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# Retention of IT professionals in public organizations

## Retenção de profissionais de TI em organizações públicas

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### ABSTRACT

This study examined the relations between each determinant of the theory of planned behavior (TPB) and information technology professionals' intention to stay (IS) in public organizations, and their retention within such organizations. We also investigated the relations between individual, occupational, and organizational determinants and IS and retention, respectively. This is a survey with 224 professionals from Brazilian public organizations. The results showed that job satisfaction (a type of attitude) is influenced by burnout and perceived learning opportunities, which also influenced IS. Satisfaction presented a statistically significant and direct relation to IS and to retention. Subjective norms are related to IS, while perceived behavioral control influenced neither IS nor retention. A large part of the individual determinants (marital status, age, gender, and children) and salary (occupational determinant) influenced IS and retention. Finally, IS influenced retention. The results bring to light the determinants of IS and of retention of professionals in public organizations and contribute to the development of an assertive agenda for people management policies in these organizations.

**Keywords.** Intention; Retention; Theory of planned behavior; Information technology professionals; Public organizations.

## RESUMO

Este estudo examinou as relações entre cada determinante da teoria do comportamento planejado (TCP) e a intenção de profissionais de tecnologia da informação em permanecerem (IP) em organizações públicas brasileiras, assim como a sua retenção nessas organizações. Também foram investigadas as relações entre determinantes individuais, ocupacionais e organizacionais e a IS e a retenção, respectivamente. Trata-se de uma pesquisa com 224 profissionais de organizações públicas. Os resultados encontrados evidenciaram que satisfação no trabalho é influenciada por *burnout* e percepção de oportunidades de aprendizagem, os quais também influenciam a IP. De forma direta, satisfação apresentou relação estatisticamente significativa com IP e retenção. A variável normas subjetivas está relacionada com a IP, enquanto controle comportamental percebido não influencia nem a IP nem a retenção. Grande parte dos determinantes individuais (estado civil, idade, sexo e filhos) e salário (determinante ocupacional) influenciam a IP e a retenção. Por fim, a intenção de permanecer influenciou a retenção. Os resultados trazem à tona os determinantes da IP e da retenção de profissionais nas organizações públicas e contribuem para o desenvolvimento de uma agenda assertiva de políticas de gestão de pessoas nessas organizações. **Palavras-chave:** Intenção; Retenção; Teoria do Comportamento Planejado; Profissionais de tecnologia da Informação; Organizações públicas.

## 1. INTRODUCTION

Public organizations increasingly aim to solve internal problems and to improve the quality of services offered to citizens through information technology (IT) (Patola, Suhardi, & Kurniawan, 2016). This agenda depends on the competence of its employees, especially the technical and managerial skills of IT professionals (Mergel, Edelman, & Haug, 2019; Jiang et al., 2020). Voluntary turnover of IT professionals in organizations may result in loss of knowledge, relationships, and investments (Ghosh et al., 2013). This makes employee retention a challenge for public managers (Albertus & Hamman-Fisher, 2020) and increases the importance of understanding what contributes to IT employees' decision to stay in public organizations.

One of the main theories in the social and behavioral fields (Bosnjak, Ajzen, & Schmidt, 2020), the theory of planned behavior (TPB) establishes intention as a cognitive predictor of behavior (Sheeran & Abraham, 2003). Intention to stay in the organization (IS) is a cognitive process that involves thought, planning and the professionals' willingness to stay in the organization where they work (Cohen, Stake, & Goodman, 2016). Intention is determined by attitudes, subjective norms (social pressure) and behavioral control perceived by the person to carry out a specific behavior. These three factors predict intention and intention predicts behavior (Ajzen, 1991; Ajzen & Kruglanski, 2019). Studies show that IS determines permanency in the organization, contributing to the organization's retention of the professional (Kovner et al., 2009). Retention factors have also been categorized in four major categories or levels of analyses: individual, occupational, organizational, and environmental (Brown et al., 2012).

Although IT professionals have knowledge that is critical to an organization, their retention in public organizations lacks investigation (Zaza & Armstrong, 2016). Quantitative empirical studies on determinants of IS and the retention of health care professionals predominate in the public sector. Further, the use of the TPB to understand retention is inexpressive among studies, especially in the Brazilian public sector (Cuffa, 2020). To advance comprehension on the theme, this study verifies the relations between each TPB determinant and the intention of IT professionals to stay in public organizations, and their retention in these organizations. We also investigate the relations between individual, occupational, and organizational determinants and IS and retention, respectively. The results of this study may help managers to implement public policies and other initiatives directed towards managing their IT professionals (Diógenes et al., 2016).

## **2. RESEARCH HYPOTHESES**

### ***2.1. Attitudes***

Attitudes refer "to the degree to which a person has a favorable or unfavorable evaluation or appraisal of the behavior in question"

(Ajzen, 1991, p.188), considering the possible consequences of performing this behavior (Ajzen, 1991; Fishbein & Ajzen, 2010). **Satisfaction** is a type of attitude and is defined as an “evaluative state that expresses contentment with and positive feelings about one’s” relationship with the organization and the work they perform there (Judge & Kammeyer-Mueller, 2012, p.343).

Studies have identified a positive relation between satisfaction and intention to stay (IS) (Radford & Meissner, 2017; Bello & Steil, 2020); and between satisfaction with pay, supervision, and promotions and IS (Steil et al., 2018). Evidence also exists on the relation between satisfaction and retention (Yamamoto, 2011; Terera & Ngirande, 2014).

Satisfaction, in turn, is influenced by at least two constructs: perceived learning opportunities and burnout. **Perceived learning opportunities** (PLO) is the perception of professionals about the training, development, and education system, and about the learning support within the organizations where they work (Mourão, Abbad, & Zerbini, 2014). Evidence exists on the positive relation between PLO and satisfaction (Govaerts et al., 2011; Steil et al., 2020). However, such relation was not confirmed in one study with professionals from services organizations (Newman, Thanacoody, & Hui, 2011).

Evidence on the relation between PLO and retention are also not convergent. For example, retention is influenced by training and/or development (Oliveira et al., 2012; Goperma & Dolai, 2018) and by PLO (Govaerts et al., 2011). Nonetheless, there was no correlation between PLO and managers’ retention in research and development organizations and of a very low correlation for non-management professionals from these organizations (Steil et al., 2020).

Burnout is a psychological phenomenon based on the experiences professionals have at their workplace (Campos, Carlotto, & Maroco, 2012). It develops out of the professionals’ emotional exhaustion and a feeling of being disconnected (lack of interest) from work (Schuster & Dias, 2018), what can wear on professionals and contribute to their staying or to their voluntary exit from the organization (Kim, 2015).

Burnout has shown a negative relation with satisfaction (Galindo et al., 2012; Khamisa, et al., 2015) and the retention (Mak &

Socketel, 2001) of professionals within private organizations. Literature still demands studies on the influence of burnout on retention within the public sector (Bonomo, 2014). Therefore, this study tests the following hypotheses (Figure 01):

**H1a:** *IT professionals who perceive opportunities to learn at the workplace are more satisfied.*

**H1b:** *IT professionals who perceive opportunities to learn have stronger intentions to stay in organizations.*

**H1c:** *Public organizations that offer learning opportunities to their IT professionals have a greater capacity to retain them.*

**H2a:** *The higher the level of burnout of IT professionals, the lower their level of satisfaction at work.*

**H2b:** *The higher the level of burnout of IT professionals, the lower their intention to stay in public organizations.*

**H2c:** *The higher the level of burnout of IT professionals, the lower the capacity of public organizations to retain them.*

**H3a:** *The greater the level of satisfaction of IT professionals, the greater their intention to stay in public organizations.*

**H3b:** *The greater the level of satisfaction of IT professionals, the greater the capacity of public organizations to retain them.*

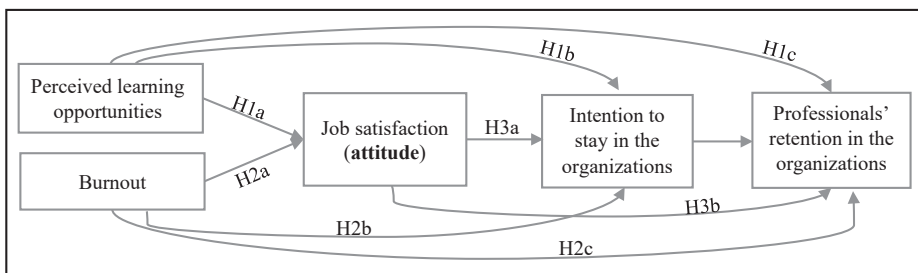


Figure 01 – Research hypotheses: relation between attitudinal determinants and intention to stay and retention, respectively

### Subjective norms

A subjective norm is the social pressure exercised by others (considered important to the individual) regarding the realization of a specific behavior and how inclined a person is to agree to this social pressure (Ajzen, 1991). In the TPB, a subjective norm is a

predictor of intention (Ajzen, 1991; Fishbein & Ajzen, 2010). In the United Kingdom, Coombs (2009) verified that subjective norms (when referring to positive evaluation by others) positively influence the decision of IT professionals to stay in public organizations. The present study tests the following hypothesis:

H4: The more positive the opinions of people considered important to IT professionals are about their staying in public organizations, the greater their intentions are to stay in such organizations.

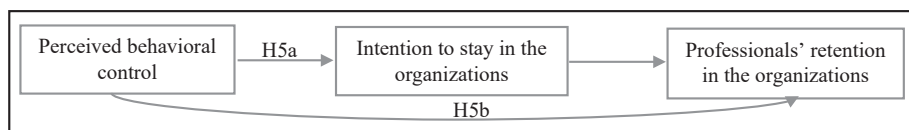
### ***Perceived behavioral control (PBC)***

PBC “refers to the perceived ease or difficulty of performing” (Ajzen, 1991, p.188) a behavior by the person, considering the resources and opportunities available. When a behavior is planned by a person and he or she has total control over its realization, the PBC has a direct relation with the execution of the behavior. However, when a person does not have total control over the behavior, the PBC functions as a moderator of the intention-behavior relation (Ajzen, 2012).

The PBC negatively influenced the IS of professionals in public organizations in the United Kingdom (Coombs, 2009) and in Africa (Albertus & Hamman-Fisher, 2020). In the present study, the behavior of staying in the organization is represented by retention, measured by the current length of service of professionals in the researched organizations. This study tests the following hypotheses (Figure 02):

H5a: The greater the control perceived by IT professionals regarding their permanency in the organizations, the greater their intention to stay there.

H5b: The greater the control perceived by IT professionals regarding their permanency in the organizations, the greater the capacity of organizations to retain them.



*Figure 02 – Research hypotheses: relation between perceived behavioral control and intention to stay and retention, respectively*

### ***Individual determinants***

Relations of individual determinants to IS and retention (Kyndt et al., 2009) have been insufficiently investigated. Various studies show these determinants are investigated as moderating variables (Ajzen, 2011). In Brazil, Bello and Steil (2020) found out that IS is influenced by marital status (married) and by kinship responsibility (having children), and is not influenced by age, gender, and level of education. As for retention, it is influenced by: age (older) (Govaerts et al., 2011; Kim, 2012), gender (women) (Kim, 2012), marital status (married) (Huang, Lin, & Chuang, 2006) and level of education (higher) (Fottler, 1978). This study tests the following hypotheses (Figure 03):

**H6a:** *Married IT professionals have higher intention to stay in public organizations.*

**H6b:** *Public organizations have greater capacity to retain married IT professionals.*

**H7a:** *Older IT professionals have greater intention to stay in public organizations.*

**H7b:** *The older the IT professional, the greater the capacity of public organizations to retain them.*

**H8a:** *Female IT professionals have greater intention to stay in public organizations.*

**H8b:** *Public organizations have greater capacity to retain female IT professionals.*

**H9a:** *IT professionals with higher levels of education have greater intention to stay in public organizations.*

**H9b:** *The higher the education level of IT professionals, the greater the capacity of public organizations to retain them.*

**H10a:** *IT professionals with children have greater intention to stay in public organization.*

**H10b:** *Public organizations have greater capacity to retain IT professionals who have children.*

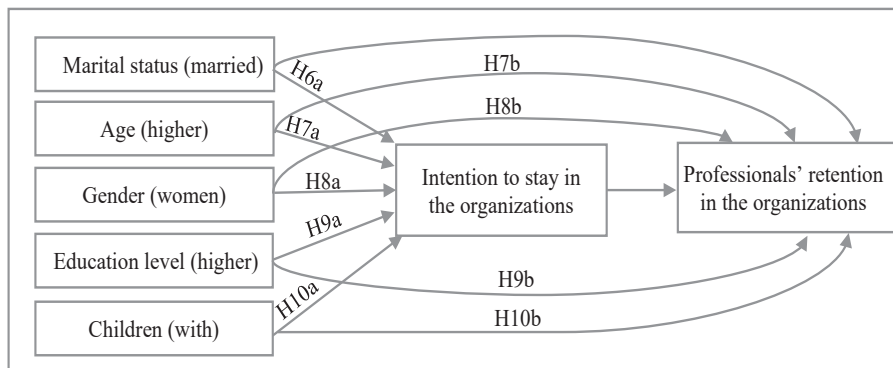


Figure 03 – Research hypotheses: relation between individual determinants and intention to stay and retention, respectively

### Occupational determinant

Evidence exists on the influence of **salary** on IS (Ghapanchi & Aurum, 2011) and retention (Carrara, Nunes, & Sarsur, 2014; Oliveira et al., 2012). This study tests the following hypotheses (Figure 04):

H11a: The higher the salary of IT professionals, the greater their intention to stay in public organizations.

H11b: The higher the salary of IT professionals, the greater the capacity of public organizations to retain them.

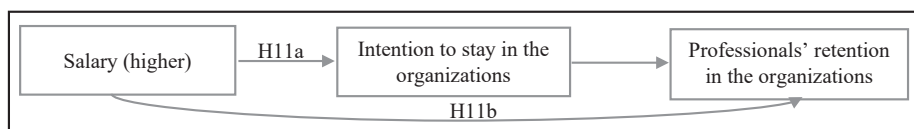


Figure 04 – Research hypotheses: relation between occupational determinant and intention to stay and retention, respectively

### Organizational determinant

**Benefits** are monetary or non-monetary incentives established by a statute or labor law granted to the public worker, such as health care, maternity leave, and complementary retirement. This determinant influences both IS (Goperma & Dolai, 2018) and retention (Carrara et al., 2014; Yamamoto, 2011). This study tests the following hypotheses (Figure 04):



**H12a:** IT professionals who receive benefits have greater intention to stay in public organizations.

**H12b:** Public organizations that offer benefits to their IT professionals have greater capacity to retain such professionals.

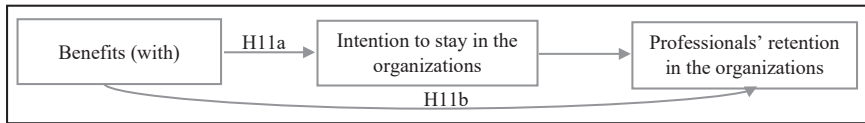


Figure 05 – Research hypotheses: relation between organizational determinant and intention to stay and retention, respectively

### **Intention to stay**

In the TPB, intention is “the immediate predictor of behavior” (Ajzen, 2012, p.338). Estimates show that intention explains, on average, 20% to 30%, behaviors variance in different domains (Sheeran & Abraham, 2003). Therefore, “the stronger the intention to engage in a behavior, the more likely should be its performance” (Ajzen, 1991, p.181). To contribute to understanding the relation between IS and the behavior of staying in public organizations, this study tests the following hypothesis:

**H13:** The greater the intention of IT professionals to stay in public organizations, the greater the capacity of such organizations to retain them.

## **3. METHOD**

### **Data**

Data was collected by means of a non-probability survey from September 2018 to March 2019. The questionnaire was sent to the target population via the researchers’ social media or via institutional email after the organizations’ management showed interest and adhered. The research was approved by the Ethics Committee for Research with Human Beings of the Federal University of Santa Catarina (number 3,254,632).

### ***Dependent variables***

The variables investigated were intention to stay and people retention. *Intention to stay* was measured through the item “I have the intention to continue working for this company”), evaluated on a scale ranging from 1 (never) to 5 (always)”. *People retention* refers to professionals’ propensity to stay in the organization, as well as their effective permanency in the same organization (Donoghue, 2010). Because this variable was measured through the length of service of professionals in the organization (Yamamoto, 2011), it is important to consider that:

Although the current length of service may be a retention indicator of professionals, this period is not representative of their total time in the organization. The total time of a professional in an organization is the measure that truly reflects his or her retention, but this may only be assessed after that employee has effectively left the organization. Hence, the current length of service in an organization does not fully reflect retention, as it is not yet known how much longer the respondent will remain in the organization (he or she may stay for one day or many years). Despite this restriction, this still is the best measure for research on professionals who are currently employed in the organization (Steil et al., 2020, p.151).

### ***Independent variables***

The variables investigated were benefits, burnout, perceived behavioral control (PBC), subjective norms, perceived learning opportunities (PLO) and job satisfaction. There is evidence of validity of the items and scales used (Table 01).

We also investigated relations between dependent variables and the following sociodemographic variables: marital status (single; married/stable union; divorced/separated; widowed), children (yes; no), age (in completed years), education level (college graduate; complete postgraduate degree; incomplete postgraduate degree), salary (salary ranges) and gender (male; female).

Table 01 – Independent variables and their dimensions, Cronbach Alfa ( $\alpha$ ) coefficient and measurement items

Variable	Dimensions of the variable		Variable		Items and measurement scale	
	Dimension	$\alpha$ (original study)	$\alpha$ (present study)	$\alpha$ (original study)		$\alpha$ (present study)
Benefits <sup>1</sup>	---	---	---	---	---	Multiple choice
Burnout (Schuster & Dias, 2018)	Emotional exhaustion (EE)	0.780	0.780	0.930	0.895	13 items (6 items - EE; 7 items - DI), evaluated on a scale ranging from 1 (totally disagree) to 4 (totally agree)
	Disengagement (DI)	0.880	0.782			
PCB	---	---	---	---	0.495	3 items, evaluated on a scale ranging from 1 (strongly disagree) to 5 (strongly agree)
Subjective norms	---	---	---	---	0.832	3 items, evaluated on a scale ranging from 1 (strongly disagree) to 5 (strongly agree)
PLO (Mourão, Abbad, & Zerbini, 2014)	---	---	---	0.940	0.966	13 items, evaluated on a scale ranging from 0 (totally disagree) to 10 (totally agree)
Job satisfaction (Siqueira, 2008)	Satisfaction with co-workers	0.736	0.830	0.906	0.905	15 items (reduced scale). Evaluated on a scale ranging from 1 (totally dissatisfied) to 7 (totally satisfied)
	Satisfaction with pay	0.889	0.918			
	Satisfaction with supervision	0.950	0.913			
	Satisfaction with nature of work	0.859	0.863			
	Satisfaction with promotions	0.749	0.883			

### Data treatment and analysis

We used SPSS software to treat and analyze data. The *Kolmogorov-Smirnov* test was applied to verify that, apart from satisfaction ( $p > 0.000$ ), all other variables did not present normal data distribution ( $p < 0.05$ ) (Hair Jr. et al., 2005). Therefore, we applied the following tests to verify research hypotheses: *Spearman* test (H1a, H1b, H1c, H2a, H2b, H2c, H3a, H3b, H4, H5a, H5b, H7a, H7b, H13), *Mann-Whitney* test (H6a, H6b, H8a, H8b, H9a, H9b, H10a, H10b, H12a, H12b) and *Kruskal-Wallis* test (H11a and H11b).

## 4. RESULTS

Two hundred and twenty-four (224) IT professionals employed by public organizations in Santa Catarina, Brazil, participated in this research. No outsourced professionals participated in the research.

The sample was composed of men (84%) and women (16%), between 31 and 45 years old (62.95%), married/stable union (73.32%), with children (59%), and with a completed postgraduate degree (59.38%). Of the married professionals, 67.90% have children, while 94.74% of single professionals do not have children. Most professionals have worked less than five years in the organization (58.4%), hold technical (83%) or management positions<sup>1</sup> (17%) and have a salary higher than R\$7,000 (US\$1.882,72)<sup>2</sup> (66,96%). Because most of the researched organizations centralize their main IT activities in the capital of the state, the professionals were predominantly (93%) located in the Greater Florianópolis.

The results showed that satisfaction (a type of *attitude*) is influenced by *burnout* and *perceived learning opportunities*, which also influence IS. Satisfaction directly influenced IS and retention. *Subjective norms* are related with IS, while *perceived behavioral control* is not related with IS and retention. Most of the *individual determinants* (marital status, age, gender, and children) and the *occupational determinant* (salary) influenced both IS and retention. Finally, *intention to stay* presented a statistically significant relation to retention (Table 02).

## 5 DISCUSSION

### *Attitudes*

As a type of attitude, **satisfaction** was influenced by burnout and perceived learning opportunities. As for **burnout**, we confirmed the hypotheses: the less professionals feel emotionally and physically pressured, the more satisfied they are with their job (**H1a**) and the more inclined they are to stay in the researched organizations (**H1b**). Descriptive statistics contributed to these findings, as most professionals demonstrated relatively low levels of burnout (below 2.50, out of a maximum score of 5) (65%) and high intention to stay (scores  $\geq 4$ , out of a maximum score of 5) (63,4%). These results are

<sup>1</sup> Technical Jobs (non-management) were predominantly: systems analyst/IT (97), technical support analyst (20), project analyst (17), IT technician (13) and data base analyst (11). Management jobs were predominantly IT coordinator (14) and projects manager (10).

<sup>2</sup> Value converted according to the average dollar price (US\$3.68) at the time of data collection.

Table 02 – Synthesis of tested hypotheses

Determinants	Research hypothesis	Relation			Result
		Strength <sup>1</sup>	Coefficient	p-value	
Attitudes	H1a: PLO → Satisfaction	High	0.620	0.000	Confirmed
	H1b: PLO → IS	Low	0.360	0.000	Confirmed
	H1c: PLO → Retention		0.043	0.262	Rejected
	H2a: Burnout → Satisfaction	Low	0.297	0.000	Confirmed
	H2b: Burnout → IS	Low	0.259	0.000	Confirmed
	H2c: Burnout → Retention		0.077	0.126	Rejected
	H3a: Satisfaction → IS	Moderate	0.530	0.000	Confirmed
H3b: Satisfaction → Retention	Very low	0.155	0.010	Confirmed	
Subjective norms	H4: Subjective norms → IS	Low	0.396	0.000	Confirmed
PBC	H5a: PBC → IS		0.037	0.146	Rejected
	H5b: PBC → Retention		0.040	0.277	Rejected
Individual determinants	H6a: Marital status (married) → IS		4225.00	0.014	Confirmed
	H6b: Marital status (married) → Retention		3929.00	0.006	Confirmed
	H7a: Age (older) → IS	Low	0.379	0.000	Confirmed
	H7b: Age (older) → Retention	High	0.709	0.000	Confirmed
	H8a: Gender (female) → IS		2723.00	0.017	Confirmed
	H8b: Gender (female) → Retention		2373.00	0.002	Confirmed
	H9a: Education → IS		5152.00	0.400	Rejected
	H9b: Education → Retention		4798.50	0.150	Rejected
	H10a: Children (with) → IS		4015.00	0.000	Confirmed
	H10b: Children (with) → Retention		3355.50	0.000	Confirmed
Occupational determinants	H11a: Salary → IS		21.583	0.001	Confirmed
	H11b: Salary → Retention		69.797	0.000	Confirmed
Organizational determinants	H12a: Benefits → IS		133.00	0.155	Rejected
	H12b: Benefits → Retention		208.50	0.441	Rejected
Other (cognitive determinant)	H13: IP → Retention	Low	0.365	0.000	Confirmed

→ Positive relation; → Negative relation

IS = intention to stay; PLO = perceived learning opportunities; PBC = perceived behavioral control

Source: Research data

in line with studies in various contexts that identified job satisfaction as a protection factor for burnout (Galindo et al., 2012). How professionals perceive their work may interfere considerably with their level of satisfaction and with the decision to voluntarily stay in the organization (Kim, 2015). However, the hypothesis affirming the higher the burnout level, the lower the retention of professionals (**H1c**) was rejected.

Regarding **perceived learning opportunities** (PLO), most (69%) professionals perceived opportunities (formal and/or informal) to learn at work.

This result contributes to confirming the hypotheses that the more professionals perceive opportunities to learn at work, the greater their level of satisfaction (**H2a**) and their IS in the organization (**H2b**). These findings reinforce evidence from studies in different contexts (Govaerts et al., 2011; Steil et al., 2020). Rapid technological changes and the nature of work of IT professionals may also have contributed to the results, as such professionals continuously aim to improve on their knowledge (Moquin, Riemenschneider, & Wakefield, 2019).

When offering professionals the opportunity to do more and learn more about what they do well, organizations contribute to retaining such professionals (Govaerts et al., 2011). Yet, the present study rejected the hypothesis that public organizations that offer learning opportunities to their IT professionals are able to retain them longer (**H2c**).

To understand the results of the influence of PLO and burnout on IS and not on behavior of staying (retention) of professionals, two aspects of this study should be considered. First, retention was partially measured through current length of service of professionals in the organization, which involves uncertainty about how much longer they will stay in the organization (as stated in section 3). Second, the possible influence of the broad variation in length of service in the organization among researched professionals should be considered (Steil et al., 2020), as the sample involved professionals with less than one year of permanency at their job and professionals with over 40 years of work in the organization.

Finally, this study confirmed the hypotheses that the level of satisfaction (with co-workers, supervision, pay, nature of work and promotions) (Siqueira, 2008) has a positive relation with IS (**H3a**) and retention (**H3b**). These relations reinforce evidence that satisfaction, as a type of attitude, should be considered in the formation of intentions of individuals and contribute to the scientific advancement about such construct within the public sector.

### ***Subjective norms***

We found that the more positive the opinions of people considered important to the professionals about their permanency in

the organization, the greater the IS of such professionals in the organizations studied (**H4**). There is evidence to reinforce this result demonstrating that the “factors influencing the opinions of people important to the IT professional may also have significant effect on decisions” (Coombs, 2009, p.239) of such professional about staying in the organizations.

### ***Perceived behavioral control***

The degree of ease or difficulty perceived by professionals regarding their permanency in the researched organizations presented no relation with IS (**H5a**) and behavior of staying (retention) (**H5b**). To better understand these results, we should consider that “perceived behavioral control can, and normally does, vary across situations and actions” (Ajzen, 1991, p.183), and that “intentions may be determined not only by attitudes, norms and perceived control but also by one or more additional variables” (Ajzen, 2011, p.1121). This means that even though the decision to stay in the organization may be voluntary, it still represents a decision of high impact to the lives of professionals and may involve factors such as having large enough savings in case they do not secure other employment (Ajzen, 2012).

Data were collected in the second semester of 2018 and the first semester of 2019; therefore, the possible influence of job market behavior should be considered in the development of professionals’ intention to stay in the studied organizations. The Continuous National Household Sample Survey revealed that, although public administration is among the top three sectors of the Brazilian economy that held formal jobs in the fourth semester of 2018, the growth index was lower than 3%. Furthermore, there was a record decrease from 51.4% in formal job numbers (first trimester of 2015) to 47.1% (July 2019) (IPEA, 2019). Changes in the conditions of the job market (especially the availability of jobs) positively influence IS, leading people to delay the search for new job opportunities (Lee et al., 2018).

### ***Individual determinants***

Although all professionals in this research hold a college degree and 59.38% of them have a postgraduate degree (complete or incomplete), the level of education did not influence their IS (**H9a**) or retention in the researched organizations (**H9b**). This sample profile may be associated with the fact that a large number of public selection tests for specific positions (IT areas, for example) necessarily demand higher education as a pre-requisite for hiring.

We also found that the higher the **age** of the professionals, the greater their IS in public organizations (**H7a**) and the greater the capacity of these organizations to retain them for longer (**H7b**). These results confirm evidence found in prior research studies (Govaerts et al., 2011; Kim, 2012). It is noteworthy to mention the role of the economic scenario and its influence on the challenges older professionals face in searching for a new job opportunity and their tendency to stay in the organization (Govaerts et al., 2011).

Having children also influenced IS (**H10a**) and retention (**H10b**). Professionals who have children presented a higher average of length of service (15.83 years, with a standard deviation of 12.31) in the organization than professionals without children (7.78 years, with a standard deviation of 6.26). These results may be associated with the fact that job stability and security are retention factors, as the search for such factors is typical of older public employees who have children (Mello, 2014). Furthermore, having people (children, for example) who financially depend on the professional may be considered an “indicative of the intention to stay of people who are married with children” (Bello, 2017, p.153).

**Married** professionals also have greater IS (**H6a**) and, in fact, stay longer (average length of service of 10.72 years, with a standard deviation of 11.06) in the researched organizations (**H6B**), as compared to professionals with other marital status (average length of service of 13.21 years, with standard deviation of 10,92). These results reinforce evidence that marital status influences time of permanency of professionals at their jobs, as “married people more often make job decisions based on relatively complicated concerns” (Huang et al., 2006, p.493), such as the responsibility for others (children, for example). The descriptive statistics of this



study reinforce such evidence, as 67.90% of married professionals declared having children while 94.74% of single professionals have no children. This may have contributed to a higher score for IS in married professionals.

Finally, **female** IT professionals presented a higher length of service (18,30 years, with a standard deviation of 13.51) in public organizations than did male professionals (11.38 years, with a standard deviation of 10.08), confirming **H8a** and **H8b**. These results are also found in prior studies with IT professionals in public organizations (Kim, 2012; Lee & Whitford, 2007), and may be comprehended because in public organizations, salaries are more comparable between men and women, what is not necessarily true in the private sector. In addition, in the public sector, women are better able to maintain balance in the work-family relation (Moynihan & Landuyt, 2008).

### ***Occupational determinant***

We found that **salary** is related to IS (**H11a**) and retention (**H11b**). In this study, salary was measured through salary ranges established according to the Brazilian base salary of 2018. Most (63.57%) professionals have a monthly salary higher than R\$7,000. The results we found corroborate with evidence found in previous studies (Ghapanchi & Aurum, 2011; Klein & Mascarenhas, 2014).

There is still discussion on the compensation of Brazilian public employees (Moriconi, 2007). In general, the prospect salaries, security and job stability make public organizations attractive alternatives for professionals to enter and stay in the job market (Nogueira, 2005). In Brazil, the average salaries of public employees are higher than those of employees with jobs in the private sector with similar characteristics. Yet, there are many categories of public employees that are not well compensated and whose salaries have not been adjusted in years (Moriconi, 2007).

### ***Organizational determinant***

This study found that, even though professionals receive benefits, this factor did not contribute to IS (**H12a**) or to retaining these professionals in the researched organizations (**H12b**). That is, the fact that these organizations offered benefits to their professionals

does not necessarily mean that they will feel valued by such organizations (Thompson et al., 2004), especially when referring to benefits established by law, which are mandatory. Aside from this, the type of measure used for retention, as mentioned before, and the temporal nature of the data (collected and analyzed considering a certain period) may also have contributed to the findings.

### ***Intention to stay***

The intention of IT professionals to stay in organizations is related to their retention in such organizations (H13). We identified factors that influence IS but not the behavior of staying (retention), such as burnout and perceived learning opportunities. These results suggest that, even though professionals may desire to stay in the organization, they do not necessarily translate this intention into behavior. The fact that intention is not converted into behavior, in some cases, may also be associated with the three properties of intention: temporal stability, accessibility and certainty (Cooke & Sheeran, 2013).

*Stability* consists of a probability indicator that the intention will be transformed into behavior. This indicator can be measured through periodic evaluations of intentions (Ajzen, 2011; Cooke & Sheeran, 2013; Sheeran & Webb, 2016). *Accessibility* indicates the likelihood of the intention being converted into behavior. It can be measured “by the latency between the presentation of an intention and person’s response” about the decision (Cooke & Sheeran, 2013, p.750) to realize the behavior or not. Studies show that intentions are more easily transformed into behaviors that are easily executed (Sheeran, Trafimow, & Armitage, 2003). IS in the organization is associated with complex behaviors which involve circumstantial factors (Sheeran & Webb, 2016) that may interfere in the translation of this intention into a behavior. Finally, *certainty* consists of one’s confidence in realizing the desired behavior, such as staying in the organization. When people have stable intentions and are less susceptible to circumstantial factors, there is a greater probability they will transform intentions into behavior (Cooke & Sheeran, 2013). Although people may have favorable attitudes in relation to the behavior and perceive social pressure (subjective norms)

to execute the behavior, this will only happen if the execution of such behavior represents to them a means to reach a goal (Ajzen & Kruglanski, 2019).

## **6. CONCLUSION**

This study examined the relations between each TPB determinant and intention to stay and retention of IT professionals in Brazilian public organizations, respectively. The results we found add to literature on people retention in organizations. We identified elements that expand TPB determinants that help to comprehend permanency of IT professionals in Brazilian public organizations. The results contribute to the development and/or improvements on actions aimed to the permanency of professionals in the researched organizations. Managers can also comprehend their role in the permanency of professionals in these organizations. However, it is noteworthy that public organizations must be in line with state or federal government policies, what sometimes impedes them from acting freely upon certain issues.

To further advance understanding of retention in organizations, we suggest: examining the relations of this study against larger samples; comparing the perception of investigated factors among management and non-management professionals; examining the influence of each determinant category (i.e. individual, occupational, organizational) on IS and retention; and, examining whether individual determinants moderate the relations between the other factors and IS and retention. As in this study the salary and benefits were measured in an objective way, we also suggest verifying, from a scale of perception, if salary and benefits influence IS and retention; and identifying possible moderating factors of the relation between PBC and IS and retention, respectively.

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