finance, 55*(2), 519–544. https://doi.org/10.1111/acfi.12059

Mowday, R. T., Steers, R. M., & Porter, L. W. (1979). The measurement of organizational commitment. *Journal of Vocational Behavior, 14*(2), 224–247. https://doi.org/10.1016/0001-8791(79)90072-1

Müller-Stewens, B., Widener, S. K., Möller, K., & Steinmann, J.-C. (2020). The role of diagnostic and interactive control uses in innovation. *Accounting, Organizations and Society, 80*, Article 101078. https://doi.org/10.1016/j.aos.2019.101078

Pazetto, C. F., Mannes, S., & Beuren, I. M. (2020). Influência dos sistemas de controle e da folga de tempo na inovação de processos. *Revista de Administração Mackenzie, 21*(3), 1–27. https://doi.org/10.1590/1678-6971/eRAMR200147

Podsakoff, P. M., MacKenzie, S. B., Lee, J. Y., & Podsakoff, N. P. (2003). Common method biases in behavioral research: A critical review of the literature and recommended remedies. *Journal of Applied Psychology, 88*(5), 879–903. http://dx.doi.org/10.1037/0021-9010.88.5.879

Roh, C.-Y., Moon, M. J., Yang, S.-B., & Jung, K. (2016). Linking emotional labor, public service motivation, and job satisfaction: Social workers in health care settings. *Social Work in Public Health, 31*(2), 43–57. https://doi.org/10.1080/19371918.2015.1087904

Rompho, B., & Siengthai, S. (2012). Integrated performance measurement system for firm's human capital building. *Journal of Intellectual Capital, 13*(4), 482–514. https://doi.org/10.1108/14691931211276106

ISSN 1678-6971 • RAM. Rev. Adm. Mackenzie, São Paulo, *25*(1), eRAMG240205, 2024
https://doi.org/10.1590/1678-6971/eRAMG240205.en

Sandalika, K. D. M., & Jayasekara, P. (2017). Impact of performance management system on employee job satisfaction in automobile companies in Western Province, Sri Lanka. *Human Resource Management Journal*, *5*(1), 1–18. https://doi.org/10.31357/hrmj.v5i1.3572

Santos, V., Beuren, I. M., & Issifou, M. (2019). Efeitos da avaliação de desempenho na performance gerencial mediada pelo feedback e sistema de recompensas. *Revista Contabilidade, Gestão e Governança*, *22*(1), 38–58. https://doi.org/10.51341/1984-3925_2019v22n1a3

Shrivastava, P. (2018). Impact of effectiveness of performance management system on employee satisfaction and commitment. *International Journal of Management Research and Reviews*, *8*(4), 1–8.

Simons, R. (1995). *Levers of control*. Harvard Business School Press.

Sitepu, E. M. P., Appuhami, R., & Su, S. (2020). How does interactive use of budgets affect creativity? *Pacific Accounting Review*, *32*(2), 197–215. https://doi.org/10.1108/PAR-05-2019-0054

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. https://doi.org/10.1590/1808-057x201805850

Su, S., Baird, K., & Schoch, H. (2015). Management control system effectiveness: The association between types of controls with employee organizational commitment across organisational life cycle stages. *Pacific Accounting Review*, *27*(1), 28–50. https://doi.org/10.1108/PAR-06-2012-0022

Tessier, S., & Otley, D. (2012). A conceptual development of Simons' Levers of Control framework. *Management Accounting Research*, *23*(3), 171–185. https://doi.org/10.1016/j.mar.2012.04.003

Tuomela, T. S. (2005). The interplay of different levers of control: A case study of introducing a new performance measurement system. *Management Accounting Research*, *16*(3), 293–320. https://doi.org/10.1016/j.mar.2005.06.003

Widener, S. K. (2007). An empirical analysis of the levers of control framework. *Accounting, Organizations and Society*, *32*(7–8), 757–788. https://doi.org/10.1016/j.aos.2007.01.001

ISSN 1678-6971 • RAM. Rev. Adm. Mackenzie, São Paulo, *25*(1), eRAMG240205, 2024
https://doi.org/10.1590/1678-6971/eRAMG240205.en