



The Effect of Organizational Cultures on Relationships between IT Governance and Individual Behavior

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Abstract

Background: Organizations allocate substantial resources to Information Technology (IT) to ensure its long-term success. Hence, effective IT Governance (ITG) is crucial for business/IT alignment. However, factors like employee behavior and Organizational Culture (OC) play vital roles in applying ITG but remain underexplored. **Objectives:** This study aims to bridge this gap by examining the relationship between ITG and Organizational Citizenship Behavior (OCB). Additionally, it investigates the moderating effect of different cultures in the Organizational Culture Assessment Instrument (OCAI) on the ITG-OCB relationship. **Methods/Analysis:** A survey was conducted involving 513 employees from over 150 companies worldwide. The data were analyzed using partial least-squares structural equation modeling (PLS-SEM). **Findings:** This study confirms that institutionalizing ITG enhances OCB. Furthermore, a moderating effect was observed in most relationships, highlighting the influence of different OC types. Market and hierarchy cultures exhibited the most significant moderating effect. **Novelty:** This research contributes to the understanding of ITG's impact on employee behavior, extending the investigation to new dimensions of OCB and confirming the moderating role of OC. The practical implications of this study enable organizations to foster a culture that promotes ITG and cultivates employees' OCB, leading to improved business-IT alignment, enhanced IT-enabled value, and, ultimately, enhanced organizational effectiveness.

Keywords:

Institutional Theory;
IT Governance;
Organizational Citizenship Behavior;
Organizational Culture;
PLS-SEM.

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1- Introduction

In today's fast-paced global digital economy, information technology (IT) plays a vital role in ensuring the long-term survival and sustainable growth of organizations. As a result, IT investments have become a crucial component of organizational strategies, accounting for over 20% of total capital expenditures [1, 2]. Consequently, organizations must focus on governing IT to gain a competitive advantage and effectively use IT to meet business needs. IT Governance (ITG) will help organizations deal with external and long-term IT issues to carry out and transform IT to meet the present and future demands of the business and stakeholders' expectations [3, 4].

Proper ITG policies ensure that organizations achieve their objectives and increase business/IT alignment and performance, promoting automation and efficient integration with partners and customers to create long-term competitive advantages [5]. Achieving an effective ITG requires a combination of structure, process, and relational mechanisms [6]. To implement these mechanisms, two principles must be considered [7, 8]: the first relates to essential

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IT strategic choices and monitoring of key roles and responsibilities [9, 10], and the second focuses on individuals dealing with IT-related decisions and activities [11]. These principles highlight the importance of the behavioral side of ITG, incorporating social elements such as human behavior and Organizational Culture (OC) for the successful implementation of ITG mechanisms [12]. This study focuses on the behavioral aspects of ITG because improvements are needed in the human or social aspects of governance rather than just focusing on process and structure, as people do not work or think solely in those terms [6, 12].

When organizations implement ITG mechanisms, they define their identity through norms and rules that can facilitate collaboration and create a common understanding among individuals about the institutionalization process [13]. However, certain factors, such as OC, can affect how individuals perceive and interact with these mechanisms [14, 15]. Without considering the importance of managing the culture around ITG, the institutionalization process can generate challenges within the organization, causing employees to not adopt the desired practices and behaviors when using IT [16]. Given its behavioral relevance, OC is a critical factor in the success of ITG implementation because the ITG, as an organizational model, needs to reinforce its members' behavior to support the cultural values that strengthen the relationship between IT and its stakeholders [17–20]. For example, an OC directed toward the market, driven by competitiveness in achieving market goals and securing a client base, can increase the way individuals perceive the institutionalization of ITG mechanisms in the organization, leading to better-aligned behaviors [21].

The incentive for desirable behavior must be clearly defined to achieve effective governance [22]. Good behavior contributes to a more consistent and aligned relationship between business and IT [23], whereas poor human behavior can undermine the best ITG institutionalization process [8]. The concept of Organizational Citizenship Behavior (OCB) was employed to gauge the effect of ITG mechanisms on workplace behavior. OCB refers to spontaneous and innovative individual behaviors that are not rewarded by the organization but are still critical to its success [24, 25]. Dekas et al. (2013) were the first to connect OCB with IT, arguing that trends in the IT sector might be able to predict future trends in the larger workforce and the nature of OCB. Later, some authors pioneered the study of the relationship between OCB and ITG [26–28]. Based on the idea that ITG influences OCB antecedents, such as job satisfaction and reward perception, they found that individuals' perceptions of ITG mechanisms' institutionalization increase positive OCB, such as individual initiative, interpersonal harmony, identification with the organization, and conscientiousness, in specific national contexts, such as Brazil and Portugal. This study follows the same motivation but aims to break the national barriers present in previous studies and understand whether this relationship is also relevant and positive with other behaviors, such as sportsmanship, altruism, conscientiousness, civic virtue, and courtesy, which have not been studied so far.

To bridge this research gap, deepen our understanding of the relationship between ITG and OCB, and explore whether this positive relationship extends to other dimensions of OCB, this study builds on the idea that interacting with ITG mechanisms will positively influence individuals' OCBs [28]. In this study, we propose that OC serves as a moderator that controls both the ITG and OCB concepts individually and in their relationships. Culture holds significant importance for organizations as it can influence OCB, a meaningful antecedent of individual behaviors and attitudes [22], and impacts the performance of ITG outcomes [29–31]. Following the results of the Systematic Literature Review (SLR) by Fernandes et al. (2022) [21], this study uses the Organizational Culture Assessment Instrument (OCAI). The OCAI model helps to understand the predominant culture type in an organization, which can affect how individuals exhibit different attitudes and behaviors and perceive the institutionalization of ITG [32, 33]. Additionally, to understand how individuals perceive the implementation of ITG mechanisms, this study employs the ITG institutionalization model based on institutional theory [26, 34]. Figure 1 summarizes the problem and research question of this study: *Does the perception of ITG institutionalization positively affect individuals' behavior over the lens of the OCB concept, and how do the organizational cultures influence it?*

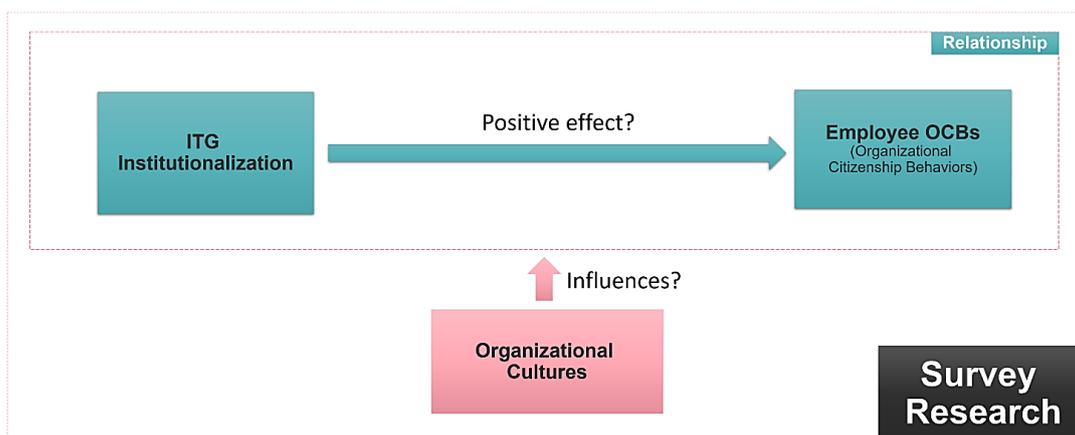


Figure 1. Research problem

Considering the substantial investments organizations are making in their IT resources, this research is particularly timely [1]. Therefore, this study aims to provide both theoretical and practical contributions by helping organizations understand the role of ITG institutionalization in fostering OCB and whether implementing ITG mechanisms can enhance employees' OCB and overall organizational effectiveness [35]. Furthermore, it will shed light on how culture affects the relationship between ITG institutionalization and employees' OCBs, helping organizations move towards an ITG-OCB-oriented culture.

A survey will be conducted among workers from numerous organizations worldwide to address this research question and achieve the research objectives. Moreover, this study will employ the Partial Least Squares (PLS)-Structural Equation Modeling (SEM) (PLS-SEM) method will be used to test the overall model and hypotheses.

The remaining sections of this paper are organized as follows: The next section provides a theoretical background on OCB, OC, and ITG. The Research Model section describes the research model and hypotheses. The Research Method section discusses the survey details. PLS-SEM was used in the data analysis stage to evaluate the survey findings. The Discussion section presents the study results, assesses the hypothesis outcomes, synthesizes the conclusions, and suggests areas for further research.

2- Literature Review

2-1-IT Governance

ITG is an integral and essential component of broader corporate governance, focusing on the role of IT within the organization [36, 37]. It encompasses the external and long-term aspects of IT, involving the execution and transformation of IT to meet current and future business demands and stakeholder expectations [9, 16]. ITG plays a crucial role in defining the direction and controlling IT operations by establishing decision-making structures, processes, and relational mechanisms [2, 38]. However, various contingency factors, such as OC, industry context, and organizational maturity, can undermine the successful implementation of ITG [18, 39]. This study acknowledges the influence of these factors on the adoption of ITG mechanisms but specifically emphasizes the OC component due to its behavioral relevance and the tendency of managers to attribute ITG project failures to cultural issues [19, 40].

This study examines ITG through the lens of institutional theory, which investigates how individuals perceive the implementation of ITG mechanisms within an organization [41]. Individual perceptions of ITG extend beyond the mere adoption of ITG practices. Formal institutions provide stability and meaning to social life by combining norms, customs, and beliefs with the associated activities and material resources. ITG can be institutionalized through regulatory, normative, and cognitive pillars that are crucial for institutions' functioning and support systems [41].

From a cultural-cognitive perspective, the legitimacy of the ITG Structure arises from an individual's perception of its effectiveness, which creates a reference structure from which other organizations may learn and copy [7, 41]. Additionally, from a regulatory perspective, an organization's compliance with rules and regulations serves as evidence of the implementation of ITG mechanisms [26]. Finally, the ITG structure represents the organization's formal normative stance on technology. Its defining characteristic is the empowerment of social action, which enhances employees' goal setting, organizational goodwill, and communication [30]. In summary, this study uses institutional theory to comprehend how employees perceive the implementation of ITG mechanisms and their impact on them. Table 1 presents the ITG institutionalization model [26].

Table 1. ITG institutionalization model

| Variable | Definition |
|---|---|
| ITG effectiveness perception (Cultural-cognitive Institutionalization) (ITG_EFEC_PER) | The individuals perceive the efficiency of adopting ITG mechanisms. |
| ITG mechanisms (Regulatory Institutionalization) (ITGM) | The individual perceives the adoption of IT Governance mechanisms to establish rules, monitoring, and sanctions. |
| ITG structure formalization (Normative Institutionalization) (ITG_FORM) | The individual realizes the formalization of the ITG Structure as a normative system of impositions to social behavior, authorizing and enabling social action. |

2-2-Organizational Citizenship Behavior

An individual's behavior that voluntarily benefits the organization without being encouraged by its reward system is classified as OCB [42, 43]. OCB consists of spontaneous acts of collaboration and protective actions aimed at safeguarding the organization and its interests [44]. These unexpected and innovative behaviors are closely linked to job performance, which is crucial for organizational effectiveness and sustainable business growth [17, 35, 36]. This study utilizes OCB based on the notion that ITG influences its antecedents [26, 45]. By promoting OCB, individuals are likely to work effectively, which is vital for overall organizational success [25].

While there is consensus among scholars regarding "citizenship gestures" as voluntary actions that employees undertake for the company's benefit, the literature on OCB reveals variations in its dimensions depending on the context of the study and the specific field of application [24]. These dimensions play a crucial role in determining the different manifestations of OCB [46]. Podsakoff et al. (2000) [58] were the first to synthesize all the existing OCB dimensions in a single study (30). Over the past two decades, the number of dimensions observed has more than tripled (96), and the trend is to continue as new dimensions are conceptualized [47]. This study examines the five oldest and most widely used OCB dimensions to explore whether the positive effects of ITG extend to other OCB dimensions [47]. The dimensions are listed in Table 2.

Table 2. OCB model

| Dimension | Definition |
|----------------------------|---|
| Altruism (OCB_AL) | Altruism is a helping behavior comprising all the voluntary actions that help others with a work problem. |
| Conscientiousness (OCB_CO) | Conscientiousness is related to an excellent posture of going well beyond minimum attendance levels, punctuality, housekeeping, conserving resources, and internal maintenance issues. |
| Sportsmanship (OCB_SP) | Sportsmanship is the good behavior of an individual that focuses on what is right rather than wrong in an organization, tolerating the inevitable inconveniences and demands of work without complaint. |
| Courtesy (OCB_CU) | Courtesy encompasses behaviors like being sensible of how one's behavior affects others to prevent work-related problems from happening. |
| Civic virtue (OCB_CV) | Civic virtue represents individual involvement or concern in the organization's processes and life. |

2-3-Organizational Culture

Cultural factors are typically classified into country, region, industry, organizational culture, and subcultures [48]. Culture emerges when some values are collectively shared, distinguishing one group from another [49]. OC encompasses elements that define an organization's functions [49, 50]. It represents the personality and behavior of an organization over time [37]. A strong and well-defined OC enhances members' commitment and organizational performance [51]. It creates a sense of belonging among employees, motivating them to work collaboratively towards common goals [37]. OC can manifest in various profiles that differ in their combinations of values [32, 52]. Although companies may have a dominant culture, they do not fit neatly into a single culture type, as they often exhibit multiple values [53, 54].

Fernandes et al. (2022) identified 17 models of OC and found that the OCAI is one of the most widely used models in research on these topics [55]. Similar to many other studies, this study employs the OCAI model, which has been used by over ten thousand companies [56]. The OCAI allows organizations to assess their current OC type and the desired type from the perspective of their employees. The desired culture type is determined based on employees' perceptions of how the organization should achieve success in the next five years. This assessment involves evaluating six dimensions of culture: dominant characteristics, organizational leadership, employee management, organizational glue, strategic emphases, and success criteria. Cameron & Quinn (2011) categorized OC into four types. Table 3 summarizes these types along with their main attributes [32].

Table 3. OCAI model

| Type | Definition |
|-----------|--|
| Clan | It is commonly assumed that clan cultures are characterized by teamwork and employee development, that customers are best viewed as partners, that the organization fosters a humane work environment, and that management's primary objective is to empower and facilitate employees. |
| Adhocracy | An adhocracy culture is characterized by a dynamic, entrepreneurial, and creative workplace where people take risks and stick their necks out. Leadership is visionary, innovative, and risk-oriented, and experimentation and innovation are the glue that binds an organization together. |
| Market | Market cultures are results-oriented workplaces where leaders are hard-working producers and competitors, the glue holding the organization together is winning, and long-term concerns focus on achieving stretch goals. |
| Hierarchy | The hierarchy culture defines a formal, structured work environment where procedures govern what people do. Influential leaders are skilled coordinators and organizers, where maintaining a smooth-running organization is essential, and the organization's long-term concerns are stability, predictability, and efficiency. As a result, formal policies and rules bind the organization together. |

3- Research Model

This study builds upon an established positive theoretical relationship between ITG and various dimensions of OCB that have been previously examined [27, 57]. Its goal is to expand the theoretical contributions to other dimensions and address gaps in the existing literature. Additionally, it investigates the influence of other factors on this relationship, specifically focusing on organizational culture rather than on national cultural values.

The proposed research model for the effect of ITG on OCB is based on two key contributions identified in the SLR conducted by Fernandes et al. (2022) [55]. First, Podsakoff et al. (2000) emphasized the significance of the factors that

influence OCB in promoting organizational effectiveness [58]. They highlight that individual characteristics and perceptions of organizational characteristics play a crucial role as antecedent factors for OCB. Second, Dekas et al. (2013) [28], recognized the growing importance of IT in organizations and suggested that “trends in the technology industry may forecast future trends in the broader workforce, and also in the nature of OCB.” Therefore, it is important to understand whether ITG, as part of a broader corporate governance concept through its mechanisms, is one of the factors that positively shapes and influences OCB dynamics [26, 59, 60].

To examine the impact of ITG on OCB, this study adopts the institutional theory and its pillars, which are essential for organizational functioning [61]. The ITG institutionalization model assesses individuals' perceptions of the adoption of ITG mechanisms within an organization [57]. It is hypothesized that the effective perception and utilization of these mechanisms can influence individuals' behavior and organizational performance by shaping their shared purpose, goodwill towards organizational processes, and communication abilities [26, 45]. Figure 2 illustrates the five hypotheses (H1a – H1e) that were created to validate the influence of individuals' perceptions of ITG (Table 1) on the five OCB dimensions (Table 2).

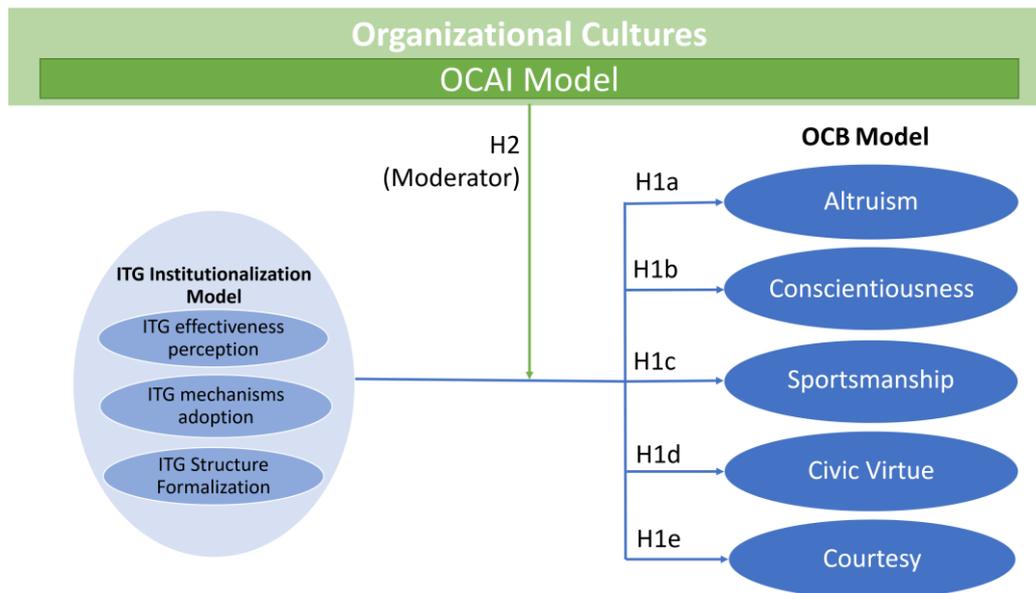


Figure 2. Research model

Altruistic behavior represents an employee's willingness to assist others voluntarily, particularly when they face work-related problems [62, 63]. Institutionalization of the ITG model is expected to have a positive impact on altruistic behavior by promoting social action empowerment. By facilitating communication through collaborative networks and knowledge exchange tools, ITG institutionalization enhances individuals' ability to help others and fosters their perception of organizational support, driven by principles such as transparency and organizational reciprocity [26, 60]. This leads to the following hypothesis:

H1a: ITG institutionalization positively affects altruism.

Conscientiousness refers to employees' willingness to go beyond the minimum requirements set by the organization, such as demonstrating exceptional attendance and punctuality [64, 63]. Institutionalization of the ITG model can positively influence conscientious behavior through the establishment of formal rules, norms, and accountability mechanisms. It promotes greater compliance with organizational rules and raises individuals' awareness of the importance of effectively and optimally utilizing organizational resources [41, 65]. Based on this, we propose the following hypothesis:

H1b: ITG institutionalization positively affects conscientiousness.

Sportsmanship represents an employee's willingness to accept and tolerate the unavoidable demands and inconveniences of work without complaint [42, 66]. Clarity regarding roles and responsibilities reduces ambiguity and conflicts in individuals' perceptions of their assignments and organizational roles [67]. By defining key roles and responsibilities in the deployment of ITG mechanisms, organizations contribute to supporting individuals involved in ITG, facilitating their understanding of their roles, ensuring the integrity and responsible behaviors required by ITG processes, enhancing the perception of organizational support, and enabling employees to handle work displeasures without complaining [7, 68]. This argument leads us to the following hypothesis:

H1c: ITG institutionalization positively affects sportsmanship.

Civic virtue reflects an employee's commitment and interest in the organization, as demonstrated by their willingness to participate in its governance and pursue its best interests, even at high personal costs [58, 63, 66, 69]. Establishing a common understanding of ITG mechanism implementation fosters an attitude among individuals toward solving problems and seeking alternative solutions. ITG, combined with individuals' perceptions of receiving feedback and organizational reciprocity, contributes to civic virtue behavior, as employees adopt pro-organizational behaviors and attitudes, including making constructive suggestions for improvement, even with associated personal costs [7, 70]. This argument leaves us with the following hypothesis:

H1d: ITG institutionalization positively affects civic virtue.

Courtesy behavior involves gestures towards others that help prevent work-related problems, such as notifying colleagues before engaging in actions that may negatively affect them. The institutionalization of the ITG model can positively influence courtesy behavior by promoting compliance with organizational rules and by providing collaborative and communication tools. This enables individuals to assist their colleagues in avoiding work-related problems by notifying them in advance of potentially detrimental actions [41, 63, 71]. Thus, the following hypothesis is formulated:

H1e: ITG institutionalization positively affects courtesy.

As depicted in Figure 2, this study incorporates OC as a moderator to examine whether the relationship between ITG and OCB can transcend national barriers and be influenced by shared values among organizations worldwide. From an ITG perspective, OC is considered crucial for successful ITG implementation and is a primary concern when issues arise [20, 72]. Implementing an effective ITG is challenging because it involves processes, structures, human behavior, and OC [6, 73]. Consequently, organizations need to manage ITG mechanisms and cultivate a culture that supports ITG to achieve alignment between business and IT, and to create more value from IT [33, 74].

From a behavioral standpoint, by performing its culture, organizations are stating the '*way things are done here*,' influencing their employees' behavior and, consequently, how these manifest distinct kinds of OCBs [33, 51, 75]. By exploring the relationship between ITG and OCB, with OC serving as a moderator, this study aims to provide valuable insights into how organizations can adapt their cultures to make ITG more noticeable among employees and cultivate desired employee behaviors [21]. Understanding ITG helps individuals effectively utilize IT resources and practices, enabling organizations to create supportive and efficient work environments. By leveraging these insights, organizations can optimize their IT value by promoting collaboration, compliance, responsibility, effective communication, and achieving sustainable organizational success. Finally, to address the last hypothesis presented in the research model (Figure 2), the OC types from the OCAI Model (Table 3) were used:

H2: Organizational culture moderates the relationship between ITG and OCB.

4- Research method

This section describes the methodology, tools, and characteristics of the samples used in this study. From a functionalist perspective, this study aims to gain insights from society that can facilitate better decision-making [76]. The research employed a descriptive-confirmatory ex post facto approach and a cross-sectional methodology for data collection and analysis [77]. The research design is summarized in Figure 3.

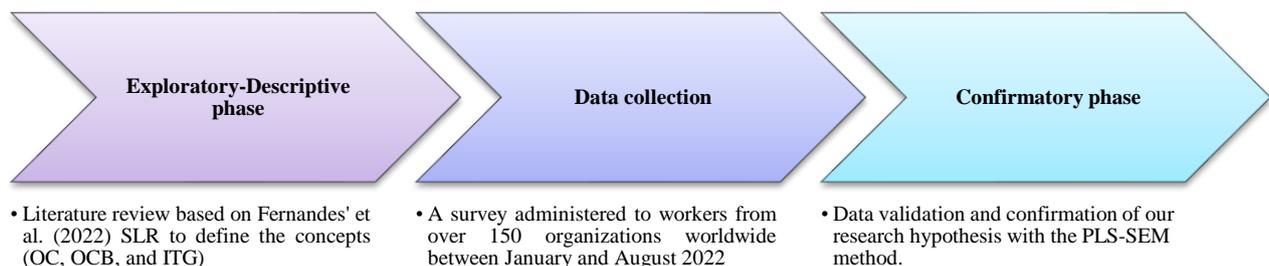


Figure 3. Research design

A survey was conducted between January and August 2022 to gather data from employees of over 150 organizations worldwide. This survey aimed to investigate individuals' perceptions of ITG adoption, coworkers' behavior, and company culture. When creating the questionnaire (Appendix I), the operationalization of ITG institutionalization variables [26], OCB variables [78-80], and the OCAI model [52] were considered.

The online survey was conducted using the LimeSurvey platform. No individual factors, such as industry type or region, were used to select participating companies in this study. The only requirement was that organizations had already defined and implemented their ITG mechanisms. At the employee level, only participants with a good understanding of the topics and at least one year of experience within the organization were accepted to participate. A total of 557 surveys were completed during the data-collection phase. Taking into consideration ethical reasons and per the request of the organizations, the surveys were anonymous, meaning that the participants could not be identified.

The data were analyzed in three distinct phases. Initially, the authors assessed respondents' familiarity with the topics. Second, applicants had worked for the company for at least one year. Seven answers were discarded after completing both processes. Finally, data were examined to identify and exclude outliers, unusual response patterns, and missing values [81]. Since all responses were mandatory, there were no missing values. However, after analyzing the answers using the Standard Deviation (SD) approach, 35 suspicious response patterns were identified. These patterns included straight-line, diagonal lining, and alternating extreme pole responses. The responses were removed from the dataset. In the final analysis, the identification of outliers allowed us to exclude two additional answers from the dataset. After data cleaning, 513 valid survey results (92%) remained. Table 4 presents the respondents' profiles.

Table 4. Respondents' profiles

| Social-demographic variables | | Frequency | Percentage (%) |
|------------------------------|---------------------------------|-----------|----------------|
| Gender | Male | 280 | 55 |
| | Female | 233 | 45 |
| Age | 18 - 25 years | 38 | 7 |
| | 26 - 35 years | 144 | 28 |
| | 36 - 45 years | 160 | 31 |
| | 46 - 45 years | 128 | 25 |
| | > 55 years | 43 | 8 |
| Education | High school | 39 | 8 |
| | Bachelor's | 180 | 35 |
| | Master's | 211 | 41 |
| | PhD | 48 | 9 |
| | Other | 35 | 7 |
| Function | IT Professional | 88 | 17 |
| | Human Resources | 10 | 2 |
| | Director | 57 | 11 |
| | Manager | 102 | 20 |
| | C-level | 38 | 7 |
| | Other | 116 | 23 |
| Region | NA | 102 | 20 |
| | Africa | 9 | 2 |
| | Asia | 15 | 3 |
| | Europe | 322 | 63 |
| | Latin America and the Caribbean | 63 | 12 |
| | Middle East | 16 | 3 |
| | North America | 45 | 9 |
| Predominant OC Type | Oceania | 43 | 8 |
| | Clan | 201 | 39 |
| | Hierarchy | 130 | 25 |
| | Market | 99 | 19 |
| | Adhocracy | 66 | 13 |
| | NA (All equal) | 17 | 3 |

5- Data Analysis

This section evaluates the survey outcomes and presents the results of the hypotheses developed in previous sections. A PLS-SEM approach was utilized to assess the overall model. PLS-SEM is well-suited for explaining relationships between multiple variables in complex models when the minimum sample size requirements are met, the data are non-normally distributed, and the model employs distinct measurement scales [81, 82]. Using the inverse square root method, the minimum sample size was calculated as approximately 155, which is smaller than the sample size presented above (513) [83, 84]. Additionally, the Shapiro-Wilk test indicated a lack of normality in the sample (sig. < 0.001) [85]. Finally, as discussed in the previous section, three different models were employed with two distinct scale systems.

First, the Kaiser-Meyer-Olkin (KMO) and Bartlett's sphericity tests were conducted using IBM SPSS 28 Statistics Software to ensure the adequacy of the sample (KMO > 0.5 confirms this) [86]. Table 5 demonstrates that the KMO value is 0.931, which is considered 'superb,' according to Field (2005). Additionally, the estimated Chi-square for Bartlett's test of sphericity is 13173.231 with 741 degrees of freedom, which is highly significant at this level (Sig. 0.000, according to Field (2005)). These results support the conclusion that the data are suitable for factor analysis.

Table 5. Kaiser-Meyer-Olkin and Bartlett Tests

| | | |
|--|------------------------|--------------|
| Kaiser-Meyer-Olkin Measure of Sampling Adequacy | | 0.931 |
| Bartlett's Test of Sphericity | Approximate chi-square | 13173.231 |
| | Degree of freedom | 741 |
| | Significance | 0.000 |

SmartPLS Software, a user-friendly and well-known path modeling tool for PLS-SEM applications, was utilized to initiate the structural model analysis [87]. Evaluation of the reflective measurement model is the first stage of this analysis. It ensures the reliability and validity of construct measures and supports their inclusion in the path model by assessing indicators, internal consistency, convergent validity, and discriminant validity [81, 83, 88]. Figure 4 illustrates the first-order construct model and calculations based on Bido & Da Silva's (2019) parameters using the SmartPLS Software. Definitions of the latent variables are presented in Tables 1 and 2.

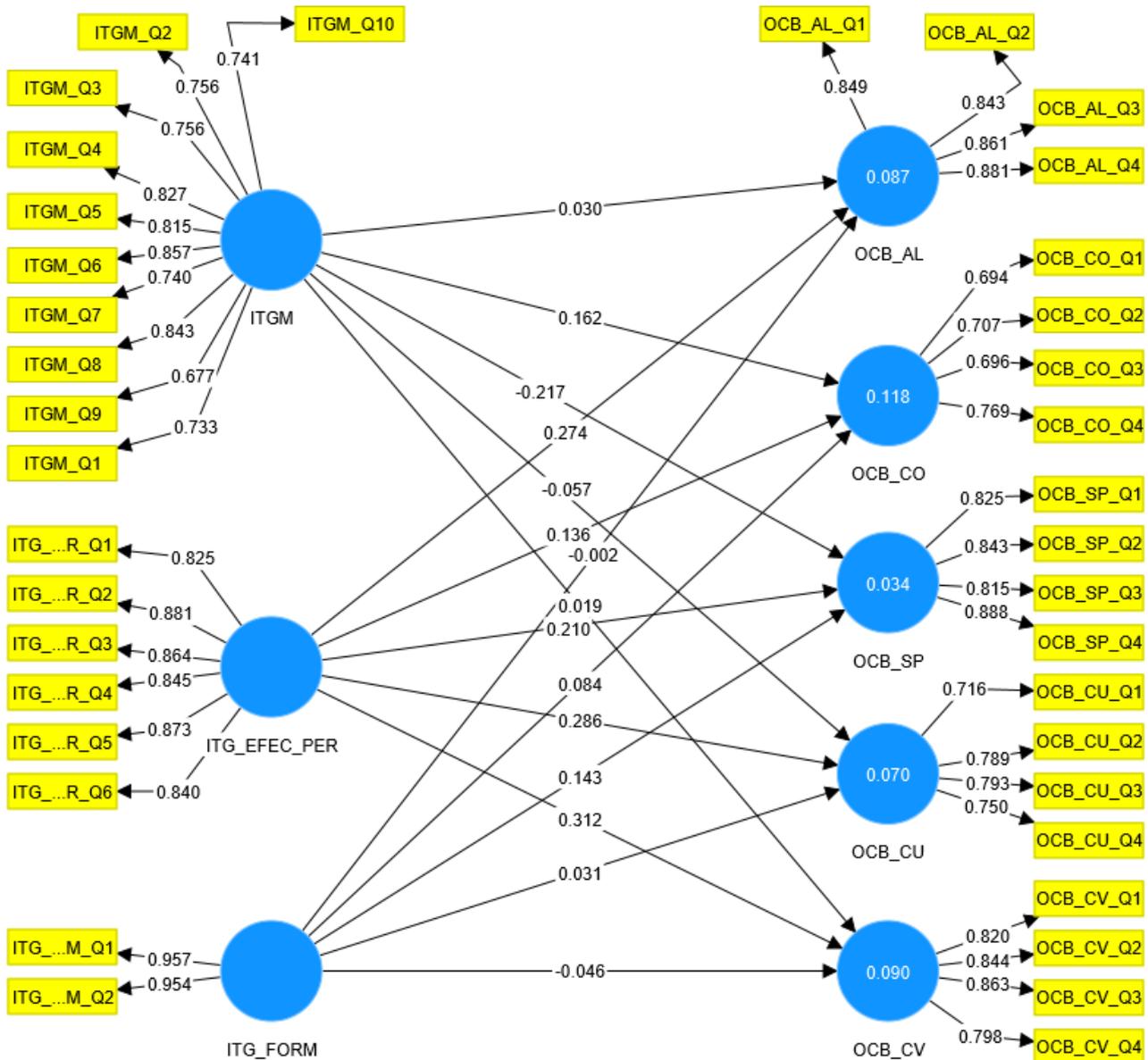


Figure 4. First-order model

Before delving into the details, a summary of the findings is provided in Table 6, following the format proposed by Hair et al. (2017) [81] to evaluate reflective measurement models.

Table 6. Validity and reliability summary for the first-order model

| Latent Variable | Indicators | Convergent Validity | | | Internal Consistency Reliability | | Discriminant Validity |
|-----------------|-----------------|---------------------|-----------------------|--------|----------------------------------|------------------|-------------------------|
| | | Loadings | Indicator Reliability | AVE | Composite Reliability | Cronbach's Alpha | HTMT |
| | | > 0.70 | > 0.50 | > 0.50 | > 0.70 | > 0.70 | Lower than 0.85 (0.90)? |
| ITGM | ITGM_Q1 | 0.733 | 0.537 | | | | |
| | ITGM_Q2 | 0.756 | 0.572 | | | | |
| | ITGM_Q3 | 0.756 | 0.572 | | | | |
| | ITGM_Q4 | 0.827 | 0.684 | | | | |
| | ITGM_Q5 | 0.815 | 0.665 | 0.603 | 0.938 | 0.928 | YES |
| | ITGM_Q6 | 0.857 | 0.734 | | | | |
| | ITGM_Q7 | 0.740 | 0.547 | | | | |
| | ITGM_Q8 | 0.843 | 0.710 | | | | |
| | ITGM_Q9 | 0.677 | 0.458 | | | | |
| | ITGM_Q10 | 0.741 | 0.549 | | | | |
| ITG_EFEC_PERF | ITG_EFEC_PER_Q1 | 0.825 | 0.680 | | | | |
| | ITG_EFEC_PER_Q2 | 0.881 | 0.775 | | | | |
| | ITG_EFEC_PER_Q3 | 0.864 | 0.747 | 0.731 | 0.942 | 0.927 | YES |
| | ITG_EFEC_PER_Q4 | 0.845 | 0.714 | | | | |
| | ITG_EFEC_PER_Q5 | 0.873 | 0.763 | | | | |
| | ITG_EFEC_PER_Q6 | 0.840 | 0.706 | | | | |
| ITG_FORM | ITG_FORM_Q1 | 0.957 | 0.915 | 0.913 | 0.954 | 0.904 | YES |
| | ITG_FORM_Q2 | 0.954 | 0.910 | | | | |
| OCB_AL | OCB_AL_Q1 | 0.849 | 0.720 | | | | |
| | OCB_AL_Q2 | 0.843 | 0.710 | 0.737 | 0.918 | 0.882 | YES |
| | OCB_AL_Q3 | 0.861 | 0.742 | | | | |
| | OCB_AL_Q4 | 0.881 | 0.777 | | | | |
| OCB_CO | OCB_CO_Q1 | 0.694 | 0.482 | | | | |
| | OCB_CO_Q2 | 0.707 | 0.500 | 0.514 | 0.809 | 0.691 | YES |
| | OCB_CO_Q3 | 0.696 | 0.485 | | | | |
| | OCB_CO_Q4 | 0.769 | 0.592 | | | | |
| OCB_CU | OCB_CU_Q1 | 0.716 | 0.513 | | | | |
| | OCB_CU_Q2 | 0.789 | 0.623 | 0.582 | 0.848 | 0.760 | YES |
| | OCB_CU_Q3 | 0.793 | 0.629 | | | | |
| | OCB_CU_Q4 | 0.750 | 0.563 | | | | |
| OCB_CV | OCB_CV_Q1 | 0.820 | 0.672 | | | | |
| | OCB_CV_Q2 | 0.844 | 0.713 | 0.691 | 0.900 | 0.852 | YES |
| | OCB_CV_Q3 | 0.863 | 0.745 | | | | |
| | OCB_CV_Q4 | 0.798 | 0.636 | | | | |
| OCB_SP | OCB_SP_Q1 | 0.825 | 0.680 | | | | |
| | OCB_SP_Q2 | 0.843 | 0.711 | 0.711 | 0.908 | 0.865 | YES |
| | OCB_SP_Q3 | 0.815 | 0.665 | | | | |
| | OCB_SP_Q4 | 0.888 | 0.788 | | | | |

The first step in assessing the results involves examining the indicator loadings. Loadings above 0.70 indicate that the construct explains more than 50% of the variance of the indicators, which is considered acceptable for item reliability [88]. Some indicators have values below the threshold suggesting a potential lack of reliability (Loadings between 0.4 – 0.7 should be analyzed before considering deletion). However, these indicators were not eliminated because indicators

with outer loadings between 0.40 and 0.70 should only be removed if it improves composite reliability beyond the threshold [81]. As this was not the case here, the indicators were retained. Finally, the convergent validity analysis was concluded with the calculation of the average variance extracted (AVE) across all items for each construct. Given that all AVEs are greater than 0.5, it can be concluded that there is a significant correlation between the variances of the items and their assumed constructs [89].

Proceeding with the evaluation of the measurement model, two indicators of internal composite reliability can be assessed: composite reliability (CR) and Cronbach's alpha (CA). For CR, it can be observed that all values are above the threshold. However, it is important to note that reliability values of 0.95 and above suggest that the items are nearly identical and redundant [82]. In this case, the value was accepted because the two indicators only support the ITG Formalization (ITG_FORM) construct, and both refer to the same theoretical basis. On the other hand, CA, a less reliable and more conservative variant of CR, revealed values above the threshold for all constructs, except for conscientiousness (OCB_CO). The indicator was disregarded because reliability values between 0.60 and 0.70 are acceptable in exploratory research [88]. Finally, discriminant validity was ensured through heterotrait–monotrait ratio (HTMT) correlations. Since all constructs remained below the value of 0.85 or 0.90 (for similar conceptual constructs), it was verified that they were independent, and the items were not measuring the same construct [90].

As demonstrated, the instrument met the criteria for discriminant validity, convergent validity, and internal consistency, making it suitable for this research. A second-order measurement model was created to test these hypotheses [87]. The values of the latent variables, ITG Mechanisms (ITGM), ITG Effectiveness Perception (ITG_EFEC_PER), and ITG_FORM calculated in the first-order model were included in a new data file to serve as indicators of the latent variable ITG (ITG institutionalization model). The latent variable culture was added to the model to examine the moderating effect of culture on the relationship between ITG and OCB. Table 4 presents the predominant culture type for each response and Figure 5 illustrates the second-order model.

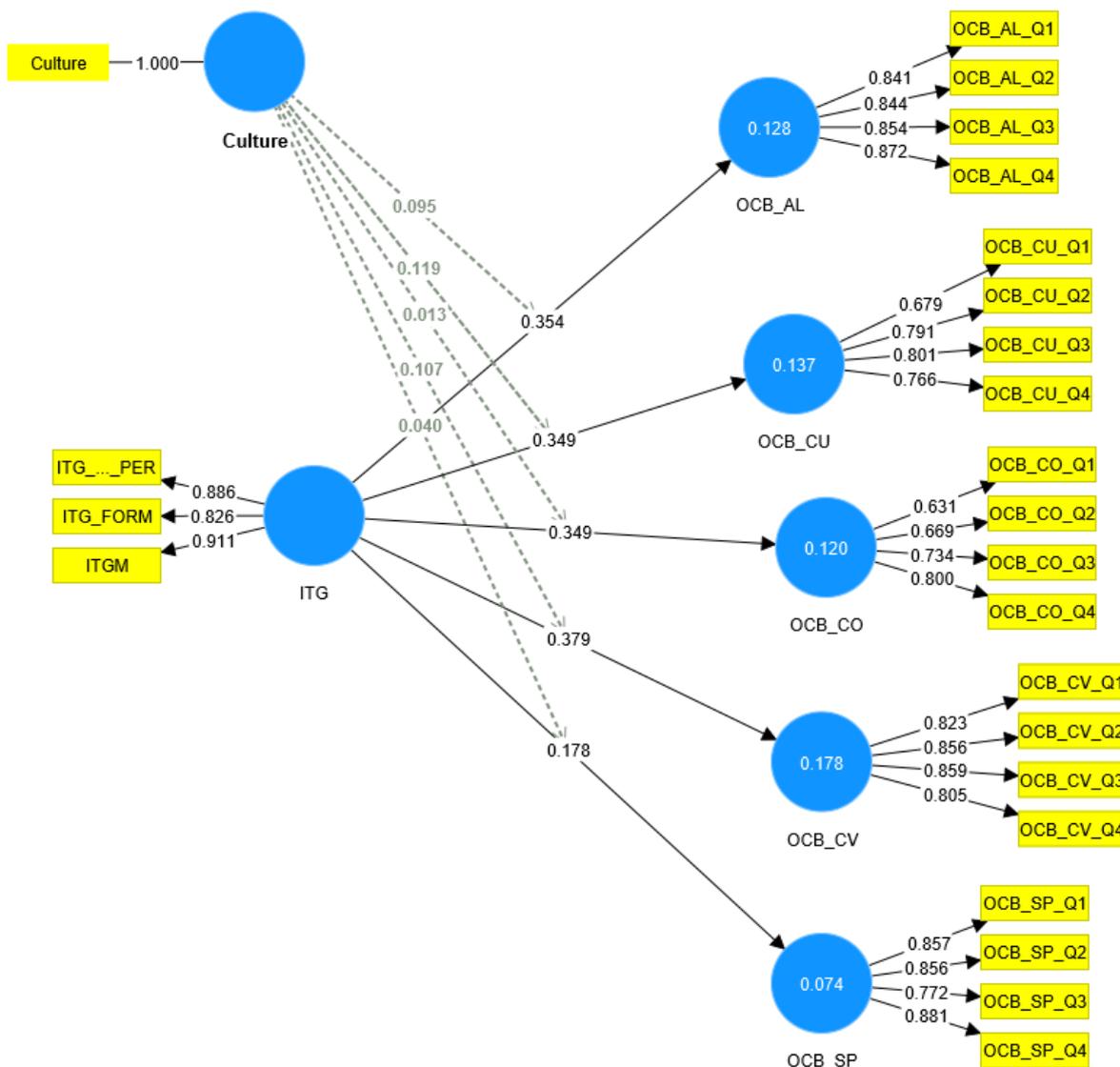


Figure 5. Second-order model

Furthermore, the measurement model must be re-evaluated by repeating the validations previously performed in the second-order model. Table 7 shows the results of indicator reliability, composite reliability, convergent validity, and discriminant validity. This model is suitable for PLS-SEM analyses because the constructs have met all validity criteria and the non-conforming values are consistent with the explanation provided for the first-order model [81].

Table 7. Validity and reliability summary for the second-order model

| Latent Variable | Indicators | Convergent Validity | | AVE | Internal Consistency Reliability | | Discriminant Validity |
|-----------------|---------------|---------------------|-----------------------|--------|----------------------------------|------------------|-----------------------|
| | | Loadings | Indicator Reliability | | Composite Reliability | Cronbach's Alpha | |
| | | > 0.70 | > 0.50 | > 0.50 | > 0.70 | > 0.70 | HTMT |
| ITG | ITGM | 0.911 | 0.829 | | | | |
| | ITG_EFEC_PERF | 0.886 | 0.786 | 0.766 | 0.907 | 0.849 | YES |
| | ITG_FORM | 0.826 | 0.683 | | | | |
| OCB_AL | OCB_AL_Q1 | 0.841 | 0.707 | | | | |
| | OCB_AL_Q2 | 0.844 | 0.712 | 0.727 | 0.914 | 0.875 | YES |
| | OCB_AL_Q3 | 0.854 | 0.729 | | | | |
| | OCB_AL_Q4 | 0.872 | 0.760 | | | | |
| OCB_CO | OCB_CO_Q1 | 0.631 | 0.398 | | | | |
| | OCB_CO_Q2 | 0.669 | 0.448 | 0.506 | 0.802 | 0.690 | YES |
| | OCB_CO_Q3 | 0.734 | 0.538 | | | | |
| | OCB_CO_Q4 | 0.800 | 0.639 | | | | |
| OCB_CU | OCB_CU_Q1 | 0.679 | 0.461 | | | | |
| | OCB_CU_Q2 | 0.791 | 0.626 | 0.579 | 0.845 | 0.757 | YES |
| | OCB_CU_Q3 | 0.801 | 0.641 | | | | |
| | OCB_CU_Q4 | 0.766 | 0.587 | | | | |
| OCB_CV | OCB_CV_Q1 | 0.823 | 0.678 | | | | |
| | OCB_CV_Q2 | 0.856 | 0.733 | 0.699 | 0.903 | 0.857 | YES |
| | OCB_CV_Q3 | 0.859 | 0.738 | | | | |
| | OCB_CV_Q4 | 0.805 | 0.649 | | | | |
| OCB_SP | OCB_SP_Q1 | 0.857 | 0.734 | | | | |
| | OCB_SP_Q2 | 0.856 | 0.733 | 0.710 | 0.907 | 0.863 | YES |
| | OCB_SP_Q3 | 0.772 | 0.596 | | | | |
| | OCB_SP_Q4 | 0.881 | 0.776 | | | | |

After validating the measurement model, the next step is to assess the structural model and reveal the results of the hypotheses proposed in this study. Table 8 presents the progress of the PLS analysis on the ITG and OCB constructs, as well as the moderation analysis using bootstrapping and PLSpredict techniques[91]. The results display the path coefficients, which indicate the statistical significance of the relationships between constructs. Additionally, the coefficient of determination (R^2) was used to evaluate the predictive accuracy of the structural model, and the effect size (f^2) to assess the influence of the exogenous construct on the endogenous construct. Additionally, the predictive power was determined using the PLSpredict procedure (Q2predict, root mean squared error (RMSE) < linear regression model (LM)) to assess the out-of-sample predictive capability of the model [82, 91, 92].

The t-test values for the path coefficients between the ITG and OCB variables exceeded 1.96, and their associated p-values were less than 0.05, indicating statistical significance and confirming all hypotheses. The β values represent the strength of the relationships, with values closer to +1 indicating stronger positive relationships. In contrast, values near 0 or below 0.1 indicate an insignificant relationship. The results demonstrate a positive relationship between ITG and all OCB variables, albeit weaker with sportsmanship (OCB_SP) at 0.178, but still significant [81].

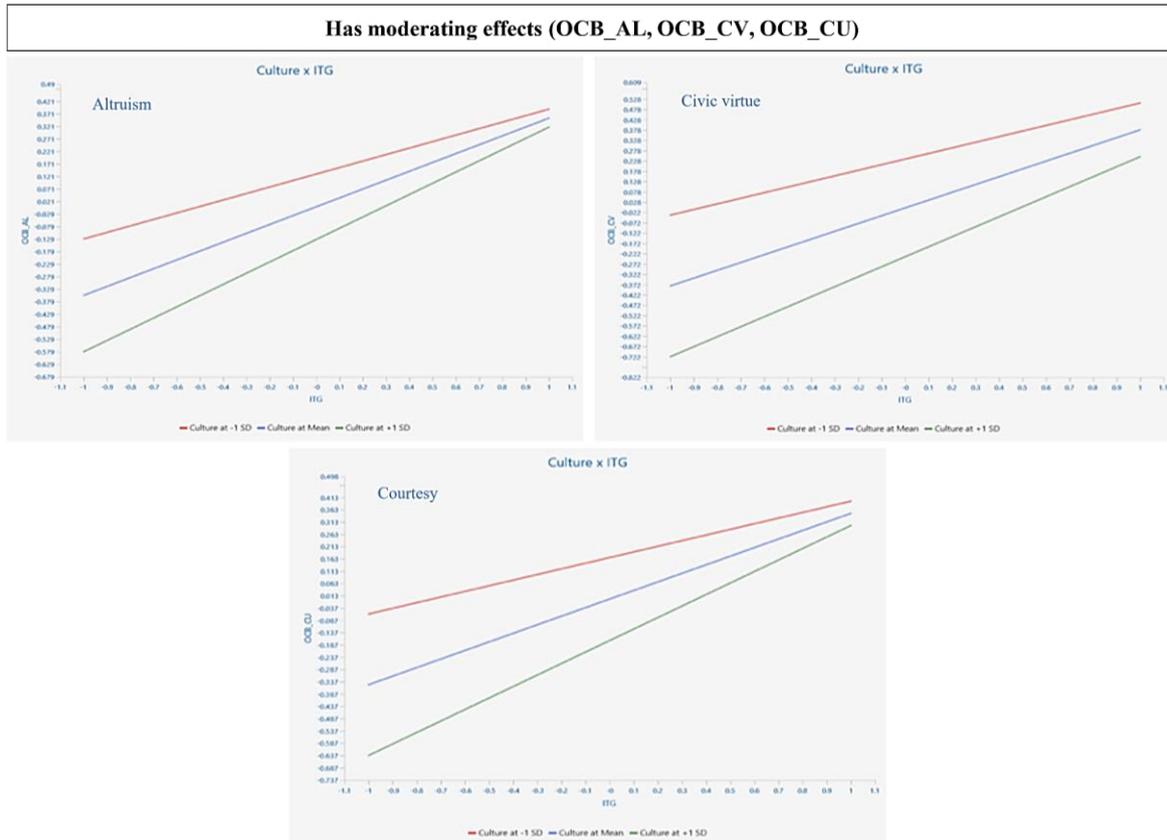
In terms of explanatory power in social and behavioral research, $R^2 > 0.26$, $R^2 > 0.13$, and $R^2 > 0.0196$ were used to characterize high, moderate, and low correlation levels, respectively [93]. The results indicated that the two OCB variables had a moderate correlation, whereas the three variables had a weak correlation. For instance, R^2 is 0.128 for altruism (OCB_AL), indicating that ITG explains 12.8% of the variance in OCB_AL [88]. The effect size (f^2) allows us to analyze the extent to which the ITG variable contributes to the R^2 value of the OCB variables in the structural model. Effect sizes were categorized as small, medium, or large based on f^2 values, such as $f^2 > 0.02$, $f^2 > 0.15$, and $f^2 > 0.36$. All relationships exhibited a small effect size, except for civic virtue (OCB_CV), which had a medium effect size [88].

Table 8. Summary of the structural model results

| Exogenous Latent Variable | Endogenous Latent Variables | Path Coefficients | | | Explanatory power | | Predictive power | |
|---------------------------|-----------------------------|-------------------|----------|--------------|-------------------|----------------|------------------|--------------|
| | | β | t Values | p Values | R ² | f ² | Q2predict | RMSE<LM |
| ITG | OCB_AL (H1a) | 0.354 | 7.041 | 0.000 | 0.128 | 0.134 | 0.099 | Medium (3/4) |
| | OCB_CO (H1b) | 0.349 | 7.066 | 0.000 | 0.120 | 0.130 | 0.106 | Medium (3/4) |
| | OCB_SP (H1c) | 0.178 | 3.443 | 0.001 | 0.074 | 0.032 | 0.059 | Medium (2/4) |
| | OCB_CU (H1d) | 0.349 | 6.639 | 0.000 | 0.137 | 0.132 | 0.098 | Medium (3/4) |
| | OCB_CV (H1e) | 0.379 | 7.432 | 0.000 | 0.178 | 0.163 | 0.144 | Medium (3/4) |
| Culture x ITG (H2) | OCB_AL | 0.095 | 2.437 | 0.015 | - | 0.011 | - | - |
| | OCB_CO | 0.013 | 0.325 | 0.745 | - | 0.000 | - | - |
| | OCB_SP | 0.040 | 0.955 | 0.340 | - | 0.002 | - | - |
| | OCB_CU | 0.119 | 2.979 | 0.003 | - | 0.018 | - | - |
| | OCB_CV | 0.107 | 2.483 | 0.013 | - | 0.015 | - | - |

The final analysis assesses the predictive power of the out-of-sample model. As all values of Q2predict are above 0, this indicates the presence of predictive power in all OCB variables. It was necessary to validate that the RMSE values of each indicator were lower than those of LM. The level of predictive power, ranging from non-existent to low, medium, and high, increased with each preceding condition. The PLSpredict results reveal a medium level of predictive power for all OCB variables, which enhances the external validity of the structural model by demonstrating that the findings can be applied to similar contexts [89, 94].

Regarding the moderating effect of culture on the relationship between ITG and OCB, Table 8 shows that this moderating effect is only significant for three OCB dimensions ($p < 0.05$) (altruism, civic virtue, courtesy). The threshold values for the moderator effect size were $f^2 > 0.005$, $f^2 > 0.01$, and $f^2 > 0.025$ for small, medium, and large effect sizes, respectively [81]. Medium effect sizes were observed in three relationships (OCB_AL, OCB_CV, and OCB_CU). A moderator can strengthen, weaken, or reverse a relationship [95]. Figure 6 depicts this effect through slope analysis of each dimension. Taking altruism (OCB_AL) as an example, the positive relationship between ITG and altruism is moderated by culture, causing the connection to weaken as the value of culture type decreases. This is illustrated by the upper (red) line, which represents the ITG-altruism relationship (one standard deviation below the mean). Conversely, the association strengthens as the lower (green) line (one standard deviation above the mean) increases. In summary, it can be observed that in each case, the level of OCB increases with higher values of culture type, meaning that in organizations that foster market and hierarchy cultures the impact that ITG institutionalization will have in the altruism, civic virtue and courtesy dimensions will be greater (0 – all, 1 – clan, 2 – adhocracy, 3 – market, 4 - hierarchy).



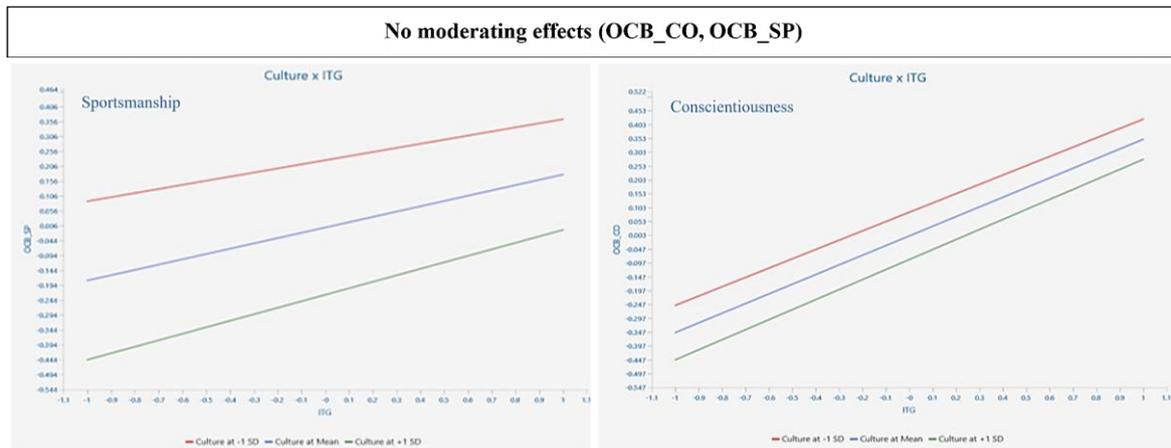


Figure 6. Slope analysis

6- Discussion

The results of this study revealed a significant relationship between ITG institutionalization and employee OCBs, demonstrating that, as proposed in the scope of this article, ITG positively influences individuals' behavior through the lens of OCB. As shown in Table 8, the findings of this study confirm that ITG is significantly correlated with all five dimensions of OCB: altruism, conscientiousness, sportsmanship, civic virtue, and courtesy. Furthermore, these results confirm OC as a moderator in the relationship between ITG and three of the five OCB dimensions, with market and hierarchical cultures exhibiting the most significant effects.

The main findings of this study are comprised of six hypotheses. The first hypothesis (H1a) is confirmed by the statistically significant ($\beta = 0.354$; $p \leq 0.05$) and positive correlation between altruism (OCB_AL) and ITG, showing that a higher perception of the institutionalization of ITG mechanisms leads to higher attitudes of employees towards helping others. The model's predictive power shows that ITG has a medium predictive ability for OCB_AL, and the R^2 and f^2 values indicate that ITG explained 12.8% and 13.4% of the variance in OCB_AL, respectively. These findings highlight the importance of a transparent implementation of ITG mechanisms by showing managers that by promoting collaborative and knowledge-sharable networks, they create a compassionate work environment where teamwork and altruistic behaviors and attitudes are valued and encouraged. The conditions promoted by ITG's transparency, accountability, and collaborative practices can create an environment where employees display attitudes like helping others when they have been absent, have heavy workloads, or guide new colleagues, even if they are not part of their role.

Similarly, the hypothesis for H1b was confirmed. The relationship between conscientiousness (OCB_CO) and ITG is positive and statistically significant ($\beta = 0.349$; $p\text{-value} \leq 0.05$), suggesting that greater ITG levels lead to more cautious and diligent employees. The model's predictive power shows that ITG is a fair predictor of conscientious employee behaviors, while the coefficient of determination (R^2) for ITG was 12.0%, and the explained variation (f^2) for OCB_CO was 13.0%. These results contribute to managers' understanding that adopting and institutionalizing IT Governance mechanisms can encourage employees to go beyond expectations, raise awareness of the significance of efficient and effective resource use, and strengthen their feelings of responsibility and attention to detail. For example, by setting up a strict formal set of rules and norms to ensure the optimized use of IT resources, individuals tend to obey the company's rules and regulations, even when no one is watching.

Despite being confirmed, H1c is the weakest positive and statistically significant ($\beta = 0.178$; $p\text{-value} \leq 0.05$) among all OCB dimensions. Based on the calculated R^2 and f^2 values, ITG explained 3.2% and 7.4% of the variation in sportsmanship (OCB_SP), and organizations should use these results to predict employee sportsmanship to a limited extent. Sportsmanship refers to an individual's ability to accept work displeasures without complaining, such as minimizing problems, focusing on the positive side of work, avoiding complaints about trivial matters, and refraining from the constant talk of quitting. Our results show that the ITG's capability to improve the acceptance and tolerance of work inconveniences by creating roles and guaranteeing integrity and responsible behaviors is weak, and there may be more factors affecting sportsmanship. However, this is beyond the scope of this study.

The results confirm the H1d hypothesis by showing that civic virtue (OCB_CV) has a robust and statistically significant correlation with ITG ($\beta = 0.379$; $p \leq 0.05$). In addition, the model's predictive ability revealed that ITG had the most robust predictive ability for civic virtue compared to the other dimensions, and it had a moderate to high capacity to explain OCB_CV ($R^2 = 0.178$, $f^2 = 0.163$). When applying ITG mechanisms, managers need to pay special attention to how they do so to better understand what was done and how IT resources should be used to help individuals participate in the processes and pursue their best interests despite the associated personal costs. By developing tools that help with

the management, control, and evaluation of IT, managers can create a culture of transparent feedback and establish a sense of organizational reciprocity that will help enhance civic virtue behavior, such as participating in moments that are not mandatory but are considered important, keeping up with the organization's status and changes, or helping in other functions that are not required but help the company's image.

Considering the relationship between ITG and OCB, the fifth and last dimension was analyzed to confirm the H1e hypothesis and showed a favorable and statistically significant association with ITG ($\beta = 0.349$; $p \leq 0.05$). The results show that predictors for courtesy (OCB_CU) demonstrate that ITG has a moderate predictive ability, and the R^2 and f^2 values show that ITG explained 13.7% and 13.2% of the variation in OCB_CU, respectively. To avoid undesired behavior, implementing ITG policies should be defined through transparent rules and norms that can help prevent work-related problems. By implementing these policies in constructive interaction with regular team meetings enabled by the ITG's communication and collaboration tools, managers can help individuals prevent problems that will affect their coworkers, consider the impact of their actions on others before taking them, and make it easier to understand the potential consequences of their actions.

As can be concluded from the results presented in Table 8, H2 was confirmed. However, the moderating effect of OC is only significant on altruism, courtesy, and civic virtue dimensions (p -value ≤ 0.05). In addition, higher values can be seen in the market and in hierarchical organizations. These results can be justified because in these cultures, the individual perception of ITG institutionalization is more significant than in others. Market culture can improve perceptions of how ITG mechanisms are employed to achieve the highest level of business alignment and goals. Simultaneously, the imposition of formal rules and procedures to keep the organization together, as well as specialized roles and centralized decision-making characterized by hierarchical cultures, might increase the perception of adopting ITG mechanisms. In contrast, this was not significant for sportsmanship or conscientiousness. First, as previously mentioned, elements other than ITG may promote sportsmanship. Culture should not be considered, as this behavior may be more constant across various OC settings. Second, the fact that culture does not change the relationship between ITG and conscientiousness can be justified, as conscientiousness begins to be seen as behavior expected at work, at least in managers' eyes, and is not expected to vary across cultures [47, 96].

By comparing these results with those of other studies, it is possible to validate the consistent and positive relationship between ITG and OCB [27, 57]. While the current study was conducted in multiple countries and takes into consideration organizational culture as a key factor, prior research on ITG and OCB has focused on national culture as an analytical framework, specifically in the Portuguese and Brazilian contexts, highlighting the influence of cultural factors on this relationship. This difference allows us to conclude that the relationship between ITG and OCB can extend across different national cultures. This study also validates a positive relationship with four new OCB dimensions, bringing the total number of OCB dimensions positively associated with the individual perception of ITG in the organization to eight. Further examination of previous studies revealed three important observations. First, no dimension has shown values as low as sportsmanship, as demonstrated in our study, leading to the hypothesis that ITG may have a lower or non-existent impact on some existing OCB dimensions. Second, the OCB dimension of individual initiative, which was not the focus of this study but was examined in previous studies, continues to be the dimension where the largest impact from ITG is theoretically detected. Lastly, conscientiousness behavior was the only dimension that was simultaneously studied in both studies. Despite the use of different OCB instruments in the two studies, the results were consistent and positive, indicating that employees' perceptions of ITG effectively promote conscientious behavior in organizations. These results suggest that when employees perceive the establishment of rules, norms, and accountability mechanisms, they tend to act with a more conscientious work ethic, sense of responsibility, and attention to detail in accordance with organizational standards.

The findings of this study emphasize the importance of well-institutionalized ITG in promoting OCBs among employees. A higher perception of ITG implementation occurs when individuals meaningfully engage with ITG mechanisms and understand their effectiveness. This perception arises when individuals recognize that the mechanisms are implemented through a formal structure of rules and norms, and that they are socially encouraged to utilize them to create value. Attaining an effective perception of ITG, as demonstrated in this study, influences individuals' behaviors that are crucial for organizational effectiveness and facilitating the implementation and utilization of ITG mechanisms [97]. However, it is essential to consider the cultural context as well, as aligning culture with ITG enables organizations to foster a work environment that promotes employee ownership, responsibility, and commitment, thereby enhancing organizational performance [21]. The moderating effect of culture underscores the significance of cultural factors in implementing ITG initiatives.

This study has the strength of bridging the gap between ITG and OCB by exploring the relationship between multiple previously unstudied OCB dimensions. In addition, the international scope of this study, encompassing multiple countries and cultural contexts, adds value to the findings. However, it is important to note that this study also has limitations. One of the limitations is the smaller sample size in the adhocracy ($n=64$) and market ($n=99$) cultures compared to that in the clan culture ($n=201$), which makes generalization difficult. Despite this limitation, this study

adhered to the minimum standards of research techniques. Furthermore, not every location was adequately represented in the survey data, which was deemed irrelevant because the focus of the study was on OC rather than on national cultures. However, it should be acknowledged that regional differences, which are considered one of the contingency factors of ITG in the literature, and national cultures as impactful antecedents of OCB, could be significant limitations.

7- Conclusions

This study makes valuable contributions by examining the theoretical path and validating the proposed model. The results suggest that a well-institutionalized ITG has a positive and significant impact on all the dimensions of OCB. This leads employees to exhibit behaviors and attitudes such as helping others, following rules, acting responsibly, participating in organizational governance processes, and preventing work-related problems, ultimately enhancing organizational effectiveness [25]. The model also demonstrates a moderate level of explanatory and predictive power, addressing the literature gap between OCB and ITG, and showing that the positive relationship extends to a broader range of OCB dimensions than initially studied. These findings support the hypothesis that organizational culture moderates the relationship between ITG institutionalization and individual behavior. From the OCAI standpoint, market and hierarchical cultures exhibit the most significant moderating effects. This difference can be attributed to the absence of centralized power and authority connections in adhocracies and clans, unlike in markets and hierarchies.

Although the results of this study are significant, they should be interpreted with caution because of certain limitations. The sample size for specific cultural types was not particularly large, which limits the generalizability of the findings. Additionally, it is important to consider that individuals' behaviors towards ITG mechanisms may vary based on their positions within the organizational hierarchy, which can be influenced by organizational culture. Recent research has identified 96 dimensions of OCB, and this study focused on the five oldest and most widely used dimensions [47]. Future studies should explore whether these findings can be extended to other dimensions as well. Further investigation is needed to fully understand the relationship between ITG and sportsmanship, including its influencing factors. Moreover, understanding which culture mixture in the OCAI model better moderates the relationship between ITG and OCB is essential.

The key findings of this study provide valuable insights into the roles of ITG institutionalization and organizational culture in promoting positive employee behaviors that enhance organizational performance. By implementing effective ITG practices and aligning them with the cultural context, organizations can cultivate a work environment that fosters employees' sense of ownership, responsibility, and commitment. This, in turn, leads to improved organizational outcomes. Managers can foster a culture of trust and responsibility by providing employees with the necessary resources and support to perform their tasks effectively through ITG. By transparently implementing ITG mechanisms and raising awareness about the importance of the efficient and effective use of IT resources, organizations can help individuals prevent work-related problems and adhere to organizational standards.

This study contributes to new knowledge in the field by providing empirical evidence of the positive relationship between ITG institutionalization and OCB across diverse cultural contexts. By examining multiple dimensions of OCB and highlighting the moderating effect of OC, this study enhances our understanding of the ITG-OCB relationship. The findings offer insights for organizations seeking to improve employee behavior and organizational performance through effective ITG practices. Overall, it is possible to show how managing culture around ITG and OCB can enhance the alignment between business and IT, facilitate greater IT-enabled value creation, and promote individual OCBs.

8- Declarations

8-1- Author Contributions

Conceptualization, P.F., R.P., and G.W.; methodology, P.F., R.P., and G.W.; software, P.F.; validation, P.F., R.P., and G.W.; formal analysis, P.F. and G.W.; investigation, P.F., R.P., and G.W.; resources, P.F.; data curation, P.F. and G.W.; writing—original draft preparation, P.F.; writing—review and editing, P.F., R.P., and G.W.; visualization, P.F., R.P., and G.W.; supervision, R.P. and G.W.; project administration, P.F., R.P., and G.W. All authors have read and agreed to the published version of the manuscript.

8-2- Data Availability Statement

The data presented in this study are available upon request from the corresponding authors.

8-3- Funding

The authors received no financial support for the research, authorship, and/or publication of this article.

8-4- Institutional Review Board Statement

Not applicable.

8-5- Informed Consent Statement

Informed consent was obtained from all subjects involved in the study.

8-6- Conflicts of Interest

The authors declare that there is no conflict of interest regarding the publication of this manuscript. In addition, the ethical issues, including plagiarism, informed consent, misconduct, data fabrication and/or falsification, double publication and/or submission, and redundancies have been completely observed by the authors.

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Appendix I: Questionnaire

27/11/22, 16:17

ISCTE Inqueritos (LimeSurvey) - Scientific Research Questionnaire

Regarding the adoption of the IT Governance Model, I believe the organization I work for has: *

Please choose the appropriate response for each item:

| | 1 | 2 | 3 | 4 | 5 | 6 |
|---|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| IT structure or steering committee. | <input type="radio"/> |
| Formalized IT organizational structure. | <input type="radio"/> |
| Structure or committee for risk analysis. | <input type="radio"/> |
| Structure or committee for IT project management. | <input type="radio"/> |
| IT performance indicators. | <input type="radio"/> |
| Set of practices for IT management, control, and evaluation. | <input type="radio"/> |
| Set of practices for information security. | <input type="radio"/> |
| Methods for evaluating the levels of strategic alignment of IT. | <input type="radio"/> |
| Physical space/Office for IT Governance team or equivalent. | <input type="radio"/> |
| Practices for knowledge exchange. | <input type="radio"/> |

1. Does not apply to the organization in which I work;
2. Applies informally;

<https://inqueritos.iscte-iul.pt/index.php/admin/printablesurvey/sa/index/surveyid/543284/lang/en>

4/18

- 3. There is the intention to adopt;
- 4. Is beginning to adopt;
- 5. Partially adopts;
- 6. Fully adopt.

Regarding the IT Governance Mechanisms in the organization where I work, I believe they: *

Please choose the appropriate response for each item:

| | 1 | 2 | 3 | 4 | 5 | 6 |
|---|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Provide customer-focused IT services. | <input type="radio"/> |
| Provide integration between systems and processes. | <input type="radio"/> |
| Promote collaborative and knowledge-sharing networks. | <input type="radio"/> |
| Ensure the optimization of IT resources. | <input type="radio"/> |
| Focus the IT Governance mechanisms on customers' needs. | <input type="radio"/> |
| Promote integration between the different departments of the organization. | <input type="radio"/> |

- 1. Does not apply to the organization in which I work;
- 2. Applies informally;
- 3. There is the intention to adopt;
- 4. Is beginning to adopt;
- 5. Partially adopts;
- 6. Fully adopt.

Regarding the behavior of my co-workers, I believe they: *

Please choose the appropriate response for each item:

| | 1 | 2 | 3 | 4 | 5 | 6 |
|---|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Help others who have been absent. | <input type="radio"/> |
| Help others who have heavy workloads. | <input type="radio"/> |
| Help guiding new people even though it is not required. | <input type="radio"/> |
| Willingly give of his/her time to help others who have work-related problems. | <input type="radio"/> |
| Do not spend time on personal calls. | <input type="radio"/> |
| Do not engage in non-work-related talk. | <input type="radio"/> |
| Come to work early if needed. | <input type="radio"/> |
| Obey company rules and regulations even when no one is watching. | <input type="radio"/> |
| Consume much time complaining about trivial matters. | <input type="radio"/> |
| Tend to make mountains out of molehills (makes problems bigger than they are). | <input type="radio"/> |

| | 1 | 2 | 3 | 4 | 5 | 6 |
|---|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Constantly talk about wanting to quit his/her job. | <input type="radio"/> |
| Consistently focus on what is wrong with his/her situation, rather than its positive side. | <input type="radio"/> |
| Try to avoid creating problems for co-workers. | <input type="radio"/> |
| Consider the impact of his/her actions on co-workers. | <input type="radio"/> |
| Attend voluntary functions. | <input type="radio"/> |
| Help organize get-togethers. | <input type="radio"/> |
| Attend functions that are not required but that help the company's image. | <input type="radio"/> |
| Keep abreast of changes in the organization. | <input type="radio"/> |
| Read and keep up with organization announcements, memos, and so on. | <input type="radio"/> |
| Attend to meetings that are not mandatory but are considered important. | <input type="radio"/> |

- 1. Disagree
- 2. Partially Disagree

27/11/22, 16:17

ISCTE Inqueritos (LimeSurvey) - Scientific Research Questionnaire

3. Disagree very slightly
4. Somewhat agree
5. Mostly agree
6. Agree

Organizational Culture

Answer the following questions considering the existing and preferred culture in your organization. The purpose of this section is to understand along 6 dimensions what the current and preferred culture for your organization. Each dimension has 4 questions and you should place in the "Now" labelled column the value which represents your rating how your organization is currently and the "preferred" column which represents how you think your organization should be in five years to be spectacularly successful. At the end for each dimension, the sum of the now and preferred columns must be 100 each.

For example:

- Dominant Characteristics

1. Now -> $25 + 25 + 25 + 25 = 100$

2. Preferred -> $10 + 5 + 50 + 35 = 100$

- Organizational Leadership

1. Now -> $25 + 25 + 25 + 25 = 100$

2. Preferred -> $10 + 5 + 50 + 35 = 100$

Dominant Characteristics *

- ❗ Only numbers may be entered in these fields.
- ❗ Please check the format of your answer.
- ❗ The total of the column Now have to be 100

| | Now | Preferred |
|---|----------------------|----------------------|
| The organization is a very personal place. It is like an extended family. People seem to share a lot of themselves. | <input type="text"/> | <input type="text"/> |
| The organization is a very dynamic and entrepreneurial place. People are willing to stick their necks out and take risks. | <input type="text"/> | <input type="text"/> |
| The organization is very results-oriented. A major concern is with getting the job done. People are very competitive and achievement-oriented. | <input type="text"/> | <input type="text"/> |
| The organization is a very controlled and structured place. Formal procedures generally govern what people do. | <input type="text"/> | <input type="text"/> |

The total have to be 100 for each column

Organizational Leadership *

- ❗ Only numbers may be entered in these fields.
- ❗ Please check the format of your answer.
- ❗ The total of the column Now have to be 100

| | Now | Preferred |
|---|----------------------|----------------------|
| The leadership in the organization is generally considered to exemplify mentoring, facilitating, or nurturing. | <input type="text"/> | <input type="text"/> |
| The leadership in the organization is generally considered to exemplify entrepreneurship, innovation, or risk-taking. | <input type="text"/> | <input type="text"/> |
| The leadership in the organization is generally considered to exemplify a no-nonsense, aggressive, results-oriented focus. | <input type="text"/> | <input type="text"/> |
| The leadership in the organization is generally considered to exemplify coordinating, organizing, or smooth-running efficiency. | <input type="text"/> | <input type="text"/> |

The total have to be 100 for each column

Management of Employees *

- ⓘ Only numbers may be entered in these fields.
- ⓘ Please check the format of your answer.
- ⓘ The total of the column Now have to be 100

| | Now | Preferred |
|---|----------------------|----------------------|
| The management style in the organization is characterized by teamwork, consensus, and participation. | <input type="text"/> | <input type="text"/> |
| The organization's management style is characterized by individual risk-taking, innovation, freedom, and uniqueness. | <input type="text"/> | <input type="text"/> |
| The management style in the organization is characterized by hard-driving competitiveness, high demands, and achievement. | <input type="text"/> | <input type="text"/> |
| The organization's management style is characterized by the security of employment, conformity, predictability, and stability in relationships. | <input type="text"/> | <input type="text"/> |

The total have to be 100 for each column

Organization Glue *

- ❶ Only numbers may be entered in these fields.
- ❷ Please check the format of your answer.
- ❸ The total of the column Now have to be 100

| | Now | Preferred |
|--|----------------------|----------------------|
| The glue that holds the organization together is loyalty and mutual trust. Commitment to this organization runs high. | <input type="text"/> | <input type="text"/> |
| The glue that holds the organization together is the commitment to innovation and development. There is an emphasis on being on the cutting edge. | <input type="text"/> | <input type="text"/> |
| The glue that holds the organization together is the emphasis on achievement and goal accomplishment. | <input type="text"/> | <input type="text"/> |
| The glue that holds the organization together is formal rules and policies. Maintaining a smooth-running organization is important. | <input type="text"/> | <input type="text"/> |

The total have to be 100 for each column

Strategic Emphases *

- ❗ Only numbers may be entered in these fields.
- ❗ Please check the format of your answer.
- ❗ The total of the column Now have to be 100

| | Now | Preferred |
|---|----------------------|----------------------|
| The organization emphasizes human development. High trust, openness, and participation persist. | <input type="text"/> | <input type="text"/> |
| The organization emphasizes acquiring new resources and creating new challenges. Trying new things and prospecting for opportunities are valued. | <input type="text"/> | <input type="text"/> |
| The organization emphasizes competitive actions and achievement. Hitting stretch targets and winning in the marketplace are dominant. | <input type="text"/> | <input type="text"/> |
| The organization emphasizes permanence and stability. Efficiency, control, and smooth operations are important. | <input type="text"/> | <input type="text"/> |

The total have to be 100 for each column

Criteria of Success *

- ❗ Only numbers may be entered in these fields.
- ❗ Please check the format of your answer.
- ❗ The total of the column Now have to be 100

| | Now | Preferred |
|---|----------------------|----------------------|
| The organization defines success based on the development of human resources, teamwork, employee commitment, and concern for people. | <input type="text"/> | <input type="text"/> |
| The organization defines success based on having the most unique or newest products. It is a product leader and innovator. | <input type="text"/> | <input type="text"/> |
| The organization defines success based on winning in the marketplace and outpacing the competition. Competitive market leadership is key. | <input type="text"/> | <input type="text"/> |
| The organization defines success based on efficiency. Dependable delivery, smooth scheduling, and low-cost production are critical. | <input type="text"/> | <input type="text"/> |

The total have to be 100 for each column

Socio-Demographic Characteristics

What is your gender? *

- ❗ Choose one of the following answers
- Please choose **only one** of the following:

- Female
- Male
- Other

What is your age? *

❗ Choose one of the following answers
Please choose **only one** of the following:

- 18 to 25
- 26 to 35
- 36 to 45
- 46 to 55
- 56 or older

What is the highest level of education you have completed? *

❗ Choose one of the following answers
Please choose **only one** of the following:

- Elementary school
- High school
- Bachelor degree
- Master's degree
- PhD
- Other

Longevity in years in the current organization? *

❗ Only numbers may be entered in this field.
Please write your answer here:

Current Position/Function?

Please write your answer here:

Years of professional experience? *

❗ Only numbers may be entered in this field.

Please write your answer here:

The organization where I work has an IT Governance model. *

❗ Choose one of the following answers

Please choose **only one** of the following:

- Disagree
- Partially Disagree
- Disagree very slightly
- Somewhat agree
- Mostly agree
- Agree

The IT Governance Model in the organization is formalized.

*

❶ Choose one of the following answers

Please choose **only one** of the following:

- Disagree
- Partially Disagree
- Disagree very slightly
- Somewhat agree
- Mostly agree
- Agree

Statement of Knowledge: The answers presented here represent the way I interpret the topics presented in line with the organization where I work. *

Please choose **only one** of the following:

- Yes
- No

We thank you for your collaboration!

Pedro, Rúben and Guilherme.

Submit your survey.

Thank you for completing this survey.