Department of Science and Information Technology

The impact of IT Governance institutionalization on individuals' behavior in Portugal

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Resumo

As tecnologias de informação (TI) são cada vez mais importantes nas organizações, sendo essenciais para o desenvolvimento sustentável dos negócios. Assim, torna-se necessário a adoção de mecanismos de Governação de TI (GTI) para uma melhor decisão, controlo das soluções, e crescimento sustentável. Estando o diferencial competitivo no comportamento dos seus colaboradores, este trabalho foca-se na expressão comportamental da GTI, analisando o impacto da institucionalização da GTI nas dimensões do Comportamento de Cidadania Organizacional (CCO). O CCO é descrito como o compromisso voluntário dos indivíduos para com a organização, com atitudes que não fazem parte de suas funções contratuais.

Foi realizada uma pesquisa *ex post facto* com desenho descritivo e natureza confirmatória a partir de um questionário a 112 funcionários de departamentos e divisões de TI de empresas em Portugal. Foi utilizada a Modelação de Equações Estruturais com Mínimos Quadrados Parciais (PLS-SEM) para testar o modelo. A hipótese geral deste estudo foi confirmada, mostrando que a institucionalização do GTI tem um efeito positivo na CCO dos indivíduos. Além disso, foi realizada uma análise comparativa entre este estudo e outro realizado no Brasil, confirmando que o efeito da institucionalização do GTI sobre os CCO dos indivíduos altera de acordo com o contexto cultural.

Finalmente, podemos afirmar, na teoria, que se confirma a relação entre os construtores da CCO e do GTI, e de forma pratica, para as organizações Portuguesas que implementam os seus mecanismos de GTI, estes aumentam as CCO dos funcionários e, consequentemente, a eficácia organizacional.

Palavras-Chave: Governação de TI; Mecanismos de GTI; Comportamento de Cidadania Organizacional; Modelação de Equações Estruturais (PLS-SEM).

Abstract

Information technology (IT) is increasingly important in organizations' life and has, therefore, become essential to the development of sustainable business growth. Thus, it is necessary to adopt IT governance (ITG) mechanisms to better control solutions, sustainable growth, and better decision making. Since an advantageous competitive differential lies in the behavior of its employees, this work focuses on the behavioral expression of ITG, aiming to analyze the effect of the impact of ITG institutionalization on the main dimensions of Organizational Citizenship Behavior (OCB). OCB describes the voluntary commitment of the individuals to an organization, with attitudes that are not part of their contractual functions.

A descriptive-confirmative ex post facto research was conducted through survey research to 112 employees of IT-related departments and divisions from companies in Portugal. The Partial least square - structural equation modeling (PLS-SEM) method was used to test the overall model. The general hypothesis of this study was confirmed, showing that the ITG institutionalization has a positive effect on the individuals' OCBs. Moreover, this study was subjected to a comparative analysis with one made in Brazil, which confirmed that the ITG institutionalization Model has different effects on individuals' OCBs in cultural terms.

Finally, two main contributions emerge. On the one hand, in theory, it confirmed the relationship between OCB and ITG constructs. On the other hand, in practice, it shows the organizations that by implementing their ITG Mechanisms, they are increasing employees' OCBs and, consequently, organizational effectiveness.

Keywords: IT Governance; ITG Mechanisms; Organizational Citizenship Behavior; Partial Least Squares (PLS-SEM).

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Acronyms

ANCOVA	Analysis of covariance
BR	Brazil
CFA	Confirmatory factor analysis
EFA	Exploratory factor analysis
IT	Information technology
ITG	IT governance
KMO	Keiser-Meyer-Olkin
OCB	Organizational citizenship behavior
PCA	Principal component analysis
PLS	Partial least squares
PLS-SEM	Partial least squares - Structural equation modeling
PT	Portugal
SEM	Structural equation modeling

Chapter 1 – Introduction

1.1. Context

Information technology (IT) is increasingly important in organizations' life and has, therefore, become essential to the development of sustainable business growth. Thus, it is almost impossible for organizations in today's global digital economy to be competitive and innovative without investing in IT (ITGI, 2003; Van Grembergen & De Haes, 2018).

Organizations aware of this need to focus on governing IT instead of only managing it, and therefore IT Governance (ITG) processes must always be involved (Brandi & Malheiro da Silva, 2017). While IT management involves short term aspects and focuses on the management of IT operations, ITG deals with long term and external aspects, performing and transforming IT to meet present and future demands of the business' and stakeholders' expectations (Brown & Magill, 1994; De Haes & Van Grembergen, 2004; Wiedenhöft, Luciano, & Pereira, 2017). Therefore, ITG is no longer "nice to have," but a "must-have" (Webb, Pollard, & Ridley, 2006; Pereira & Mira Da Silva, 2012a).

ITG is how organizations strategically align IT with business (Schwarz & Hirschheim, 2003; Amali, Hadjaratie, & Suhada, 2018). It is part of enterprise governance and consists of leadership, organizational arrangements, patterns, and processes that ensure the development and maintenance of effective IT control and accountability, performance, and risk management. Plus, ITG proposes that the organization's IT sustains and extends the organization's strategy and objectives (Hardy, 2006; ITGI, 2003; Jacobson, 2009; Sambamurthy; Zmud, 1999; Webb, 2006). Finally, it is also part of the ITG role to consider the cultural differences in the organization, once the national culture can influence its dimensions (Pereira & Mira Da Silva, 2012a; Zhong, Aoun, & Vatanasakdakul, 2012).

According to De Haes & Van Grembergen (2004), organizations can implement ITG pragmatically using a mixture of various structures, processes, and relational mechanisms (Van Grembergen, 2002). These mechanisms are a practical manifestation of ITG high-level definitions that need to be implemented in organizations' daily activities to make ITG feasible (G. Lunardi, Maçada, Becker, & GremBergen, 2017; Wiedenhöft et al., 2017).

Some recent studies, like Juiz, Guerrero, & Lera (2014), Juiz & Toomey (2015), Luciano, Wiedenhöft, Macadar, & Pinheiro dos Santos (2016), and Wiedenhöft et al.

(2017), suggest adopting ITG mechanisms based on two orientations. On the one hand, the most studied one focuses on the process side, which refers to crucial IT strategic decisions and monitoring key roles and responsibilities (Van Grembergen, De Haes, & Guldentops, 2004; Bartenschlager & Goeken, 2010). On the other hand, it focuses on the behavioral side of ITG, which concerns individuals dealing with IT-related decisions and activities (Huang, Zmud, & Price, 2010; Tiwana, Konsynski, & Venkatraman, 2013). As Weill & Ross (2004) argue, ITG mechanisms must encourage individuals who use IT to follow the desired behavior.

Since IT has become vital to the sustainability, support, and growth of the businesses, organizations depend more and more on it (Pereira & Mira da Silva, 2012; Pereira & Mira Da Silva, 2012b; Van Grembergen & De Haes, 2018). However, an advantageous competitive differential lies in the behavior of its employees (P. M. Podsakoff & MacKenzie, 1997).

The encouragement of desirable behavior should be clearly defined to achieve effective governance (Juiz et al., 2014). A good behavior contributes to a more consistent and aligned relationship between business and IT (Van Grembergen, 2004), while poor human behavior can defeat the best ITG institutionalization process (Juiz & Toomey, 2015). This research focuses on the behavioral side of ITG, acknowledging its importance.

In order to understand individuals' behavior, Organizational Citizenship Behavior (OCB) works as a global measure of individual behavior at work (Graham, 1991). Organ (1989, 1997) defines and reviews OCB, as a way to describe voluntary commitment and behavior of individuals who benefit the organization, even though these are not a part of their contractual tasks and organization's gratification system do not reward them formally.

1.2. Problem, motivation and research question

Armenio Rego & Pina e Cunha (2010) indicate a lack of studies on OCB in the Portuguese context, described as an "under-studied context." As they demonstrate, most of the studies were made in the USA, Asia, and Northern Europe.

Taking into account the ITG and OCB concepts and in order to understand and test the effects of Portuguese culture on the relationships between them, this research aims to analyze how citizenship behavior can be affected by ITG institutionalization.

The cultural context is considered one of the main problems and motivations of this research, taking into account the impact studied in ITG and OCB concepts. On the one hand, according to P. M. Podsakoff et al. (2000), the cultural context may have distinct impacts on citizenship behavior. On the other hand, according to Pereira & Mira da Silva (2012), there are contingency factors that influence organizations in their ITG implementation. One of these factors is the "Regional Differences" where aspects such as language, local laws, and national information infrastructures have an impact on the ITG implementation (Weisinger & Trauth, 2003).

As a part of the Latin Europe cluster, the Portuguese culture is centered on the following dimensions (Hofstede, 1989, 2011; Jesuino, 2002; Armenio Rego & Pina e Cunha, 2010):

- **Femininity:** Dimension described as "working in order to live," where managers seek consensus, and people value solidarity, equality, and quality in their professional lives.
- **High power distance:** Workers expect and accept that power is shared unequally.
- **High collectivism:** Relates to a society where everyone takes responsibility for fellow members of their group, establishing a long-term commitment among the members of the group, in exchange for unquestioning loyalty.
- **Low-performance orientation:** Dimension that characterizes society as tending to be less competitive, less economically productive, more satisfied with their professional lives, and more oriented towards religion.

According to Ferreira, Braun, & Sydow (2013), the Portuguese culture promises to relate well, by OCB literature, with citizenship behaviors.

In order to contribute to the literature gap presented here and following the proposed study on the relationship between ITG and OCB in Portuguese organizations, the research question is:

- Does the adoption of ITG mechanisms have a positive effect on the behavior of individuals in Portuguese organizations, over the lens of the OCB concept?

There is a need for in-depth research in order to answer this question and to achieve the proposed goal. A descriptive-confirmative *ex post facto* research will be developed during this study, materialized in a survey to be answered by workers of IT-related departments and divisions from companies in Portugal. According to Pereira (2014), Portuguese organizations have already begun to implement their ITG mechanisms, so this is an opportune moment to carry out this study using the research methodology above mentioned.

1.3.Structure and organization of the dissertation

In this chapter, **Chapter 1 - Introduction**, the research theme, and its proposal are introduced, as well as a summary of the work structure.

Chapter 2 – Theoretical background allows the following chapters to be more explicit and more concrete. This chapter gathers references about OCB and ITG concepts and synthesizes what has previously studied.

In **Chapter 3 - Literature review,** research was done on OCB variables in order to better understand their concept and its many ramifications. It aims to be useful in understanding the dimensions that best correlate with the Portuguese culture, which is the focus of this research.

In **Chapter 4 – Related work,** it was possible to research, define authors, journals, and scientific articles which were in any way comparable with the object of study in question.

Chapter 5 – Proposal describes proposals, hypotheses, theories, and constructs in a way that can be tested to provide a roadmap to the rest of the study.

Chapter 6 – Data analysis evaluates and explains the results of the survey, using the PLS-SEM method to test the model proposed.

Chapter 7 – Discussion and conclusion presents the main research finding, discussing the results of the hypothesis tests, the limitations of this study, and proposals for future research.

Chapter 2 – Theoretical background

This research proposes to study the relationship between ITG and OCB, and based on that; this chapter studies these concepts separately. The studies written by authors who have laid the foundations in this area of research are taken as references. Thus, this chapter allows readers to understand better and follow the following chapters.

2.1. IT governance

Researchers have proposed many definitions of ITG over the years, therefore demonstrating there is a lack of clear shared understanding of the subject (Pereira & Mira Da Silva, 2012b). However, this study has no intention to decide what the best definition for ITG is nor to propose a new one. Throughout this study, the guiding definition is: "ITG is specifying the decision rights and accountability framework to encourage desirable behavior in the use of IT" (Weill & Ross, 2004).

Commonly seen as part of corporate governance (Weill & Ross, 2004), ITG applies corporate governance concepts to strategically drive and control IT on two key issues: the value IT provides to an organization, and the control and mitigation of IT-related risks (Van Grembergen, 2004; Hardy, 2006). Consequently, effective implementation of ITG models can guarantee the needs and objectives of the organization as a matter of leadership and accountability of the management board (Amali et al., 2018).

Effective ITG is necessary to ensure return on investments in IT and improved organizational performance. Since IT investments make up a significant portion of corporate budgets, good ITG models generate required business value and mitigate the risks associated (G. L. Lunardi, Becker, & Macada, 2009; Jacobson, 2009; Pereira & Mira Da Silva, 2012b; Juiz & Toomey, 2015).

Regarding crucial IT issues, ITG helps to define a direction and control of IT operations by specifying decision-making structures, processes, and relational mechanisms (Sambamurthy; Zmud, 1999). ITG amplifies organizational IT agility when aligned with IT unit choices and their departments' peripheral knowledge (Tiwana & Kim, 2015). Considering its strategic importance, manage IT is insufficient, which makes governing IT a necessity (Wiedenhöft et al., 2017).

2.2.ITG mechanisms

Analyzing the existing literature, it is possible to verify that there is no general agreement when it comes to determining the existing ITG Mechanisms (Almeida, Pereira, & Mira Da Silva, 2013). For example, Weill & Ross (2004) define communication mechanisms, while De Haes & Van Grembergen (2004) define relational mechanisms to the same type of ITG mechanism.

This study is not intended to make a comprehensive review of all existing types. In order to understand the most common types of mechanisms used in literature and mentioned in this study, below is the summary of its definitions:

- **Structure mechanisms:** It involves the existence of responsible roles, such as IT executives and accounts, and a diversity of IT committees, responsible for the IT decision-making process (Weill & Ross, 2004; De Haes & Van Grembergen, 2009).
- **Process mechanisms:** Formal processes to secure that day-to-day behaviors are consistent with IT policies and can ensure that information comes back to decision-makers (Almeida et al., 2013; Pereira, Mira da Silva, & Lapão, 2014; Wiedenhoft, Luciano, & Magnagnagno, 2017).
- **Relational mechanisms:** Responsible for sharing knowledge among employees in IT and other areas, and promote business/IT participation, partnerships, and strategic dialogue (De Haes & Van Grembergen, 2004; Wiedenhöft et al., 2017).

ITG implementation in organizations is a mix of the mechanisms described above. Adopting these mechanisms can help organizations to reduce risks associated with IT and create IT business value (G. L. Lunardi et al., 2009). Finally, ITG mechanisms are responsible for expressing the IT aspirations of Corporate Governance (Ferguson, Green, Vaswani, & Wu, 2013; Wiedenhöft et al., 2017).

2.3.Organizational citizenship behavior

The literature on OCB reveals that there is a consensus among scholars about the gestures of citizenship as pro-social acts of employees that benefit the organization (Smith, Organ, & Near, 1983; Moorman, 1991). According to Podsakoff (2000), even though this consensus exists, it is possible to find in the literature more than 30 different

forms of OCB. Table 1 summarizes these forms, showing the main ones and how researchers used them over the years to measure the individuals' behavior.

OCB is characterized as an act of social exchange, offered voluntarily by workers to organizations (Organ, 1989). They are spontaneous gestures of collaboration and protective actions to safeguard the organization and everything related to it (Arménio Rego, 2002). These voluntary actions are exempt from legal or contractual prescriptions and, when executed, allow in a social relationship with the organization to initiate an exchange of functional extra-political acts for a hypothetical or future social, material, or economic remuneration of the organization. They make up social acts of employees who benefit the employer system, and may or may not, get rewards from the organization (Smith et al., 1983; Siqueira, 2003).

Besides OCB, there are other similar models built and validated that allow measuring individual behavior (Matias Siqueira, 2002), like prosocial behavior (Brief & Motowidlo, 1986), civic virtue (Graham, 1991), and organizational commitment (Borges-Andrade, 1994). However, it is possible to find significant differences between those concepts (P. M. Podsakoff et al., 2000). This study uses OCB as Luciano et al. (2016), and Wiedenhöft et al. (2017) did in their studies, according to its possible relationship with the desirable behavior encouraged by Corporate Governance and, consequently, ITG. According to Organ (1989), OCB is connected with job performance because citizenship behaviors are part of the spontaneous and innovative behaviors that are essential for effective organizations (Katz & Kahn, 1978).

2.4.OCB dimensions

According to Graham (1991), OCB works as a global measure of individual behavior at work. Based on that and P. M. Podsakoff et al. (2000), there are more than 30 forms of OCB, and this chapter aims to synthesize representative literature and to review and study its main dimensions. Table 1 illustrates that, following the concept-centric approach (Webster & Watson, 2002).

In this analysis, it is possible to conclude that there is no consensus when it comes to defining a way to measure distinct OCB manifestations of individual behavior. Based on these studies, and in order to understand how these dimensions have been used by researchers over the years, below is the summary of its definitions:

- **Conscientiousness:** An excellent posture of going well beyond minimally required levels of attendance, punctuality, housekeeping, conserving resources, and issues related to the internal maintenance of the organization.
- **Individual Initiative:** Refers to a proactive and spontaneous search to solve problems and improve individual and group performance.
- **Civic Virtue:** Behavior that refers to the individual who participates responsibly, is involved or is concerned about the life of the company.
- **Sportsmanship:** Represents a good behavior from the individual that tolerates without complaints the inevitable inconveniences and impositions of work.
- **Helping Behavior:** Focuses on helping coworkers in their jobs when such help was needed.
- **Altruism:** Voluntary actions that help others with a work problem.
- **Identification with the organization:** Dimension that demonstrates how the individual seeks to defend the image of the organization with attitudes that dignify the organization's image vis-à-vis people from outside the organization.
- **Loyalty:** Identification with and fealty to organizational leaders and the organization, transcending the local interests of individuals, workgroups, and departments. This type of behavior consists of defending the organization against threats, contributing to its prestige, and collaborating with others to serve the interests of the whole.
- **Courtesy:** Individuals' discretionary behavior that aims to prevent work-related problems take place.
- **Interpersonal harmony:** Includes gentle and respectful behaviors towards others and a positive attitude concerning work displeasures.
- **Organizational compliance:** Seen as an impersonal form of conscientiousness, that does not provide aid a specific person, but is in a roundabout way helpful to others involved in the system. The behavior that represents something akin to compliance with internalized norms defining what a "good employee ought to do."
- **Self-development:** It seeks voluntarily to improve its knowledge, skills, and aptitudes.
- **OCBO:** Behaviors that benefit the organization in general.

- **OCBI:** Behaviors that immediately benefit specific individuals and indirectly through this means contribute to the organization.

It is possible to meet other forms of OCB in literature, which are not listed here. Seven standard dimensions commonly groups these less-studied and used forms: helping behavior, sportsmanship, loyalty, organizational compliance, individual initiative, civic virtue, and self-development (P. M. Podsakoff et al., 2000).

Generally, each study uses sets of OCB dimensions to construct the model used to measure the behavior of individuals. In this study, the need to create or use an OCB model is also necessary, mainly because this research focuses on a specific cultural context.

Going deeper into the concept-centric approach was found a four-dimensional OCB construct operationalized in Portugal, which uses the following dimensions: interpersonal harmony, conscientiousness, personal initiative, and identification with the organization. This model was designed by Arménio Rego (1999) and used by four other authors over the years (Arménio Rego, 2002; Arménio Rego & Pina e Cunha, 2008; Armenio Rego & Pina e Cunha, 2010; Wiedenhöft et al., 2017). This model is based on the OCB models created until then and in the Portuguese culture a, feminine, collectivistic, high power distance, and low performance-oriented culture. It presents a level of maturity and guarantees the needs of this study are met, therefore this will be the model used.

Table 1 - OCB dimensions

Dimensions	References	Total
Conscientiousness	(Organ, 1989, 1997; P. M. Podsakoff, MacKenzie, Moorman, & Fetter, 1990; Moorman, 1991; Arménio Rego, 1999, 2002; Siqueira, 2003; Arménio Rego & Pina e Cunha, 2008; Arménio Rego, Ribeiro, & Pina e Cunha, 2009; Armenio Rego & Pina e Cunha, 2010; Luciano et al., 2016; Wiedenhöft et al., 2017)	12
Individual initiative	(Dyne, Graham, & Dienesch, 1994; Arménio Rego, 1999, 2002; P. M. Podsakoff et al., 2000; Coyle-Shapiro, 2002; Siqueira, 2003; Arménio Rego & Pina e Cunha, 2008; Autry, Skinner, & Lamb, 2008; Armenio Rego & Pina e Cunha, 2010; Braun, Müller-Seitz, & Sydow, 2012; Ferreira et al., 2013; Wiedenhöft et al., 2017)	12
Civic virtue	(Organ, 1989; P. M. Podsakoff et al., 1990; P. M. Podsakoff, Ahearne, & MacKenzie, 1997; P. M. Podsakoff et al., 2000; Moorman, 1991; Autry et al., 2008; Arménio Rego et al., 2009; Braun et al., 2012; Ferreira et al., 2013)	9
Sportsmanship	(Organ, 1989; P. M. Podsakoff et al., 1990, 1997, 2000; Moorman, 1991; Autry et al., 2008; Arménio Rego et al., 2009; Braun et al., 2012; Luciano et al., 2016)	9
Helping behavior	(P. M. Podsakoff et al., 1997, 2000; Coyle-Shapiro, 2002; Arménio Rego & Pina e Cunha, 2008; Autry et al., 2008; Braun et al., 2012; Ferreira et al., 2013; Luciano et al., 2016)	8
Identification with the organization	(Dyne et al., 1994; Arménio Rego, 1999, 2002; Coyle-Shapiro, 2002; Siqueira, 2003; Arménio Rego & Pina e Cunha, 2008; Armenio Rego & Pina e Cunha, 2010; Wiedenhöft et al., 2017)	8
Altruism	(Smith et al., 1983; Organ, 1989, 1997; P. M. Podsakoff et al., 1990; Moorman, 1991; Autry et al., 2008; Arménio Rego et al., 2009)	7
Loyalty	(Dyne et al., 1994; P. M. Podsakoff et al., 2000; Coyle-Shapiro, 2002; Autry et al., 2008; Braun et al., 2012; Ferreira et al., 2013; Luciano et al., 2016)	7
Courtesy	(Organ, 1989, 1997; P. M. Podsakoff et al., 1990; Moorman, 1991; Arménio Rego & Pina e Cunha, 2008; Arménio Rego et al., 2009)	6
Organizational compliance	(Smith et al., 1983; P. M. Podsakoff et al., 2000; Coyle-Shapiro, 2002; Autry et al., 2008; Braun et al., 2012; Ferreira et al., 2013)	6
Interpersonal harmony	(Arménio Rego, 1999, 2002; Siqueira, 2003; Arménio Rego & Pina e Cunha, 2008; Armenio Rego & Pina e Cunha, 2010; Wiedenhöft et al., 2017)	6
Self-development	(P. M. Podsakoff et al., 2000; Siqueira, 2003; Autry et al., 2008; Braun et al., 2012)	4
OCBO	(Moorman, 1991; Williams & Anderson, 1991; Somech & Drach-Zahavy, 2004; N. P. Podsakoff, Whiting, Podsakoff, & Blume, 2009)	4
OCBI	(Moorman, 1991; Williams & Anderson, 1991; Somech & Drach-Zahavy, 2004; N. P. Podsakoff et al., 2009)	4

Chapter 3 – Related work

In this chapter, research through related works was carried out, both to point out the contributions of previous researchers and to put the contributions of this study in the appropriate context.

Based on individuals' behavior in organizations, Table 2 shows a comparison between previous contributions based on seven variables:

- **ITG**: Checked if the study focuses on the institutionalization of ITG mechanisms and its impact on human behavior.
- **OCB**: Checked if the study focuses on the OCB concept.
- **Country:** According to P. M. Podsakoff (2000), the cultural context may have different impacts on citizenship behavior, so to better understand its results, it is necessary to know their geographical position.
- **Organization**: There are indications of several significant differences between public and private organizations, which management research cannot ignore (Rainey, Backoff, & Levine, 1976).
- **Research techniques**: Research Technique used to collect da data to analysis.
- **Sample size**: Size of the sample used in the study.
- **Gender statistics**: Gender statistics are in focus here. According to some studies, they correlate gender with OCB and its antecedents (Dyne & Ang, 1998; Coyle-Shapiro, 2002; Simpson & Kaminski, 2007).

Table 2 - Related works

Researcher	Year	ITG	OCB	Country	Organization	Research techniques	Statistical method[1]	Sample		
								Size	Gender (%)	
									M	W
Smith et al.	1983		X	United States	Private	Questionnaire	ANCOVA	422	N/A	N/A
Philip M. Podsakoff et al.	1990		X	United States, Canada and European countries	Private	Questionnaire	CFA	988	90.2	9.8
Williams & Anderson	1991		X	United States	Public and Private	Questionnaire	Factor Analysis	460	67.9	32.1
Dyne et al.	1994		X	United States	Public and Private	Questionnaire	T-Test	1119	47	53
Philip M Podsakoff et al.	1997		X	United States	Private	Questionnaire	PCA	218	96	4
Dyne & Ang	1998		X	Singapore	N/A	Questionnaire	T-Test	155	41	59
Arménio Rego	1999		X	Portugal	Public and Private	Interview & Questionnaire	PCA	365	N/A	N/A
Coyle-Shapiro	2002		X	United Kingdom	Public	Online survey	PCA	6000	35	65
Arménio Rego	2002		X	N/A	N/A	Questionnaire	PCA	269	N/A	N/A
Somech & Drach-Zahavy	2004		X	Israel	Public	Questionnaire	EFA	450	74.6	25.4
Autry et al.	2008		X	United States	Public and Private	Online survey	PLS & EFA & CFA	195	N/A	N/A
Arménio Rego & Cunha	2008		X	N/A	Private	Questionnaire	PCA	320	N/A	N/A
N. P. Podsakoff et al.	2009		X	N/A	N/A	Data Analysis	Path Analysis	168	N/A	N/A
Rego & Cunha	2010		X	Portugal	Private	Questionnaire	CFA & Hierarchical regression & T-Test	269	76.9	23.1
Ferreira et al.	2013		X	Portugal and Germany	Private	Online survey	PCA & Hierarchical regression	247	66.8	33.2
Luciano et al.	2016	X	X	Brazil	Public	Focus Group & Interview	N/A	18	16.7	83.3
Wiedenhöft et al.	2017	X	X	Brazil	Public	Questionnaire	PLS-SEM	173	77.5	22.5
Amali et al.	2018	X		Indonesia	Public	Questionnaire	N/A	269	N/A	N/A

[1] Analysis of covariance (ANCOVA); Confirmatory factor analysis (CFA); Exploratory factor analysis (EFA); Principal component analysis (PCA); Partial least squares – Structural equation modeling (PLS-SEM);

3.1. Studies details

In addition to identifying scientific articles, it is equally important to know and understand the results of these studies in order to clarify how this study can contribute to this area of research.

Smith et al. (1983) discuss how individual difference variables can independently predict citizenship behavior. Based on two variables, the characteristics and definitions of altruism and generalized compliance are in focus here. Authors construct a definition of citizenship behavior in 16 individual attributes and with the results of 422 questionnaires of employees from two US banks, based on factor analysis.

Philip M. Podsakoff et al. (1990) analysis the effects of transformational leader behaviors on OCBs, and its potential to get trust and satisfaction in that process. Followed by a questionnaire to 988 employees from a multinational company, the authors use 5 OCB dimensions in a confirmatory factor analysis to conclude that the effects of transformational leader behaviors had on OCBs are indirect, in that followers' trust mediates them in their leaders.

Williams & Anderson (1991) starts their research introducing two new OCB dimensions that group all the others in order to measure the individual behavior. Based on previous research, they use altruism dimension to define the OCBI, as behaviors that immediately benefit specific individuals. Indirectly through this means, it contributes to the organization and generalized compliance dimension to define OCBO as behaviors that favor the organization in general. Despite this, the authors intend to show that extra-role behavior in the form of OCB has differences from the traditional performance of in-role behaviors.

Dyne et al. (1994) return to the bases to redefine the OCB and develop a nomological network for the construct based on political philosophy. The authors proposed an instrument to measure this expanded conceptualization and conducted a questionnaire for 950 employees and 169 supervisors. Based on their results and past research, the authors made a measurement model based on five OCB dimensions: Obedience, Loyalty, Social Participation, Advocacy Participation, and Functional Participation.

Philip M Podsakoff et al. (1997) analyses how OCB is positively related to the quantity and quality of workgroup performance. Focused on helping behavior, sportsmanship, and civic virtue variables, the authors made a questionnaire to 218

employees of 40 crews in a paper mill located in the Northeastern United States. The authors conclude that helping behavior had significant effects on performance quantity and that helping behavior had a significant impact on performance quality. However, civic virtue did not affect either performance measure.

Dyne & Ang (1998) compare the engagement of workers with OCB principles, comparing regular employees and workers with a temporary contract. It assumes that regular employees place more emphasis on work and tend to implement OCB principles more than temporary workers. The authors carried out a questionnaire to confirm this assumption, made to 45 temporary workers and 110 regular employees of two organizations in Singapore, to conclude that, contrary to their expectations, organizational citizenship was stronger for temporary workers than for regular employees, indicating that temporary workers have positive attitudes towards their relationship with an organization, therefore engaging in OCB.

Arménio Rego (1999), to the best of our knowledge, was the first to study and create a model for OCB based on the Portuguese culture. To construct this model, the author carried out a set of semi-structured interviews with 27 individuals related to the areas of public and private management. Later, to fine-tune this model, a questionnaire was conducted to 336 managers from 61 organizations, which allowed him to arrive at four dimensions that explain 70% of the variance to a subjective global performance measure. Based on this, the author shows that the four dimensions that best fit the Portuguese culture are: Conscientiousness, Individual Initiative, Identification with the Organization, and Interpersonal Harmony.

Coyle-Shapiro (2002) aims to study the relationship between employees and employers in public companies based on OCB dimensions. An online survey was sent to around 30000 public employees and had nearly 30% of responses, and with its results, the author demonstrated the importance of promissory obligations in predicting employees' citizenship behavior.

Arménio Rego (2002) aims to show the relationship between ethical climates and OCB, based on the assumption that there are reasons to presume that the first may explain the later. In order to understand how to combine these elements, the author used the dimensions defined by Arménio Rego (1999) to define OCB and collected data from the literature to help him understand how ethical climates work. He then conducted two questionnaires to distinct groups of people that helped him reach five different ethical

climates. After that, a final questionnaire was carried out to 269 individuals, and its results allowed the author to reach several conclusions. However, in the absence of a definitive conclusion, he suggested the need to search for variables that may moderate the relation enclosed by the ethical climates and OCB.

Somech & Drach-Zahavy (2004) uses the OCBO and OCBI dimensions defined by Williams & Anderson (1991) to show how organizational learning values are related and how they positively influence OCBs in this way benefit the organization as a whole and particular individuals.

Autry et al. (2008) illustrate that OCB constructs are theoretically applicable at the inter-organizational level. The authors adapted seven dimensions of OCB to an inter-organizational context and made a feedback-focused pre-test to identify and purify measurement scales. After that, an Internet survey was conducted to reinforce the application of a firm-level theory of non-coercive behavioral modification for inter-organizational relationships.

Arménio Rego & Pina e Cunha (2008) begins to explore the relationship between OCB and organizational effectiveness. The authors tried to solidify this association and carried out a questionnaire to 320 employees of two small insurance companies. Based on six OCB dimensions and some effectiveness indicators of 38 regional agencies of these two small insurance companies, the authors conclude by associating OCB dimensions with organizational effectiveness. What is more, the OCB dimension identification with the organization is the one that best correlates with effectiveness indicators.

N. P. Podsakoff et al. (2009), to the best of our knowledge, was the first to conduct research based on data from previous studies, collecting information from various OCB studies and related works. The author generated hypotheses for some organizational and individual outcomes, using OCBO and OCBI dimensions in his meta-analysis to indicate that OCBs have significant relationships with a variety of individual and organizational outcomes.

Armenio Rego & Pina e Cunha (2010) uses the OCB model created by Arménio Rego (1999) based on the Portuguese culture to understand how organizational justice correlates with OCB in this cultural context. The authors classified Portugal as an under-studied context and questioned 269 employees of several Portuguese companies about reporting their perceptions of justice and questioned their supervisors about describing

their OCBs. In the end, it suggests that some Portuguese cultural characteristics may reinforce the role played by supervisors in promoting OCB.

Ferreira et al. (2013) aim to understand the possible relationship between OCB and project managers' performance in two different national contexts: Portugal and Germany. Based on OCB studies that mainly focus on the Portuguese cultural context, it built a model called Project Citizenship Behavior (PCB) to integrate project management and OCB. The authors surveyed 247 project managers from Portugal and Germany and compared the results for the model variables studied and found it that the results were better for Portuguese project managers than their German counterparts.

Luciano et al. (2016) as far as we know, was a pioneer in trying to understand how the ITG influences the behavior of individuals within organizations. His study, which is extremely important for this paper, was carried out in the Brazilian cultural context and focused on public organizations. The authors followed this previously unknown relationship and made a focus group with the managers of public organizations in order to understand how ITG adoption affects the OCB and to construct a model about it. The model created for ITG institutionalization helps to solve some of the problems that can emerge while implementing ITG and also to improve ITG effectiveness.

Wiedenhöft et al. (2017) is based on the previous study and focuses on the relationship between ITG and OCB. The authors use the ITG institutionalization model created by Luciano et al. (2016) and the OCB model created by Arménio Rego (1999). In the next chapters, a cross-study analysis is proposed since both studies use the same basic models, although different cultural contexts. The authors carried out a questionnaire to workers of a Brazilian public organization, where they understood the positive effects that ITG institutionalization has on civil servants' Citizenship Organizational Behavior in the Brazilian cultural context.

Amali et al. (2018) correlate the impact of ITG mechanisms adoption in organizational culture. It does not focus directly on the OCB, but as Nohanty & Rath (2012) show, organizational culture impacts affect in many ways, an employee's Citizenship Behavior in the Organization. It is a valuable tool to support this study, which enables realize that the relationship between ITG and citizenship behavior has been in focus in recent years.

3.2. Research synthesis

The citizenship behavior has been widely studied over the years and has generated constant interest, above all, because of its impacts and outcomes. According to Autry et al. (2008), it is possible to find more than 350 OCB-related articles published in the psychology, management, organizational behavior, and marketing fields until the year 2008, and nowadays it is expected that many more exist.

Most of the related works presented here use the following scheme in their studies: method, results, discussion, and conclusions. When it comes to the type of research used, besides the authors who created a model, they use in most cases a descriptive-confirmatory analysis, with which the authors try to confirm that the citizenship behavior impacts their study results.

Apart from an author who performed data analysis using pre-existing data, the authors generally have done the collection of data in several ways, either from questionnaires, online surveys, focus groups, or interviews. Authors often use interviews and focus groups when it is necessary to build a model to use in the study and can do so by conducting a round of interviews to conclude it. The questionnaires are used to test the models created or, as this study is trying to show, to confirm that the hypotheses presented are valid.

Finally, the novelty of this research lies in the study of the relationship between OCB and ITG in Portugal. With this, it will also be possible to reach conclusions that can complement existing literature on OCB in an under-studied context as Portugal and following the path of Luciano et al. (2016) and Wiedenhöft et al. (2017), who are pioneers in the investigation of this relationship, will allow this study to move on to a comparative analysis between Portugal and Brazil.

Chapter 4 – Proposal

In order to answer the research question of this study, this chapter is the beginning of in-depth research to achieve the proposed goal. Thus, a descriptive-confirmative *ex post facto* research was developed, materialized in a survey answered by workers of IT-related departments and divisions from companies in Portugal.

4.1.Theoretical model

After the previous contextualization, this section formulates and discusses hypotheses, theories, and constructs in a way that can be tested to provide a roadmap to the rest of the study. Based on this, the general hypothesis of this study is that ITG institutionalization has a positive effect on the individuals' OCBs in Portuguese organizations.

Authors correlate good behaviors with a set of informal individual contributions that benefit the organization (Organ, 1989; Matias Siqueira, 2002). This type of behavior is essential to guarantee conformance with the most delicate process models and improve non-effective process models. Furthermore, undesired behaviors can defeat the best process models (Juiz & Toomey, 2015).

ITG and its mechanisms, an essential part of corporate governance regarding its IT-related aspirations, are essential to encourage the desired behavior of individuals' towards the use of IT (Weill & Ross, 2004; De Haes & Van Grembergen, 2008). Wiedenhöft et al. (2017) argue that individuals' OCBs improve through ITG institutionalization processes, as they act in its predecessors, such as job satisfaction and rewards perception.

This structure of ideas combines the influence that ITG institutionalization processes may have on individuals' behavior with the Organization's performance, sustaining a perspective of a recurrent positive effect on the organization, according to this general hypothesis.

As one can see in the literature, Arménio Rego (1999) defines a four-variable OCB model that, alongside with an ITG institutionalization model, taken from previous publications (see Luciano et al., 2016 and Wiedenhöft et al., 2017), allows us to define our research model, as we can see in Figure 1.

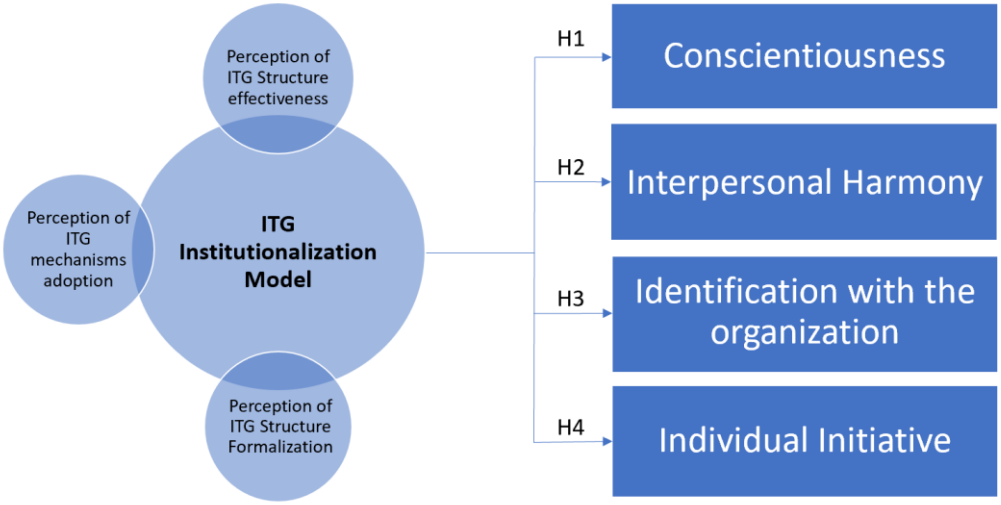

Figure 1 - Research model

Based on this general hypothesis, the research model exposes how the ITG institutionalization model can exert a positive outcome in each OCB variable. To confirm that, this research must test the following four hypotheses:

- **H1:** ITG institutionalization Model influences behavior positively: conscientiousness.
- **H2:** ITG institutionalization Model influences behavior positively: Interpersonal harmony.
- **H3:** ITG institutionalization Model influences behavior positively: Identification with the organization.
- **H4:** ITG institutionalization Model influences behavior positively: Individual initiative.

4.2.Research method

The nature of knowledge of this study is the functionalist, in which its interest is to understand the society in a way that can generate knowledge to be used by organizations (Deetz, 1996). This study is an *ex post facto* research with a descriptive design and a

confirmatory nature. The data collection and analysis were performed as a cross-sectional study (Venkatesh, Brown, & Bala, 2013). Figure 2 presents the design of this research.

Figure 2 - Research design

Given the nature of the problem and the context and aim of this study, a survey research method is a suitable method since it gives a possibility to study a population sample and provides the possibility to generalize (Glasow, 2005). A survey works as a measurement object that links the objectives initially defined in the study with measurable variables that will help to normalize and control the data in order to obtain the most accurate and reliable information possible (Visser, Krosnick, & Lavrakas, 1986; Ponto, 2015).

A survey, which took place from January to March 2019, was performed in IT-related departments and divisions from companies in Portugal. The respondents were employees who had worked in the company for longer than a year.

This research adopted the questionnaire presented in [Appendice A], which was developed and validated by Wiedenhöft et al. (2017) in Brazil and adapted to the Portuguese context. There are many benefits in using and adapting this questionnaire, starting with the fact that both studies use the same model, which was built taking into consideration the operationalization of the variables presented in Table 3 and Table 4. Also, this questionnaire has the advantage of having already been tested and validated, and therefore, a future test will only ensure that the questionnaire works and guarantee data compliance. Finally, the use of this questionnaire still opens the door to a multicultural cross-study analysis, which will give the readers the possibility to understand how the application of this method works in other countries and how the individual's behavior changes according to its national context.

Table 3 - ITG institutionalization model variables

ITG institutionalization model		
Variable	**Definition**	**Origin**
ITG effectiveness perception (Cultural-cognitive Institutionalization)	Variable related to the Cultural-Cognitive institutionalization of ITG, which aims to analyze if the individuals perceive the efficiency of adopting ITG mechanisms.	Institutionalization Model built based on models of Luciano et al. (2016) and Wiedenhöft et al. (2017).
ITG mechanisms (Regulatory Institutionalization)	Variable related to the regulatory institutionalization of ITG. The individual perceives the adoption of IT Governance mechanisms as the establishment of rules, monitoring, and sanctions.	
ITG structure formalization (Normative Institutionalization)	Variable related to the normative institutionalization of IT Governance. The individual realizes the formalization of the ITG Structure as normative systems of impositions to social behavior, authorizing, and enabling social action.	

Table 4 - OCB model variables

OCB model		
Variable	**Definition**	**Origin**
Conscientiousness	Variable related to an excellent posture of going far beyond the minimally required levels of attendance, punctuality, housekeeping, conserving resources, and issues related to the internal maintenance of the organization.	It was developed and validated by Arménio Rego (1999) in Portugal.
Individual initiative	Variable connected to a proactive and spontaneous search to solve problems and improve individual and group performance.	
Identification with the organization	Variable which refers to the individual who seeks to defend the image of the organization with attitudes that dignify the organization's image vis-à-vis people from outside the organization.	
Interpersonal harmony	Variable which refers to courteous and respectful behaviors towards others and positive attitudes regarding work displeasures.	

In order to deliver the questionnaire to the workers of the various organizations that participated in this study, the distribution channel used was the internet. With such a large and geographically dispersed population, the Internet has become the best communication channel to achieve the objectives of this research. The questionnaire was placed online using Google Forms. Scientific projects all over the world use this tool, and for this reason, it fulfills all the requirements, both in terms of information security and statistical functionalities (Curts, 2013).

At the end of the data collection procedure, a set of 116 surveys was completed. For ethical reasons and by the will of the organizations, the questionnaires were anonymous, which means that it is not possible to identify the workers and organizations that have participated in the questionnaire.

In order to clean data, a three-phase examination was carried on. First, the authors had to ensure that the respondents were familiar with the thematics. Second, the respondents had to have been working in the organization for longer than a year or had to have at least two years of professional experience to guarantee the reliability of the answers. Finally, following Joseph et al. (2014) statements, the data must be verified in order to exclude missing values, suspicious response patterns, and outliers. At the end of the data cleansing procedure, 112 good results were obtained, which correspond to 97% of the surveys. Table 5 shows the respondents' profile.

Table 5 - Respondents' profile

Social-demographic variables		**Frequency**	**Percentage (%)**
Gender	Male	80	71
	Female	32	29
Age	18 - 25 years	9	8
	26 - 35 years	50	44
	36 - 45 years	39	35
	45 - 55 years	12	11
	> 55 years	2	2
Education	Middle school	0	0
	High school	21	19
	Bachelor's	66	59
	Master's	25	22
	PhD	0	0
Total employees in the organization	01 – 25 employees	1	1
	26 – 50 employees	6	5
	51 – 100 employees	29	26
	101 – 500 employees	57	51
	501 – 1000 employees	4	4
	> 1000 employees	15	13
Total employees in the IT department	01 – 05 employees	10	9
	06 – 10 employees	16	14
	11 – 25 employees	4	3
	26 – 50 employees	19	17
	51 – 100 employees	32	29
	> 100 employees	31	28

Chapter 5 – Data analysis

This chapter evaluates the outcomes of the survey, presenting the results of the hypotheses proposed in the previous chapter. The Partial Least Square (PLS)-Structural Equation Modeling (SEM) (PLS-SEM) method was used to test the overall model. As the Kolmogorov-Smirnov test shows, it is not possible to determine the normality of the sample, so the PLS-SEM method was chosen because it is the one that best suits the needs of this study. For example, PLS-SEM fits well when sample sizes are not too large, the data are nonnormally distributed, and the purpose of the study is to explain the relationships between multiple variables in complex models (Hair, Ringle, & Sarstedt, 2011; Hair Jr., Black, Babin, & Anderson, 2014; Hair Jr., Hult, et al., 2014).

Figure 3 illustrates the structure of this chapter, demonstrating how the results were compiled, highlighting each one of the tests performed.

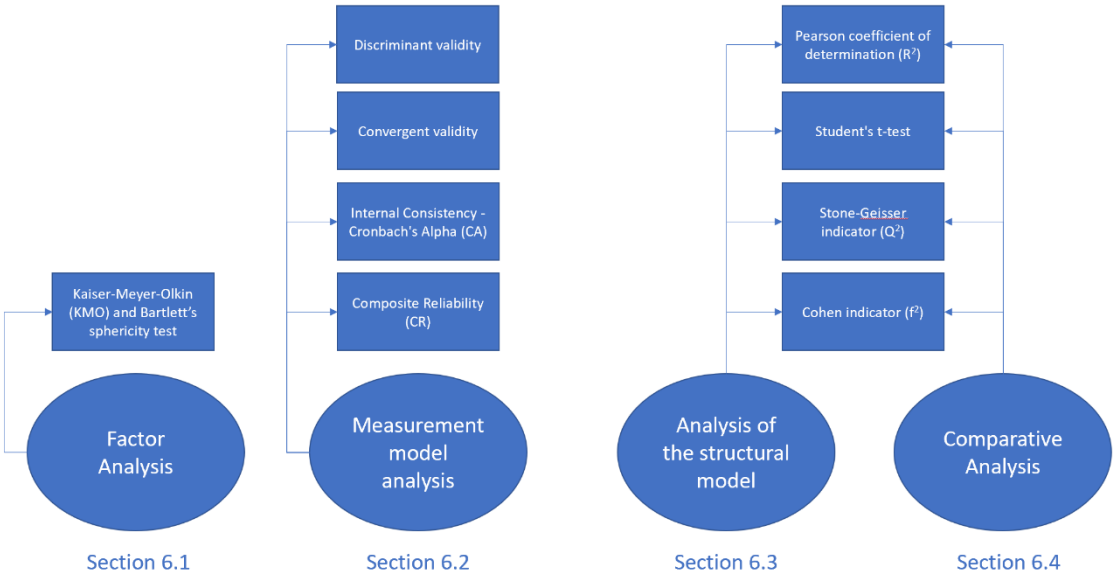

Figure 3 - Data analysis structure

5.1.Factor analysis

As mentioned in the previous chapter, no pre-test was performed to validate the instrument for two main reasons. On the one hand, Wiedenhöft et al. (2017) have already validated the instrument presented in [Appendice A] in his study. On the other hand, the sample size is not big enough to be split in a pre-test analysis to validate the instrument. Despite this, the Kaiser-Meyer-Olkin (KMO) and Bartlett's sphericity test was run to measure the sampling adequacy. The IBM SPSS (Statistical Package for the Social Sciences) Statistics Software was used to run the tests.

According to the existing literature, a KMO statistics test should be above 0.5 (Field, 2009). As Figure 4 shows, for the analysis, KMO = 0.858 ('great' according to Field (2009)) and for Bartlett's test of sphericity the approximate of Chi-square is 2635.842 with 528 degrees of freedom, which is significant at this level (Sig. < .05 according to Field (2009)). Therefore, it is credible to conclude that the data is appropriate for factor analysis.

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		,858
Bartlett's Test of Sphericity	Approx. Chi-Square	2635,842
	df	528
	Sig.	,000

Figure 4 - KMO and Bartlett's test

5.2.Measurement model analysis

In order to evaluate the reliability and validity of the items and constructs in the measurement model, the authors used SmartPLS Software, a friendly and prominent path modeling tool for PLS-SEM applications (Wong, 2013; Ringle, da Silva, & Bido, 2014). With this software, the models were built and were made the verification of discriminant and convergent validity and the item and composite reliability.

The first-order model presented in Figure 5 was constructed, linking each one of the three latent variables of the ITG institutionalization model to the four latent variables of the OCB model and also, connecting the latent variables with the several observable variables that correspond to each one of the questions in the questionnaire. To simplify the interpretation of the model, Table 6 has an explanation of the variables used. Note: The questions are in Portuguese, as can be found in the questionnaire in [Appendice A].

Table 6 – Model variables explanation

	Dimension	Dimension variable	Question variable	Question
ITG institutionalization model	ITG mechanisms	ITGM	ITGM_Q1	Estrutura ou Comité directivo das TI.
			ITGM_Q2	Estrutura organizacional de TI formalizada.
			ITGM_Q3	Estrutura ou comité para análise de riscos.
			ITGM_Q4	Estrutura ou comité para gestão de projectos de TI.
			ITGM_Q5	Indicadores de desempenho das TI.
			ITGM_Q6	Conjuntos de práticas de gestão, controlo e avaliação das TI.
			ITGM_Q7	Conjunto de práticas para a segurança da informação.
			ITGM_Q8	Métodos de avaliação dos níveis de alinhamento estratégico das TI.
			ITGM_Q9	Espaço físico/Escritório para Governação das TI ou equivalente.
			ITGM_Q10	Práticas de troca de conhecimento.
	ITG effectiveness perception	ITG_EFEC_PER	ITG_EFEC_PER_Q1	Disponibilizam serviços na área das TI focados no cliente.
			ITG_EFEC_PER_Q2	Proporcionam a integração entre sistemas e processos.
			ITG_EFEC_PER_Q3	Promovem redes colaborativas e de partilha de conhecimento.
			ITG_EFEC_PER_Q4	Garantem a optimização de recursos na área das TI.
			ITG_EFEC_PER_Q5	Os mecanismos de Governação das TI estão focados nas necessidades dos clientes.
			ITG_EFEC_PER_Q6	Promovem a integração entre os diferentes órgãos da organização.
	ITG structure formalization	ITG_FORM	ITG_FORM_Q1	A organização onde trabalho possui um modelo de Governação das TI.
			ITG_FORM_Q2	O Modelo de Governação das TI na sua organização está formalizado.
OCB model	Individual initiative	OCB_II	OCB_II_Q1	Mantêm-se informados sobre o que se passa na organização.
			OCB_II_Q2	Quando estão com um problema, procuram resolvê-lo antes de apresentá-lo aos seus superiores.
			OCB_II_Q3	Quando algo não funciona, procuram alternativas para que funcione.
			OCB_II_Q4	Procuram, de forma espontânea, melhorar os seus conhecimentos, competências e capacidades.
	Interpersonal harmony	OCB_IH	OCB_IH_Q1	Estão sempre a queixar-se de assuntos com pouca importância.
			OCB_IH_Q2	Criam mau ambiente na equipa (falam mal dos colegas, são intriguistas, etc.).
			OCB_IH_Q3	Quando tem tarefas aborrecidas ou difíceis para realizar gostam de "passar a batata quente" para os outros.
			OCB_IH_Q4	São geralmente pessimistas.
			OCB_IH_Q5	Quando algo negativo lhes acontece, desculpam-se com os erros dos outros.
	Identification with the organization	OCB_IO	OCB_IO_Q1	Fazem esforços extra para beneficiar a organização, mesmo com prejuízos pessoais.
			OCB_IO_Q2	Pensam em primeiro lugar no trabalho, mais do que neles próprios.
			OCB_IO_Q3	Quando descobrem uma oportunidade de negócio para a organização, comunicam aos responsáveis.
	Conscientiousness	OCB_CO	OCB_CO_Q1	São desleixados (tanto faz que o trabalho seja bem ou mal feito).
			OCB_CO_Q2	Não estão focados e prontos para trabalhar assim que chegam à organização.
			OCB_CO_Q3	Perdem tempo com assuntos que não estão relacionados com o trabalho.

Finally, after loading the data and complete the design of the model, the PLS Algorithm was calculated. The "PLS Algorithm – Setup" was configured according to Ringle et al., (2014) and Wong (2013) recommended parameters:

1. **Weighting scheme:** Path weighting scheme.
2. **Data metrics:**
    - 2.1. **Mean:** 0.
    - 2.2. **Variance:** 1.
3. **Maximum iterations:** 300.
4. **Abort criterion:** 1.0E-5.
5. **Initial weights:** 1.0.

Figure 4 shows the result of the calculations and the first-order model of the constructs in the SmartPLS Software. As Ringle et al. (2014) recommend, the critical values in this chapter are highlighted.

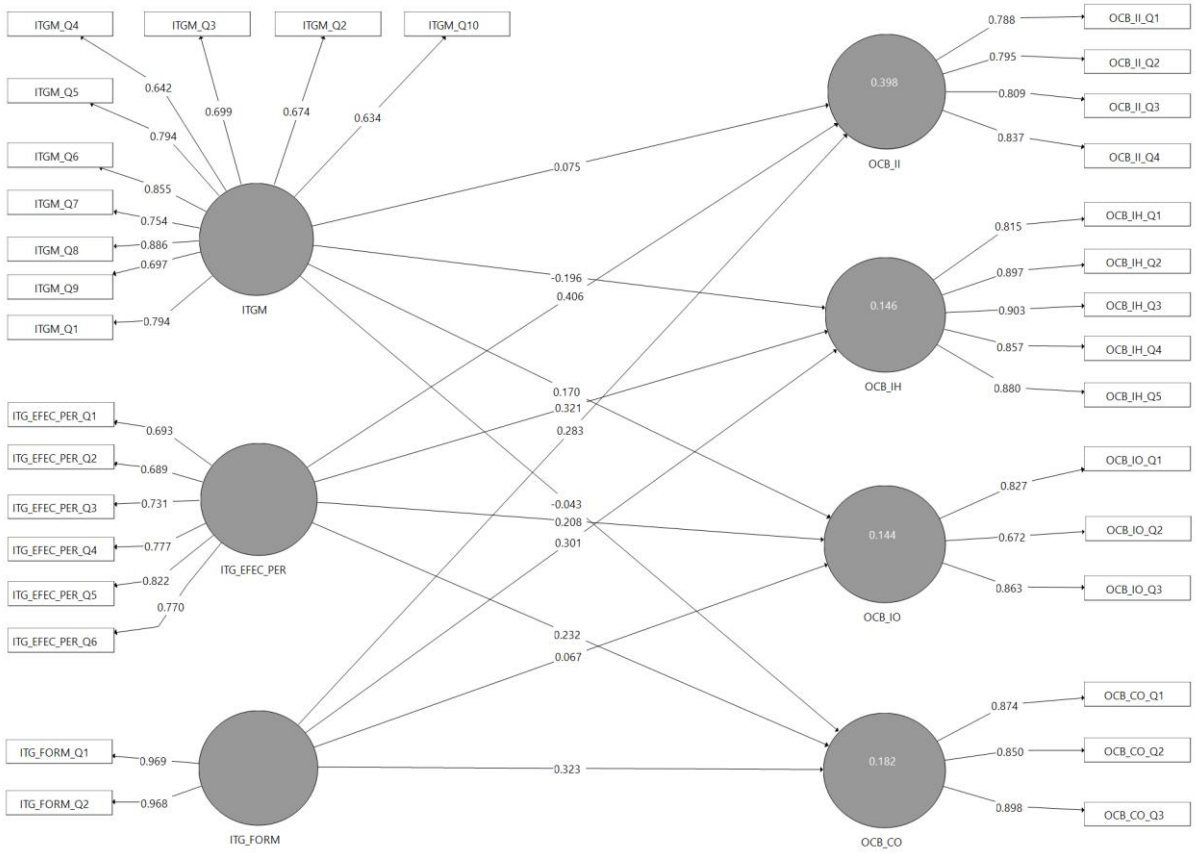

Figure 5 - First-order model

The analysis follows for the next step, which is to evaluate the reliability and validity of the items and constructs in the measurement model. First, it starts with the discriminant validity, which aims to ensure that latent variables are independent of each other (Hair Jr., Hult, et al., 2014). This study follows two methods to measure discriminant validity. One of them is to assess its validity by examining the cross loads of the observable variables (Hair Jr., Hult, et al., 2014). Table 6 shows the discriminant validity test, considering the Cross Loading Analysis (Chin, 1998).

Table 7 - Discriminant validity - Cross loading analysis - First-order model

	ITGM	ITG_EFEC_PER	ITG_FORM	OCB_CO	OCB_IH	OCB_II	OCB_IO
ITGM_Q1	**0.794**	0.381	0.537	-0.162	-0.106	0.346	0.249
ITGM_Q2	**0.674**	0.386	0.457	-0.149	-0.115	0.211	0.156
ITGM_Q3	**0.699**	0.297	0.450	-0.200	-0.089	0.298	0.200
ITGM_Q4	**0.642**	0.405	0.446	-0.186	-0.067	0.214	0.195
ITGM_Q5	**0.794**	0.434	0.487	-0.177	-0.075	0.309	0.268
ITGM_Q6	**0.855**	0.528	0.539	-0.301	-0.163	0.357	0.198
ITGM_Q7	**0.754**	0.289	0.556	-0.292	-0.163	0.353	0.125
ITGM_Q8	**0.886**	0.620	0.561	-0.245	-0.135	0.430	0.352
ITGM_Q9	**0.697**	0.301	0.613	-0.290	-0.258	0.416	0.281
ITGM_Q10	**0.634**	0.605	0.414	-0.251	-0.202	0.591	0.355
ITG_EFEC_PER_Q1	0.244	**0.693**	0.132	-0.272	-0.265	0.357	0.206
ITG_EFEC_PER_Q2	0.512	**0.689**	0.323	-0.322	-0.249	0.457	0.159
ITG_EFEC_PER_Q3	0.546	**0.731**	0.337	-0.186	-0.134	0.438	0.329
ITG_EFEC_PER_Q4	0.546	**0.777**	0.301	-0.126	-0.135	0.318	0.293
ITG_EFEC_PER_Q5	0.338	**0.822**	0.263	-0.270	-0.356	0.498	0.271
ITG_EFEC_PER_Q6	0.505	**0.770**	0.258	-0.233	-0.215	0.360	0.241
ITG_FORM_Q1	0.666	0.324	**0.969**	-0.353	-0.288	0.471	0.264
ITG_FORM_Q2	0.659	0.373	**0.968**	-0.376	-0.258	0.460	0.235
OCB_CO_Q1	-0.336	-0.311	-0.370	**0.874**	0.657	-0.630	-0.259
OCB_CO_Q2	-0.177	-0.197	-0.211	**0.850**	0.624	-0.536	-0.098
OCB_CO_Q3	-0.274	-0.305	-0.362	**0.898**	0.712	-0.556	-0.191
OCB_IH_Q1	-0.187	-0.284	-0.227	0.599	**0.815**	-0.474	-0.178
OCB_IH_Q2	-0.151	-0.262	-0.301	0.679	**0.897**	-0.555	-0.102
OCB_IH_Q3	-0.244	-0.298	-0.280	0.735	**0.903**	-0.561	-0.136
OCB_IH_Q4	-0.162	-0.262	-0.193	0.616	**0.857**	-0.454	-0.177
OCB_IH_Q5	-0.122	-0.260	-0.211	0.690	**0.880**	-0.519	-0.098
OCB_II_Q1	0.509	0.591	0.381	-0.567	-0.483	**0.788**	0.315
OCB_II_Q2	0.405	0.400	0.472	-0.449	-0.404	**0.795**	0.322
OCB_II_Q3	0.320	0.358	0.346	-0.543	-0.543	**0.809**	0.403
OCB_II_Q4	0.361	0.374	0.334	-0.571	-0.487	**0.837**	0.371
OCB_IO_Q1	0.267	0.242	0.154	-0.209	-0.147	0.418	**0.827**
OCB_IO_Q2	0.138	0.171	0.084	-0.150	-0.151	0.218	**0.672**
OCB_IO_Q3	0.340	0.333	0.304	-0.175	-0.102	0.361	**0.863**

As can be seen in Table 6, most of the factorial loads of observed variables are higher in the corresponding latent variables than in the others. The exception occurs in the ITGM variable, in which two factors (0.642 and 0.634) are slightly smaller (±0.032 or 3.2% of variance) than the other two factors (0.666 and 0.659) from ITG_FORM variable. These occur between them because they are related and are a cause and effect of each other. Once the indicated values have little differences, two options emerge. On the one hand, removing the lower observable indicators from ITGM and recalculating the model to ensure that latent variables are independent. On the other hand, it is expected that there is some degree of overlap between the factors of the variables of the ITG institutionalization model. Thus, based on this, the second option was chosen, confirming the discriminant validity of the instrument, considering the Cross Loading Criterion (Chin, 1998).

Table 7 shows the discriminant validity test, considering the Fornell & Larcker (1981) criterion. Fornell & Larcker (1981) suggest that the square root of the Average Variance Extracted (AVE) in each latent variable can be used to prove discriminant validity if this value is higher than other correlation values between the latent variables (Wong, 2013).

Table 8 - Discriminant validity - Fornell-Larcker criterion - First-order model

	ITGM	ITG_EFEC_PER	ITG_FORM	OCB_CO	OCB_IH	OCB_II	OCB_IO
ITGM	**0.748**						
ITG_EFEC_PER	0.591	**0.748**					
ITG_FORM	0.684	0.360	**0.968**				
OCB_CO	-0.314	-0.322	-0.376	**0.874**			
OCB_IH	-0.199	-0.313	-0.282	0.764	**0.871**		
OCB_II	0.508	0.552	0.481	-0.661	-0.592	**0.807**	
OCB_IO	0.338	0.332	0.258	-0.223	-0.156	0.432	**0.792**

Table 7 presents each one of the latent variables sharing better variance with its associated indicators than with any other indicator, confirming with Table 6 the discriminant validity of the model. Finally, the values were analyzed in order to determine the Internal Consistency - Cronbach's Alpha (CA), Composite Reliability (CR), and convergent validity (AVE). Following Jr., C. Black et al. (2014) recommendations, Table 8 shows the reference values for each one of the remaining validities.

Table 9 - Convergent validity and Internal model consistency - First-order model

	Cronbach's Alpha	Composite Reliability	Average Variance Extracted (AVE)
ITGM	0.912	0.926	0.559
ITG_EFEC_PER	0.843	0.884	0.560
ITG_FORM	0.934	0.968	0.938
OCB_CO	0.849	0.907	0.764
OCB_IH	0.920	0.940	0.759
OCB_II	0.824	0.882	0.652
OCB_IO	0.720	0.833	0.627
Reference Values	**CA > 0.70**	**CR > 0.70**	**AVE > 0.50**

As one can see, the instrument successfully passes both discriminant and convergent validity and shows internal consistency, which means that it is suitable for the aspirations of this study. In order to make possible a test to the research hypotheses, a Second-order Measurement Model was carried out following the recommendations of Jr., M. Hult, et al. (2014) and Sanchez (2013). As a result of the calculations of the first-order model, the values of the latent variables ITGM, ITG_EFEC_PER, and ITG_FORM were loaded into a new data file to represent the observable variables of the new latent variable ITG_INST (ITG institutionalization model). Figure 6 presents the second-order model.

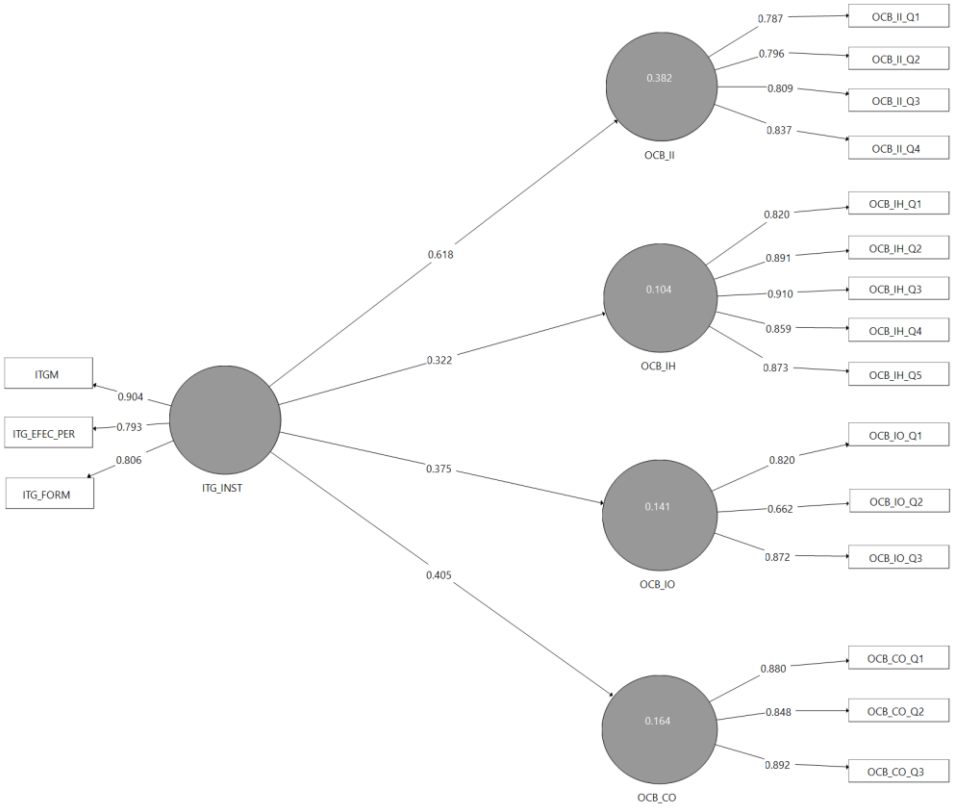

Figure 6 - Second-order model

Moreover, it is necessary to re-evaluate the instrument by repeating the validations performed for the first-order model in the second-order model. Thus, Table 9 shows the discriminant validity test, considering the Cross Loading Analysis (Chin, 1998), Table 10 shows the discriminant validity test, considering the Fornell & Larcker (1981) criterion, and finally, Table 11 shows the convergent validity and Internal Consistency model following the reference values that Jr., C. Black, et al. (2014) recommends.

Table 10 - Discriminant validity - Cross loading analysis - Second-order model

	ITG_INST	OCB_CO	OCB_IH	OCB_II	OCB_IO
ITG_EFEC_PER	**0.904**	-0.315	-0.203	0.508	0.340
ITG_FORM	**0.793**	-0.322	-0.315	0.552	0.334
ITGM	**0.806**	-0.377	-0.282	0.481	0.261
OCB_CO_Q1	-0.406	**0.880**	0.655	-0.630	-0.257
OCB_CO_Q2	-0.234	**0.848**	0.624	-0.535	-0.097
OCB_CO_Q3	-0.376	**0.892**	0.715	-0.556	-0.192
OCB_IH_Q1	-0.281	0.598	**0.820**	-0.474	-0.177
OCB_IH_Q2	-0.287	0.679	**0.891**	-0.555	-0.101
OCB_IH_Q3	-0.330	0.733	**0.910**	-0.561	-0.135
OCB_IH_Q4	-0.249	0.617	**0.859**	-0.454	-0.176
OCB_IH_Q5	-0.240	0.690	**0.873**	-0.519	-0.097
OCB_II_Q1	0.596	-0.567	-0.486	**0.787**	0.316
OCB_II_Q2	0.510	-0.451	-0.400	**0.796**	0.323
OCB_II_Q3	0.410	-0.544	-0.542	**0.809**	0.400
OCB_II_Q4	0.429	-0.572	-0.488	**0.837**	0.372
OCB_IO_Q1	0.266	-0.211	-0.150	0.418	**0.820**
OCB_IO_Q2	0.159	-0.151	-0.152	0.218	**0.662**
OCB_IO_Q3	0.391	-0.175	-0.103	0.361	**0.872**

Table 11 - Discriminant validity - Fornell-Larcker criterion - Second-order model

	ITG_INST	OCB_CO	OCB_IH	OCB_II	OCB_IO
ITG_INST	**0.836**				
OCB_CO	-0.405	**0.874**			
OCB_IH	-0.322	0.764	**0.871**		
OCB_II	0.618	-0.662	-0.591	**0.807**	
OCB_IO	0.375	-0.223	-0.157	0.432	**0.790**

Table 12 - Convergent validity and Internal model consistency - Second-order model

	Cronbach's Alpha	Composite Reliability	Average Variance Extracted (AVE)
ITG_INST	0.782	0.781	0.699
OCB_CO	0.849	0.887	0.764
OCB_IH	0.920	0.930	0.759
OCB_II	0.824	0.833	0.652
OCB_IO	0.720	0.821	0.624
Reference Values	**CA > 0.70**	**CR > 0.70**	**AVE > 0.50**

As well as the first-order model, the second-order model successfully passes both discriminant and convergent validity and shows internal consistency, which means that it is suitable for the aspirations of this study.

5.3.Analysis of the structural model

With the assurance that the items and constructs are valid, the adjustments of the measurement model are finished, and then it is possible to start the analysis of the structural model, or in other words, the analyze of the research model hypothesis with the Pearson coefficient of determination (R^2), the student's t-test, the Stone-Geisser indicator (Q^2), and the Cohen indicator (f^2) .

The analysis starts with the R^2 (Hair et al., 2011). The R^2 evaluates the predictable proportion of variance that the independent variable has on the dependent variable, is a measure of the model's predictive accuracy (Hair Jr., Hult, et al., 2014). Table 12 shows the values of the R^2.

Table 13 - Coefficient of determination (R^2)

	R^2
OCB_IO	0.141
OCB_II	0.382
OCB_IH	0.104
OCB_CO	0.164

Cohen (1988) suggests that, for the area of social and behavioral science, values such as $R^2 > 0.26$, $R^2 > 0.13$, and $R^2 > 0.0196$, are described as having a substantial, moderate, or weak amount of correlation. For example, the coefficient of determination, R^2, is 0.382 for the OCB_II endogenous latent variable, which means that the latent variable ITG_INST substantially explains 38.2% of the variance in OCB_II (Wong, 2013).

The next step of this analysis is to test the significance and effects of the relationships pointed out between the latent variable ITG_INST and the four latent variables of the OCB model. These data were obtained with the SmartPLS software using the bootstrapping module that calculates the student's t-test between the original values of the data and those obtained by the resampling technique (Ringle et al., 2014). Table 13 presents the path coefficients and t-test values.

Table 14 - Test of significance of the relations between ITG institutionalization and OCB

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics
ITG_INST -> OCB_IO	0.375	0.394	0.079	4.755
ITG_INST -> OCB_II	0.618	0.625	0.057	10.854
ITG_INST -> OCB_IH	0.322	0.336	0.080	4.021
ITG_INST -> OCB_CO	0.405	0.415	0.071	5.695

Looking at the last column of Table 13, it is possible to verify that the values of the t-test are higher than 1.96, which corresponds to p-values ≤ 0.05 (a p-value is a number between 0 and 1 that helps to determine the significance of the results (Rumsey, 2010)), this means that all relations studied are significant. Finally, Table 14 shows the values of the last two adjustment quality indicators of the analyzed model: the Predictive Validity through the Stone-Geisser indicator (Q^2) and the Effect Size through the Cohen Indicator (f^2) (Ringle et al., 2014).

Table 15 - Model predictive validity and constructs effects

	Stone-Geiss (Q^2)	Cohen (f^2)
OCB_IO	0.065	0.163
OCB_II	0.222	0.617
OCB_IH	0.069	0.116
OCB_CO	0.104	0.197

The Q^2 indicator evaluates the accuracy and the predictive relevance of the model and can be obtained by the Blindfolding procedure in SmartPLS. By analyzing the Q^2 indicator values, it is possible to verify that the values are above zero, which indicates that the exogenous construct has predictive relevance for the endogenous construct under discussion (Hair et al., 2011; Hair Jr., Hult, et al., 2014).

Finally, this section ends with the analysis of the f^2 indicator values that evaluate the contribution of each construct to the adjustment of the model. According to Cohen (1988), for the area of social and behavioral science, values such as $f^2 > 0.02$, $f^2 > 0.15$, and $f^2 > 0.36$, are considered as having a small, medium, or a large amount of effect, respectively. Thus, as one can see, all the latent variables are essential for the overall fit of the model.

5.4.Comparative analysis

As one can see in Chapter 3, Related Works, Wiedenhöft et al. (2017) uses the same research model suggested in Figure 1. Arménio Rego (1999) argues that the OCB should

be studied in contextual terms and not as a concept of universal dimensionalization, and Pereira & Mira da Silva (2012) shows how regional and cultural differences impact on the ITG implementation.

The objective of this section is to compare the analysis of the structural model of this study and the one made by Wiedenhöft et al. (2017), comparing the values from the Brazilian civil servants' and the Portuguese workers from public and private companies. This comparison starts with the Pearson coefficient of determination (R^2), as Table 15 shows.

Table 16 - Coefficient of determination (R2) - Portugal Vs. Brazil

	R^2	
	Portugal (PT)	**Brazil (BR)**
OCB_IO	0.141	0.1276
OCB_II	0.382	0.2926
OCB_IH	0.104	0.0437
OCB_CO	0.164	0.0590

Based on Table 15, it is possible to see that the Portuguese indicators have more correlation in general, so the latent variable ITG_INST explains them better than the Brazilian. For example, OCB_II has, in both cases, substantial amounts of correlation. However, OCB_CO and OCB_II have a moderate amount of correlation in the Portuguese case, in contrast to a weak one in the Brazilian. Continuing the model comparison, it is possible to see the results of the student's t-test in Table 16, and the results of the student's t-test in Table 17.

Table 17 - Test of significance of the relations between ITG institutionalization and OCB - Portugal Vs. Brazil

	Original Sample (O)		**Sample Mean (M)**		**Standard Deviation (STDEV)**		**T Statistics**	
	PT	**BR**	**PT**	**BR**	**PT**	**BR**	**PT**	**BR**
ITG_INST -> OCB_IO	0.375	0.3571	0.394	0.3645	0.079	0.0590	4.755	6.0541
ITG_INST -> OCB_II	0.618	0.5410	0.625	0.5443	0.057	0.0538	10.854	10.592
ITG_INST -> OCB_IH	0.322	0.2091	0.336	0.2262	0.080	0.0637	4.021	3.2815
ITG_INST -> OCB_CO	0.405	0.2429	0.415	0.2529	0.071	0.0647	5.695	3.7525

Table 18 - Model predictive validity and construct effects - Portugal Vs. Brazil

	Stone-Geiss (Q^2)		Cohen (f^2)	
	PT	**BR**	**PT**	**BR**
OCB_IO	0.065	0.083	0.163	0.421
OCB_II	0.222	0.182	0.617	0.424
OCB_IH	0.069	0.023	0.116	0.553
OCB_CO	0.104	0.031	0.197	0.421

Similarly, as one can see, the tables show that the relations studied are significant, confirming the accuracy of the adjusted model and the importance of the latent variables for the overall fit of the model in both Portuguese and Brazilian cultures. The following chapter is devoted to discussing and analyzing these results and the remaining hypothesis tests.

Chapter 6 – Discussion and conclusion

The goal of this study was to analyze the effects of the adoption of IT Governance mechanisms on the behavior of individuals in Portuguese organizations, over the lens of the Organization Citizenship Behavior concept. Based on this, it is possible to find in Table 13 the existence of significant relations (p-values ≤ 0.05) between ITG institutionalization and the OCB variables, confirming the general hypothesis of this study, that the ITG institutionalization has a positive effect on the individuals' OCBs in Portuguese organizations.

This general hypothesis is composed of four hypotheses, which were all confirmed. For each one of them, it is possible to predict that for each point that ITG institutionalization increases, they will:

- **H1:** Conscientiousness behavior will increase up to 41% ($\beta = 0.405$; p-value ≤ 0.05). Characterized as high power distance, and low-performance orientation, the Portuguese culture affected by the institutionalization of process and structure mechanisms will promote on Portuguese employees greater compliance with organizational rules and issues related to the internal maintenance of the organization.
- **H2:** Interpersonal Harmony behavior will increase up to 32% ($\beta = 0.322$; p-value ≤ 0.05). This behavior is characterized by the participation of individuals, the sharing of knowledge and experiences. Due to this, it was expected to work well with the ITG institutionalization, which eventually happened.
- **H3:** Identification with the organization behavior will increase up to 38% ($\beta = 0.375$; p-value ≤ 0.05). With this indicator, it is possible to understand that ITG institutionalization will instigate individuals to defend the name of the organization with attitudes that dignify its image vis-à-vis people from outside the organization.
- **H4:** Individual Initiative behavior will increase up to 62% ($\beta = 0.618$; p-value ≤ 0.05). In this hypothesis appears the behavior in which one can see a greater positive impact of ITG institutionalization. Relational mechanisms promote communication with other people in the workplace to improve individual and group performance and are deeply connected to the fact that Portugal is

characterized as a collectivist and feminine society, where people value equality, solidarity, and quality in their working lives.

In addition to these hypotheses, a comparative analysis was also made to reinforce the study and open more doors for future works, which differentiates itself from its general hypothesis, and demonstrates that:

- ITG institutionalization Model has different effect levels on individuals' OCBs from Portugal and Brazil. With this, one can see how the cultural context has an impact on the behavior of individuals, even if there is some parallelism between the Brazilian and Portuguese cultures regarding Hofstede (2011) variables, it is a truthful affirmation that the cultural context conditions the dimensions of citizenship behavior. Thus, looking at the data presented in table 16, it is possible to verify that the values related to the identification with the organization's behavior are similar but that the rest of the values are lower for the Brazilian culture than for the Portuguese.

After the discussion and interpretation of the results, many contributions can be drawn from these results. On the one hand, looking at the theoretical path, it is possible to reinforce the validity of the model proposed by Wiedenhöft et al. (2017). This reinforcement is also essential to reinforce separately the validity of the OCB construct proposed by Arménio Rego (1999), and the ITG institutionalization constructs proposed by Luciano et al. (2016) and Wiedenhöft et al. (2017), showing the existence of a significant and positive relationship between them. On the other hand, P. M. Podsakoff et al. (1997) empirically demonstrates that organizations with better OCBs show better effectiveness indicators. This contributes, in practice, to Portuguese organizations showing that by implementing their ITG Mechanisms, they are increasing employees OCBs and, consequently, organizational effectiveness.

6.1.Limitations

While relevant, these results should be interpreted with prudence, some conditions under which the research was conducted limits its generalizability. On the one hand, the sample size is not too large, and this makes generalization difficult and precluded a pretest on the instrument used. Despite this limitation, it was possible to meet the minimum requirements of the research techniques applied in the study. On the other hand, neither

all relevant industries are present in the survey, and according to the contingency factors of the ITG institutionalization, this could be important. Therefore, additional studies must be conducted to allow a deeper understanding of the role that ITG institutionalization plays in OCB.

6.2.Future work

The limitations of a study are often related to the suggested future work and can be found here too. First, future studies may collect more results in order to tune the findings of this study. Secondly, as Table 15 shows, Portuguese indicators have more correlation in general than the Brazilian one. Future research should understand why these two cultures, with an old link and nearly the same Hofstede (2011) attributes, have distinct behavior effects. One possible way of understanding this is to include measures of organizational and national culture to control the effects of these variables. Last but not least, this was the second time that this model was used and validated, and as one can see, the individual initiative behavior has a higher positive effect than the other behaviors in both cases. Further research using this model should take into account if it works in other countries, and if this linkage between the ITG institutionalization and the individual initiative behavior remains so significant, trying to understand why.

Finally, this study represents what is the usual scientific method, that is, writing and evaluating cases to obtain facts, trying to justify such facts, discarding the theories that can not be justified, testing new ones, writing it up, and getting reactions from colleagues until it finally comes together and makes sense: for a while. Considering that any new theory has its expiring date.

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Appendices

Appendice A

Questionário de investigação científica

*Obrigatório

ISCTE IUL
Instituto Universitário de Lisboa

Apresentação

Este questionário constitui uma das etapas do estudo científico elaborado pelo Mestrando Pedro Fernandes (pmvfs1@iscte-iul.pt) sob a orientação do Prof. Ph. D. Rúben Pereira (ruben.filipe.pereira@iscte-iul.pt) e Coorientação do Prof. Ph. D. Guilherme Wiedenhöft (guilherme.wiedenhoft@pucrs.br). Inserido no programa do Mestrado em Informática e Gestão do ISCTE-IUL, este questionário tem como objectivo suportar o estudo científico - "The impact of IT Governance institutionalization on individuals' behavior in Portuguese Companies" em desenvolvimento na cadeira de Dissertação em Informática e Gestão.

Não é pretendido realizar qualquer tipo de avaliação individual no decorrer deste questionário, apenas compreender como se relacionam os conceitos aqui estudados. Assim sendo, não existem respostas certas ou erradas, queremos apenas apreciar os seus conhecimentos acerca dos temas abordados.

Ao responder a este questionário irá contribuir para o estudo do impacto do comportamento dos indivíduos na Institucionalização dos Mecanismos de Governação das Tecnologias de Informação.

As respostas aos questionários realizados serão acedidos apenas pela equipa aqui apresentada, assegurando a sua confidencialidade e anonimato.

Desde já agradecemos a sua colaboração.

Pedro, Rúben e Guilherme.

Conceitos Relevantes

Para o apoio e melhor compreensão das questões, ficam aqui alguns dos conceitos utilizados na construção do questionário.

Governação das Tecnologia da Informação

Estrutura de tomada de decisão (conselho de administração, gestão executiva e gestão das TI) que está responsável pela formulação e implementação de uma estratégia de TI e, assim, garantir a fusão entre o negócio e as TI.

Determina as responsabilidades de cada indivíduo nas TI e define os mecanismos necessários para estimular os comportamentos desejáveis em relação aos recursos de TI de forma a alcançar os seus objetivos.

Consiste num conjunto de ações, políticas, regras e processos que auxiliam a organização na gestão das ferramentas, recursos e soluções em TI permitindo assim perceber o valor que as TI fornecem à organização e a minimização dos riscos relacionados com as TI.

Mecanismos de Governação das Tecnologia da Informação

Manifestação prática da Governação das TI que devem ser implementadas nas atividades quotidianas das organizações.

Efetividade da Governação da Tecnologia da Informação

É a forma de medir como os mecanismos respeitam os princípios e objetivos da Governação das TI. Neste sentido podem ser monitorizados através de indicadores de desempenho que determinam a intensidade desta relação.

Parte I – Adoção do Modelo de Governação das TI

Em relação à adoção do Modelo de Governação das TI acredito que a organização em que trabalho possui:

Responda às seguintes questões considerando a sua percepção em relação à adoção do Modelo de Governação de TI. Escolha a opção que melhor se ajusta à organização em que trabalha, utilizando a seguinte escala:

1 - Não se aplica à organização em que trabalho;
2 - Aplica-se informalmente;
3 - Existe a intenção de adotar
4 - Está a começar a adotar
5 - Adota parcialmente
6 - Adota integralmente

1. **1. Estrutura ou Comité directivo das TI.** *
   Marcar apenas uma oval.
   - ◯ 1
   - ◯ 2
   - ◯ 3
   - ◯ 4
   - ◯ 5
   - ◯ 6

2. **2. Estrutura organizacional de TI formalizada.** *
   Marcar apenas uma oval.
   - ◯ 1
   - ◯ 2
   - ◯ 3
   - ◯ 4
   - ◯ 5
   - ◯ 6

3. **3. Estrutura ou comité para análise de riscos.** *
Marcar apenas uma oval.

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4. **4. Estrutura ou comité para gestão de projectos de TI.** *
Marcar apenas uma oval.

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5. **5. Indicadores de desempenho das TI.** *
Marcar apenas uma oval.

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6. **6. Conjuntos de práticas de gestão, controlo e avaliação das TI.** *
Marcar apenas uma oval.

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7. **7. Conjunto de práticas para a segurança da informação.** *
Marcar apenas uma oval.

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8. **8. Métodos de avaliação dos níveis de alinhamento estratégico das TI.** *
Marcar apenas uma oval.

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9. **9. Espaço físico/Escritório para Governação das TI ou equivalente estabelecido.** *
Marcar apenas uma oval.

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10. **10. Práticas de troca de conhecimento.** *
Marcar apenas uma oval.

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- 6

Com relação aos Mecanismos de Governação das TI na organização em que trabalho, acredito que estes:

Responda às seguintes questões considerando a sua perceção em relação aos Mecanismos de Governação das TI. Escolha a opção que melhor se ajusta à organização em que trabalha, utilizando a seguinte escala:

1- Não se aplica;
2 - Não se aplica parcialmente;
3 - Aplica-se muito pouco;
4 - Aplica-se alguma coisa;
5 - Aplica-se muito;
6 - Aplica-se completamente.

11. **11. Disponibilizam serviços na área das TI focados no cliente.** *
Marcar apenas uma oval.

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12. **12. Proporcionam a integração entre sistemas e processos.** *
Marcar apenas uma oval.

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13. **13. Promovem redes colaborativas e de partilha de conhecimento.** *
Marcar apenas uma oval.

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14. **14. Garantem a optimização de recursos na área das TI.** *
Marcar apenas uma oval.

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15. **15. Os mecanismos de Governação das TI estão focados nas necessidades dos clientes.** *
Marcar apenas uma oval.

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- 6

16. **16. Promovem a integração entre os diferentes órgãos da organização.** *

Marcar apenas uma oval.

- ◯ 1
- ◯ 2
- ◯ 3
- ◯ 4
- ◯ 5
- ◯ 6

Parte II – Atuação dos colaboradores

Em relação à atuação dos meus colegas de trabalho, acredito que eles:

Responda às seguintes questões considerando a atuação dos seus colegas de trabalho. Escolha a opção que melhor se ajusta, utilizando a seguinte escala:

1- Não se aplica;
2 - Não se aplica parcialmente;
3 - Aplica-se muito pouco;
4 - Aplica-se alguma coisa;
5 - Aplica-se muito;
6 - Aplica-se completamente.

17. **17. Mantêm-se informados sobre o que se passa na organização.** *

Marcar apenas uma oval.

- ◯ 1
- ◯ 2
- ◯ 3
- ◯ 4
- ◯ 5
- ◯ 6

18. **18. Quando estão com um problema, procuram resolvê-lo antes de apresentá-lo aos seus superiores.** *

Marcar apenas uma oval.

- ◯ 1
- ◯ 2
- ◯ 3
- ◯ 4
- ◯ 5
- ◯ 6

19. **19. Quando algo não funciona, procuram alternativas para que funcione.** *
Marcar apenas uma oval.

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- 6

20. **20. Procuram, de forma espontânea, melhorar os seus conhecimentos, competências e capacidades.** *
Marcar apenas uma oval.

- 1
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- 5
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21. **21. Estão sempre a queixar-se de assuntos com pouca importância.** *
Marcar apenas uma oval.

- 1
- 2
- 3
- 4
- 5
- 6

22. **22. Criam mau ambiente na equipa (falam mal dos colegas, são intriguistas, etc.).** *
Marcar apenas uma oval.

- 1
- 2
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- 5
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23. **23. Quando tem tarefas aborrecidas ou difíceis para realizar gostam de "passar a batata quente" para os outros.** *
Marcar apenas uma oval.

- ◯ 1
- ◯ 2
- ◯ 3
- ◯ 4
- ◯ 5
- ◯ 6

24. **24. São geralmente pessimistas.** *
Marcar apenas uma oval.

- ◯ 1
- ◯ 2
- ◯ 3
- ◯ 4
- ◯ 5
- ◯ 6

25. **25. Quando algo negativo lhes acontece, desculpam-se com os erros dos outros.** *
Marcar apenas uma oval.

- ◯ 1
- ◯ 2
- ◯ 3
- ◯ 4
- ◯ 5
- ◯ 6

26. **26. Fazem esforços extra para beneficiar a organização, mesmo com prejuízos pessoais.** *
Marcar apenas uma oval.

- ◯ 1
- ◯ 2
- ◯ 3
- ◯ 4
- ◯ 5
- ◯ 6

27. **27. Pensam em primeiro lugar no trabalho, mais do que neles próprios.** *
Marcar apenas uma oval.

- 1
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28. **28. Quando descobrem uma oportunidade de negócio para a organização (mesmo que seja durante o fim de semana), comunicam aos responsáveis.** *
Marcar apenas uma oval.

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29. **29. São desleixados (tanto faz que o trabalho seja bem ou mal feito).** *
Marcar apenas uma oval.

- 1
- 2
- 3
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- 5
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30. **30. Não estão focados e prontos para trabalhar assim que chegam à organização.** *
Marcar apenas uma oval.

- 1
- 2
- 3
- 4
- 5
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31. **31. Perdem tempo com assuntos que não estão relacionados com o trabalho.** *
Marcar apenas uma oval.

- 1
- 2
- 3
- 4
- 5
- 6

Parte III - Caracterização Sócio Demográfica

32. **1. Género?** *
Marcar apenas uma oval.

- Masculino
- Feminino

33. **2. Idade?** *
Marcar apenas uma oval.

- Entre 18 e 25 anos
- Entre 26 e 35 anos
- Entre 36 e 45 anos
- Entre 45 e 55 anos
- Mais de 55 anos

34. **3. Formação?** *
Marcar apenas uma oval.

- Ensino Básico
- Ensino Secundário
- Licenciatura
- Mestrado
- Doutoramento

35. **4. Longevidade em anos na organização atual?** *

_____

36. **5. Área de atuação na organização?** *
Marcar apenas uma oval.

- Tecnologias de Informação
- Outra: _____

37. **6. Cargo/Função atual?** *

_____

38. **7. Anos de experiência profissional?** *

39. **8. A organização onde trabalho possui um modelo de Governação das TI.** *

Marcar apenas uma oval.

- Discordo
- Discordo parcialmente
- Discordo muito pouco
- Concordo alguma coisa
- Concordo em grande parte
- Concordo

40. **9. O Modelo de Governação das TI na sua organização está formalizado.** *

Marcar apenas uma oval.

- Discordo
- Discordo parcialmente
- Discordo muito pouco
- Concordo alguma coisa
- Concordo em grande parte
- Concordo

41. **10. Qual o número total de colaboradores (internos, externos e estagiários) na sua organização?** *

Marcar apenas uma oval.

- De 01 a 05 colaboradores
- De 06 a 10 colaboradores
- De 11 a 25 colaboradores
- De 26 a 50 colaboradores
- De 51 a 100 colaboradores
- De 101 a 500 colaboradores
- De 501 a 1000 colaboradores
- Mais de 1000 colaboradores

42. **11. Qual o número total de colaboradores (internos, externos e estagiários) existente na área das TI na sua organização?** *

Marcar apenas uma oval.

- De 01 a 05 colaboradores
- De 06 a 10 colaboradores
- De 11 a 25 colaboradores
- De 26 a 50 colaboradores
- De 51 a 100 colaboradores
- Mais de 100 colaboradores

43. **Declaração de Conhecimento: As respostas aqui apresentadas representam a forma como eu interpreto as temáticas apresentadas em consonância com a organização onde trabalho.** *

Marcar apenas uma oval.

- ◯ Sim
- ◯ Não