Relational governance in the ITO: the role of self-determination theory and the mediating effect of control perceived

Gobernanza relacional en la ITE: el papel de la teoría de la autodeterminación y el efecto mediador del control percibido

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Abstract

Purpose – Researchers in the field recognize the importance of the relationship between contractor and contractee in the process of information technology (IT) outsourcing. However, little is known about the impact of the manager's profile in this process. Thus, the objective of this research was to analyze the impact of the perception of competence, autonomy and relationship of public managers on relational governance (RG), as well as, to identify the effect of perceived control in this relationship.

Design/methodology/approach – This study uses a quantitative approach to investigate the impact of the behavioral characteristics of IT managers from the self-determination theory (SDT). The data were collected in Brazilian public institutions active in the areas of education, finance, statistics and technology, and the

hypotheses were identified and evaluated using the technique of partial least squares structural equation modeling (PLS-SEM).

Findings – The results identified that managers' self-determination is related to the perception of control, which, consequently, impacts the RG by providing feelings of competence and autonomy capable of building a beneficial relationship with the IT provider.

Practical implications – This study promotes the understanding that upper management needs to support the autonomy of managers to increase their levels of intrinsic motivation when managing supplier deliveries.

Originality/value – The application of SDT to the IT outsourcing context provides new insights into the mediation of perceived control by explaining the relationship between managers' expectations and motivations as an important driver for RG.

Keywords Information technology, IT outsourcing, Theory of self-determination, Relational governance, Perceived control, IT outsourcing Relations

Paper type Research paper

Resumen

Objetivo – Los investigadores en la materia reconocen la importancia de la relación entre contratista y contratado en el proceso de externalización de las tecnologías de la información (TI). Sin embargo, poco se sabe sobre el impacto del perfil del gestor en este proceso. Así, el objetivo de esta investigación fue analizar el impacto de la percepción de competencia, autonomía y relación de los gestores públicos en la gobernanza relacional (GR), así como, identificar el efecto del control percibido en esta relación.

Diseño/metodología/enfoque – Este estudio utiliza un abordaje cuantitativo para investigar el impacto de las características de comportamiento de los gestores de TI a partir de la teoría de la autodeterminación (TAD). Los datos fueron recolectados en instituciones públicas brasileñas que actúan en las áreas de educación, finanzas, estadística y tecnología, y las hipótesis fueron identificadas y evaluadas utilizando la técnica de modelado de ecuaciones estructurales por mínimos cuadrados parciales (PLS-SEM).

Conclusiones – Los resultados identificaron que la autodeterminación de los directivos está relacionada con la percepción de control, en consecuencia, repercute en el GR al proporcionar sentimientos de competencia y autonomía capaces de construir una relación beneficiosa con el proveedor de TI.

Implicaciones prácticas – Este estudio promueve la comprensión de que la alta dirección necesita apoyar la autonomía de los directivos para aumentar sus niveles de motivación intrínseca a la hora de gestionar las entregas de los proveedores.

Originalidad – La aplicación de la teoría de la autodeterminación al contexto de la subcontratación de TI proporciona nuevos conocimientos sobre la mediación del control percibido al explicar la relación entre las expectativas y motivaciones de los directivos como un importante impulsor de la GR.

Palabras clave Tecnología de la Información, Externalización de TI, Teoría de la autodeterminación, Gobernanza Relacional, Control percibido, Relaciones de externalización de TI

Tipo de papel Trabajo de investigación

1. Introduction

Overall, the information technology (IT) outsourcing process starts with the decision on (1) why to perform an activity in the external environment of the company and (2) what should be done concerning the restrictions of the internal capacity of the contracting company (Ntasis *et al.*, 2021). After this resolution, suppliers can be selected based on a set of criteria that best meet the contracting party's expectations, such as reliability, responsiveness, financial situation, assets and the infrastructure of potential contractors (Gunasekaran *et al.*, 2015). Once selected, it is possible to prepare the contract and monitor the delivery of contracted IT services, to support the business strategy and supply internal resources of the contracting company (Silva *et al.*, 2020; de Carvalho *et al.*, 2022; Lacity *et al.*, 2009; Katato *et al.*, 2020).

The relationship between companies in the IT outsourcing process is the fundamental requirement for relational governance (RG), which defines and ensures the fulfillment of contracted services to allow companies to assume the commitment and trust with the established partnerships, as well as define the managerial and operational roles of each of the parties. The relevance of the RG concept has driven the discussion on improving quality

levels in interpersonal relationships and collaborations between companies to share the benefits of knowledge exchange, providing improved performance of collaborative innovation in the operational processes and strategies of the companies involved (Bai *et al.*, 2020). The contributions of Jean *et al.* (2021) show that business changes have driven different interpretations of how RG can be adopted in different institutional environments.

The IT outsourcing process for Brazilian public institutions is regulated by Law Nº 14.133 deal with the modernization of Public Administration in Information Technology as an object of outsourcing. The regulations allow the Public Administration to contract IT services to meet emergency demands and obtain access to IT resources and innovations for a period that meets the institution's needs (Carassus *et al.*, 2014; Lacity *et al.*, 2016). In this way, the public institution can give benefit with the offer of products and services from the private sector. However, it is necessary to consider the risks inherent to the inadequate choice of suppliers, such as opportunistic behavior, inexperience and lack of skills to conduct the contracted activities (Ahimbisibwe *et al.*, 2012).

Recent research on IT outsourcing highlights that contractors face critical situations in their relationship with suppliers, including factors such as: process integration and information sharing (Navarro-Paule *et al.*, 2023), business ideas and innovation from their suppliers (Effah and Adam, 2022), vendor legitimacy (Hsu *et al.*, 2022), control the schedule risks (Lu *et al.*, 2022), information security (Bhatti *et al.*, 2021) and knowledge transfer in the relationship (Deng *et al.*, 2021). Nevertheless, it is still unclear which characteristics of IT managers can be fundamental to impact Relational Governance (RG) in IT outsourcing positively. Research in IT outsourcing demonstrates that relational aspects contribute significantly to the success of IT outsourcing (Könning *et al.*, 2021; Kranz, 2021). However, when relationships fail, the hiring company increases IT service costs by more than 50% compared to successful relationships (Akkermans *et al.*, 2021). This is also in line with Nepomuceno *et al.* (2018, 2020, 2022) misincentive perspective by stating that increasing service costs depend on the expected returns from past low-performance agreements.

In addition to IT resources, the human resources involved in the management of activities, whether production, provision of services, or the use of IT products, need to be strategically managed, and this evidence the support of information systems oriented towards human resources as a factor critical success to increase the competitive power of companies (L'Écuyer *et al.*, 2019). High-performance work systems directly affect organizational performance, confirming that investment in practices aimed at improving human resources, in terms of fostering and sustaining a climate conducive to creativity, is a measure for which this benefit over performance is noticed (Heffernan *et al.*, 2016).

From the point of view of the IT client-supplier relationship, previous research, to date, has aimed to describe the RG and its impact on the success of IT outsourcing. However, the elements that make up the concept of RG are not understood, based on individual behavioral elements of managers (Guan *et al.*, 2020). Therefore, the present work asks the following question: What are the intrinsic characteristics of managers that influence RG in contracting outsourced IT services? To fill this gap, this paper aims to identify, from the mediation of perceived control, in the competence, autonomy and relationship between public managers and their IT suppliers influence RG. This paper contributes to the literature by identifying new relational factors assumed by public managers that influence RG and discussing how the profile of public managers may affect outsourced services that threaten business continuity from the theory of planned behavior (TPB) and self-determination theory (SDT) were adopted, which are widely used to predict the behavior of individuals (Aiken and West, 1991; Deci and Ryan, 2017).

The research is structured as follows: Section 2 is dedicated to the literature review and hypotheses, presenting some works related to the research topic, as well as the relevance of relational factors for the success of IT outsourcing; Section 3 is dedicated to describing the

methodology. Section 4 contains the results of the measurement and structural models; Section 5 presents a discussion of the main findings, theoretical and practical implications; Section 6 sets out the conclusion and limitations.

2. Theory and hypotheses: the self-determination theory in IT outsourcing

The SDT was created by Richard M. Ryan and Edward L. Deci in 1985, based on the need to develop and understand the behavior of individuals through their internal motivation. The SDT was adopted to identify new relational factors, specific to the social environment that affect the formation of individual autonomous motivations. Furthermore, the satisfaction of basic psychological needs also strengthens the intrinsic motivation of managers, thus affecting individual behavior at work. In this study, is considered that competence implies a sense of theoretical and practical domain to manage outsourced IT services, autonomy refers to the manager's need to self-regulate his actions and experiences in management; and the relationship encompasses the involvement between the manager and the supplier in the actions necessary for the execution of IT services (Brunelle and Fortin, 2021).

From the supplier's point of view, the competence related to IT outsourcing refers to the ability to deliver a service within a predefined delivery time, quality and future expectations based on a satisfactory level of the agreement (Nepomuceno *et al.*, 2020). On the other hand, competence can be seen from the perspective of the contracting party, which is related to the ability to follow up and monitor the contracted IT services (Ryan and Moller, 2017). From this perspective, the more qualified managers are in IT outsourcing, the greater the degree of trust and commitment in service management (Shi *et al.*, 2005).

Thus, the manager or team that does not have the perception of competence to accompany and monitor the execution of IT services becomes prone to defensive, unmotivated, aggressive and antisocial behaviors (Deci *et al.*, 2017). Whereas the sense of competence increases perceived information and the belief about the benefits of IT outsourcing (Li *et al.*, 2020). In this sense, the manager's competence is expressed by his ability to interact with the IT provider and receive informative and positive feedback on its management (Deci and Moller, 2005; Ryan and Moller, 2017). Therefore, the effect of perceived competence on RG is studied through the formalization of hypothesis H1:

H1. The competence perceived by the IT manager positively influences the RG with the IT supplier.

Meanwhile, autonomy is reflected in the innovation initiative, flexibility for contractual changes and monitoring activities aligned to the experiences of full will. In this case, the IT manager takes responsibility for the actions, guided by attitudes and behaviors based on the will to act (Deci and Ryan, 2017; Gagné and Deci, 2005; Black and Deci, 2000).

The autonomy related to IT outsourcing is associated with the way of planning, organizing and monitoring activities, due to the distance of these servers from the higher administration (Jae-Nam and Young-Gul, 1999; Standen *et al.*, 1999). To assess the impact of the autonomy perceived by the manager in the construction of RG with the IT provider, the hypothesis H2 is:

H2. The autonomy perceived by the IT manager positively influences the RG with the IT supplier.

The SDT was applied to the IT outsourcing context in order to investigate how the manager's profile can impact on RG. According to Gagné and Deci (2005) the relationship at work needs to be based on trust, credibility and cooperation among the agents. In this logic, Lee and Choi (2011) discussed the importance of a trust-based working relationship to promote a broad and continuous view of the degree of asymmetry between trust and distrust between customer

and supplier. In addition, the manager's flexibility to manage and validate IT services impacts the type of relationship with the supplier and reflects on the level of satisfaction with the work provided (Brunelle and Fortin, 2021). From this perspective, to understand how the client-supplier working relationship affects RG in IT outsourcing, hypothesis H3 is:

H3. The relationship perceived by the manager positively influences the relationship governance with the IT provider.

2.1 Perceived control and relational governance

The SDT has been widely used in studies on individual motivation. Although most SDT research has focused on hierarchical relationships, relationships between customers and suppliers are of particular interest to SDT as they involve an arrangement between non-hierarchical instances. These relationships have the most significant potential for reciprocity, mutual exchange, autonomy and competence support. We adopt the TPB based on the principle that attitudes can be measured from underlying beliefs (Fishbein Model). The TPB was developed by Ajzen (1991), to explain the intention to perform a behavior based on a reduced set of explanatory constructs – attitude, subjective norm and perceived control.

In an IT outsourcing contract, RG presents an expectation that the manager is capable of managing the relationship between the contracting party and the supplier, including aspects of trust, compliance with rules, maintenance of clear communication, sharing of information and cooperation. According to Zhu *et al.* (2017) the formal control exercised by the client in the management of the green supply chain can increase the environmental and economic performance, while RG brings effect through informal relationships between the client and supplier based on trust and cooperation. In this logic, RG can be even more crucial to achieve win-win opportunities between customers and suppliers in a negotiation. In China, for example, RG proves to be more effective than formal contractual control in maintaining customer-supplier relationships (Zhou *et al.*, 2008) from the perspective of improving economic performance (Tseng and Chiu, 2013; Zhu *et al.*, 2013).

From this perspective, we verified the opportunity to identify factors that could respond to the expectation of RG in IT outsourcing. The perception of control in Information Technology Outsourcing (ITO) relationships has become increasingly frequent due to the contractor's interaction with the adoption of disruptive technologies (Mathrani and Mathrani, 2016). Perceived control is the belief that a person can obtain desired results to achieve goals or create new strategies in challenging situations (Ajzen and Madden, 1986; Ajzen, 2002). In the context of outsourcing, perceived control can be interpreted as the confidence that the vendor will deliver all IT services. Thus, the IT manager's perception of control is a characteristic in constructing RG mechanisms. (Lehene and Borza, 2017).

From the perception of control, it is believed that it is necessary for the contractor to improve the result of the relationship with the supplier. First, the perception of control causes managers to focus on the result of the IT service as well as the mutual solution and not just the extensive procedures and protocols. In addition, changing conditions are evaluated fairly and balanced according to the necessary adjustments made jointly without restrictions. It is essential to highlight that the perception of control can contribute to establishing trust. This takes time and is based on past behavioral experiences. It is believed, however, that a contractor can adopt and manage practices to promote and establish trust with the supplier.

In this sense, we argue that the perception of control, in terms of resource availability, aligned goals and cross-functional cooperation, for example, will allow IT managers to decide and implement autonomously RG with the supplier. As a result, managers who feel in control of IT services are more likely to opt for RG. We follow hypothesis 4:

H4. The relationship between SDT's competence, autonomy and relationship and RG is mediated by perceived control.

Based on the above conceptual framework, Figure 1 is suggested as a research model, which aims to identify how the manager's perception of control, when relating to the IT supplier, can impact his perception of competence, autonomy and relationship when managing IT contracts and what impact this has on RG in the public sector.

3. Methodology

3.1 Respondents and procedures

The survey questionnaire was applied between March and June of 2022, with the technical servers and IT analysts who interacted with IT vendors as part of their work. The target sample was taken from Brazilian Public Educational, Financial, Statistical and Technological Institutions through a convenience sampling. Participation in the study took place via e-mail when they accepted the invitation to register identification and personal contact data. Potential participants were informed that participation was voluntary and that their responses were anonymous. The questionnaire link was sent, in Portuguese, between 9:00 a.m. and 5:00 p.m. to each participant. One of the researchers coordinated the questionnaire administration process. Figure 2 demonstrates the operationalization and technical procedures used to build and conduct this study.
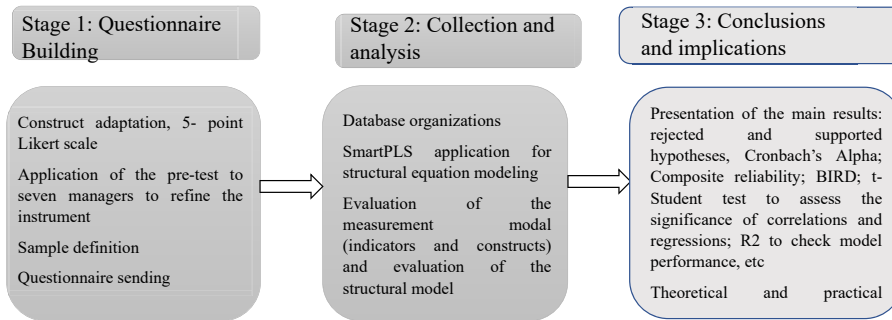
3.2 Demographic profile of participants

The research was directed to technical servers and active IT analysts allocated in public institutions acting in educational, financial, statistical and technological areas through a
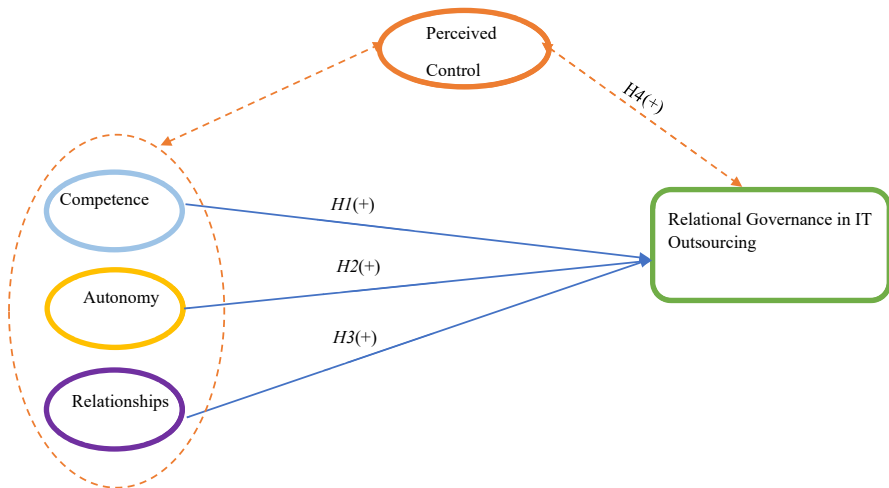
Note(s): The figure represents the theoretical mediation model with the summary of the proposed hypotheses. It is theorized that Relational Governance is impacted by the Public Manager's perceived competence, autonomy, and relationship. Furthermore, it is theorized that Perceived Control mediates the relationship between the SDT variables (competence, autonomy, and relationship) and Relational Governance

Source(s): Authors

Figure 1.
Research structure

Stage 1: Questionnaire Building	Stage 2: Collection and analysis	Stage 3: Conclusions and implications
Construct adaptation, 5- point Likert scale	Database organizations	Presentation of the main results: rejected and supported hypotheses, Cronbach's Alpha; Composite reliability; BIRD; t-Student test to assess the significance of correlations and regressions; R2 to check model performance, etc
Application of the pre-test to seven managers to refine the instrument	SmartPLS application for structural equation modeling	
Sample definition	Evaluation of the measurement modal (indicators and constructs) and evaluation of the structural model	
Questionnaire sending		Theoretical and practical

Note(s): The figure presents all the steps and technical procedures adopted for the operationalization of the study, starting with the construction of the research instrument, and ending with the procedures and techniques adopted for data analysis

Source(s): Authors

convenience sampling, in which the participants were identified from a previous search on institutional websites. After identifying which servers were responsible for monitoring IT outsourcing contracts, they were contacted and invited via e-mail to collaborate with the study.

Initially, the research was designed to be applied in the North Region. However, it was decided, *a posteriori*, to expand it to the other Brazilian regions due to the specificity of the sample, the inaccessibility of contacting the servers responsible for the management of IT outsourcing contracts and the lack of information about the technical staff in the institutional websites. Employees on a leave of any kind were excluded from the sample.

3.3 Measures
The formulation of the data collection instrument took place through adaptation to the context of IT outsourcing of questions extracted from previously published and validated scales, as shown in Table 1. The choice of this instrument is justified: first, because it makes it possible to focus on a wider set of respondents, proving to be economical, fast and second, the availability via Google Forms favored sharing via email, which allowed participants to access it online voluntarily and anonymously, thus reducing the possible emergence of the social desirability bias.

The questions in the questionnaire underwent standardization, where a 5-point Likert scale was used, except for the question that measures the time relationship between the manager and the IT supplier. That means a "1 = disagree" and "5 = agree" was applied. For that question, four-time bands were applied: from 1 to 6 months, from 7 to 12 months, from 13 to 24 months and over 24 months (Appendix). Then, a pre-test was conducted with seven managers at the senior level, who maintain a relationship with the IT supplier for a period longer than 24 months to identify problem questions, which should change the wording, format, or even be eliminated from the definitive version because they were considered inadequate to measure the variable for example: the questions about RG started with the expression "My company" were changed to "The organization, in which I work".

3.4 Data analysis
The data were tabulated and analyzed using a structural equation modeling approach, using the SmartPLS3 software as an analysis tool. The initial PLS model included all items initially

Table 1.
Research variables

Variables	Description	References
Perceived Competence (C)	Sense of proficiency and effectiveness capable of assisting in the effective management of IT contracts	Williams and Deci (1996)
Perceived Autonomy (A)	The ability to self-regulate one's actions and expectations regarding IT outsourcing	Black and Deci (2000)
Perceived Relationship (R)	It reflects the involvement between manager and supplier for decision-making and activities execution	La Guardia et al. (2000)
Perceived Control (PC)	It refers to the manager's perception of how to manage and satisfy the objectives of IT outsourcing	Li et al. (2020)
Relational Governance (RG)	It reflects the levels of trust and commitment between manager and supplier in the execution and monitoring of outsourced IT services	Guan et al. (2020), Kranz (2021)

Note(s): The table presents all variables and their respective concepts for the purpose of this research, highlighting from which research already published and validities each variable was adapted to the IT Outsourcing context

Source(s): Adapted by the authors from Williams and Deci (1996), Black and Deci (2000), La Guardia et al. (2000), Li et al. (2020), Guan et al. (2020), Kranz (2021)

measured by the instrument, yet questions G-C3 and G-RN1 on governance, C1 and C2 on competence, A1 on autonomy, PC4 on perceived control and R2 on relationship showed high correlation and were excluded from subsequent analysis. Finally, competence, autonomy, relationship and perceived control were measured using three items each, while RG measure by seven items from the original scale. Considering that PLS-SEM focuses on predicting a specific set of relationships by maximizing the explained variance of the dependent variable (Hair et al., 2017). The choice of PLS-SEM brings as an advantage the characterization of the data (distribution and scales), in cases where it is difficult or impossible to meet the requirements, more rigorous, of traditional multivariate techniques, example, normal distribution of data (Hair et al., 2017).

4. Results

A total of 624 questionnaires were sent out, of which 121 were returned, obtaining a response rate of approximately 19%. When evaluating the percentage of respondents per Brazilian region, we observe the leadership of the North Region with approximately 42.2%, followed by the Southeast Region with 22.2%. Regarding the distribution of these participating institutions by area of activity, it is noted that 78.6% were from the education area; 10.7% from the statistics area; 7.1% from the technology area; and 3.6% from the financial area. When considering the sample representation of servers working in higher education institutions, 63.6% were technical servers and IT analysts working in federal universities; 27.3% in state universities; and 9.1% in federal educational institutes. As for the time of relationship with the IT supplier, 61.2% said they have had a relationship with the IT supplier for more than 24 months, while 13.2% reported having a recent relationship of up to 6 months with the IT supplier. In terms of gender, the sample was mostly men about (82.6%).

The evaluation analysis of the proposed model was conducted in two stages: First, the measurement of the model evaluated the reliability of the individual items, to confirm the internal consistency, reliability, content validity, convergent validity and discriminant validity. At this stage, three items on RG, one on perceived competence and another on perceived autonomy had removed to guarantee their reliability and discriminant validity. Then, the structural model evaluate to identify which proposed hypotheses supported by the acquired data set. Figure 3 illustrates the conceptual representation of the model used.
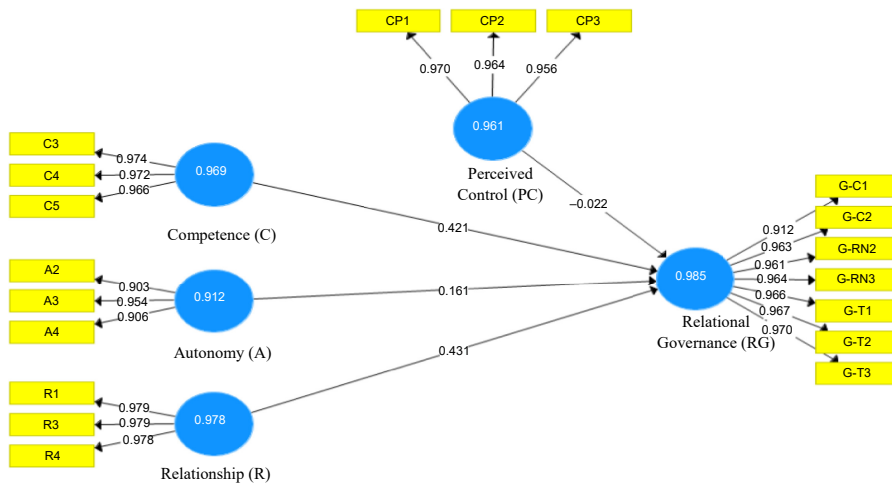
Note(s): The figure represents the final structural model after ensuring convergent validity
and discriminant validity. In this step, items C1 and C2 on competence, A1 on autonomy,
R2 on perceived relationship, G-C3 and G-RN1 on relational governance, and item CP4
on perceived control had to be removed from the model

Source(s): Authors

To satisfy convergent validity, Cronbach's alpha, composite reliability and average variance
extracted (AVE) were used, with cut-off values of 0.7 and 0.5, respectively (Fornell and
Larcker, 1981). The research obtained Cronbach's alpha values ranging from 0.912 to 0.985
and values for composite reliability from 0.944 to 0.987, and the AVE ranged from 0.849 to
0.958. All values confirm the reliability of the measurements.

The discriminant validity, according to Fornell and Larcker (1981), must be evaluated
through the AVE values by comparing the latent variables with the square root. This
research considered the minimum value of AVE equal to 0.5. Table 2 show the AVE above 0.5,
while the square root of the AVE exceeds its correlations, and thus, the results confirm that
the variables used to satisfy the discriminant validity test.

After establishing the validity of the measurement model, the standard bootstrapping
procedure used, with five thousand bootstrap samples, with t-Student distribution, with a
significance level of 0.05 and a sample of 121 cases to determine the significance of the
coefficients of way (Hair *et al.*, 2017). The complete estimates of the structural model, without
the mediation of perceived control, using the relative values represented in Figure 4 and
Table 3.

Table 3 indicates that hypotheses H1, H2 and H3 were supported at a confidence interval
of 95%, which demonstrates a positive and significant relationship between the criteria
(perception of competence, autonomy and relationship) with Governance Relational through
the values ($\beta = 0.421$; $t = 4.426$; $p = 0.000$), ($\beta = 0.161$; $t = 2.199$; $p = 0.028$) and ($\beta = 0.431$;
$t = 4.921$; $p = 0.000$), respectively. However, although a significant positive relationship
found between the autonomy perceived by the IT manager and RG, the results indicated that
it would not be supported at a relationship significance level of 1%. Next, we present the
mediation of perceived control in the relationship between the basic psychological variables
and the RG, shown in Figures 5–7.

Variables	Items	Loads	Cronbach's alpha	rho_A	Composite reliability	AVE
Perceived Competence (C)	C3	0.974	0.969	0.969	0.980	0.942
	C4	0.972				
	C5	0.966				
Perceived Autonomy (A)	A2	0.903	0.912	0.924	0.944	0.849
	A3	0.954				
	A4	0.906				
Perceived Relationship (R)	R1	0.979	0.978	0.978	0.986	0.958
	R3	0.979				
	R4	0.978				
Perceived Control (PC)	PC1	0.970	0.961	0.962	0.975	0.928
	PC2	0.964				
	PC3	0.956				
Relational Governance (RG)	G-C1	0.912	0.985	0.985	0.987	0.917
	G-C2	0.963				
	G-RN2	0.961				
	G-RN3	0.964				
	G-T1	0.966				
	G-T2	0.967				
	G-T3	0.970				

Table 2.
Loads, composite
reliability and AVE

Note(s): The table presents the loadings, Cronbach's alpha, rho A, Composite Reliability and the AVE of each Item. Cronbach's Alpha and Composite Reliability (>0.7) and AVE (>0.5) meeting the cut-off values
Source(s): Authors
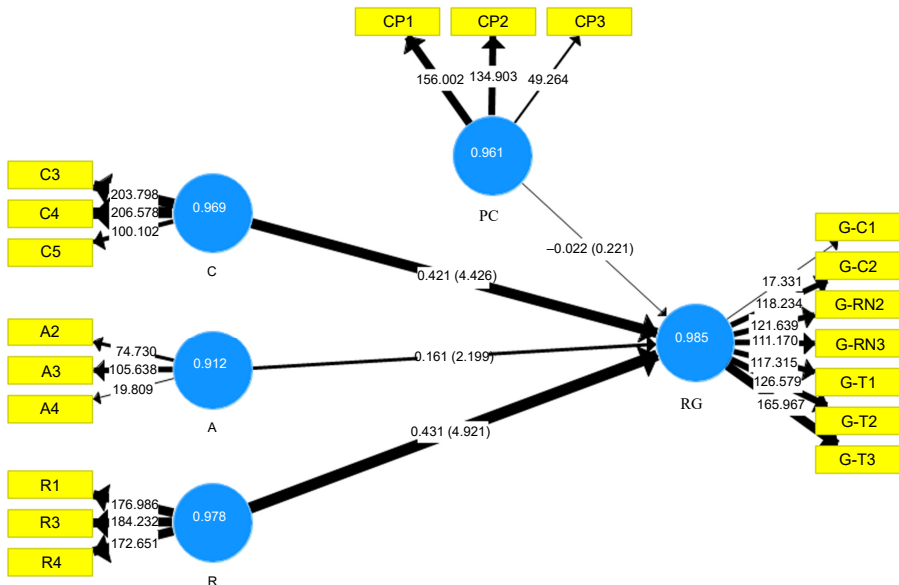
Note(s): The figure represents the significance of the path coefficients by using the standard bootstrapping procedure, with 5000 bootstrap samples and *t*-Student distribution, to provide the structural model estimates without the mediation of the perceived control and test *H1*, *H2* and *H3* at a significance level of 0.05
Source(s): Authors

Figure 4.
Bootstrapping results

Table 4 presents the relationship between perceived competence, autonomy and relationship with the RG from the mediation of perceived control. Support for hypothesis H4 is valid since all relationships present a significant p-value at a confidence level of 95%, ranging between 0.000 and 0.022. It justifies the argument that the perception of competence, autonomy and relationship of the manager has a significant impact on RG also when there is the mediation of control perceived by the IT manager in the planning, execution and monitoring of the services delivered by the IT supplier.

Finally, in the PLS analysis, the significance level of the path coefficients and the R2 values are measured to verify model performance. Therefore, the structural model was examined using R2 values and the size of the structural path coefficients, considering that the values of the coefficient need to meet a minimum value of 0.20 and greater than 0.30 to be

	Std. beta	Std. Dev	t-value	p-value	Decision
C- > RG	0.421	0.095	4.426	*0.000*	Supported
A- > RG	0.161	0.073	2.199	*0.028*	Supported
R- > RG	0.431	0.088	4.921	*0.000*	Supported

Note(s): Table 3 highlights the standard bootstrapping results, with 5,000 bootstrap samples and t-Student distribution, that at a significance level of 0.05 and a sample size of 121 cases hypotheses H1, H2 and H3 were supported
Source(s): Authors

Table 3.
Structural model
without mediation
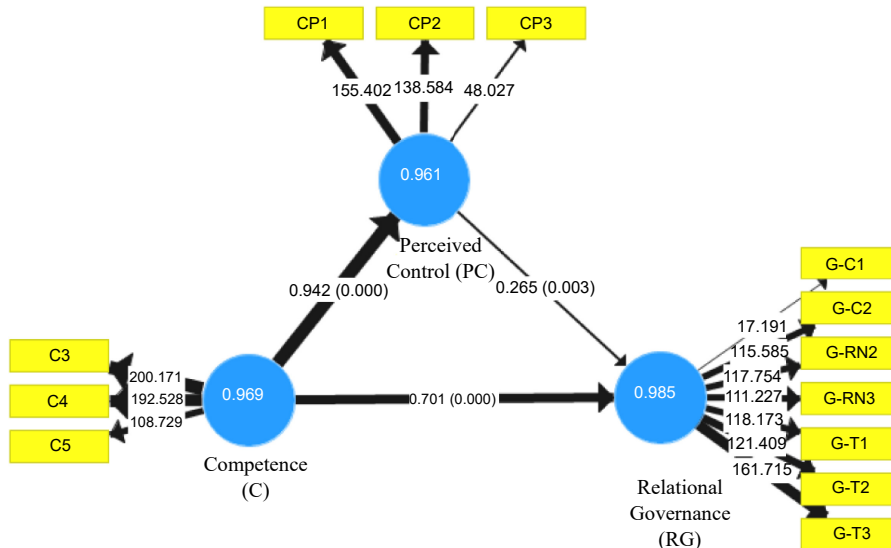
Note(s): The figure represents the strength of the relationship between the public manager's perceived competence and Relational Governance with the IT supplier when mediated by perceived control, highlighting a change in *t*-value from 4.426 and *p*-value 0.000 before mediation to 2.991 and 0.003 respectively after control mediation

Source(s): Authors

Figure 5.
The relationship
between perceived
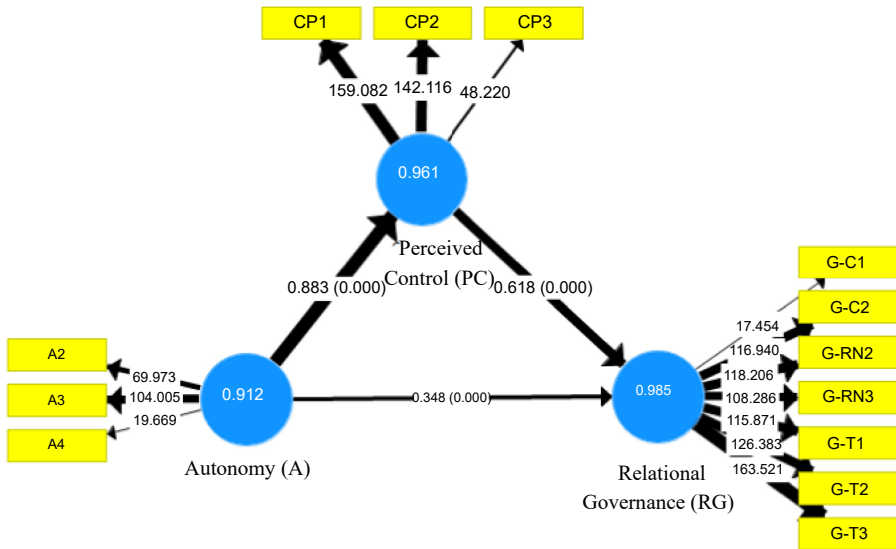competence and RG
with the mediation of
perceived control

Note(s): The figure represents the strength of the relationship between the public manager's perceived autonomy and Relational Governance with the IT vendor when mediated by perceived control, highlighting a change in *t*-value from 2.199 and *p*-value 0.028 before mediation to 7.719 and 0.000 respectively after control mediation

Source(s): Authors

considered significant (Hair *et al.*, 2017). In this study, the path coefficients for hypotheses H1, H2, H3 and H4 ranged from 0.944 to 0.987, and all had significance at the 0.05 level. Furthermore, the RG concerning the three SDT variables (competence, autonomy and relationship) presented an R2 ranging from 0.883 to 0.916, indicating that the structural model has significance. Regarding the cross-validation of the construct's redundancy, it was found that Q2 exceeds zero (Q2 = 0.849), confirming that the estimated model has predictive relevance to the PLS path model.

5. Discussion and implications
In this work, we identified four new relevant behavioral factors for conducting a sustainable relationship in the performance of the IT outsourcing process; they are: (1) autonomy, (2) competence, (3) relationship and (4) perceived control by the process manager, from the perspective of the psychology of human behavior. These factors were extracted from the bases of two theories: the theory of self-determination (1, 2 and 3) and the TPB (4). From this, we hypothesize that the psychological aspects of IT managers influence the motivation and behavior of IT managers toward their suppliers. Thus, if the public manager perceives having autonomy, competence and control to shape relationships with his IT supplier, such cooperative relationships can affect the economic performance of that supplier (Kim and Wemmerlov, 2015). This study also contributes to the literature by combining SDT and TPB theories to assess the effects on RG.

This study investigated the influence of perceived control from competence, autonomy and relationship and its impact on RG in contracts for the provision of outsourced services in
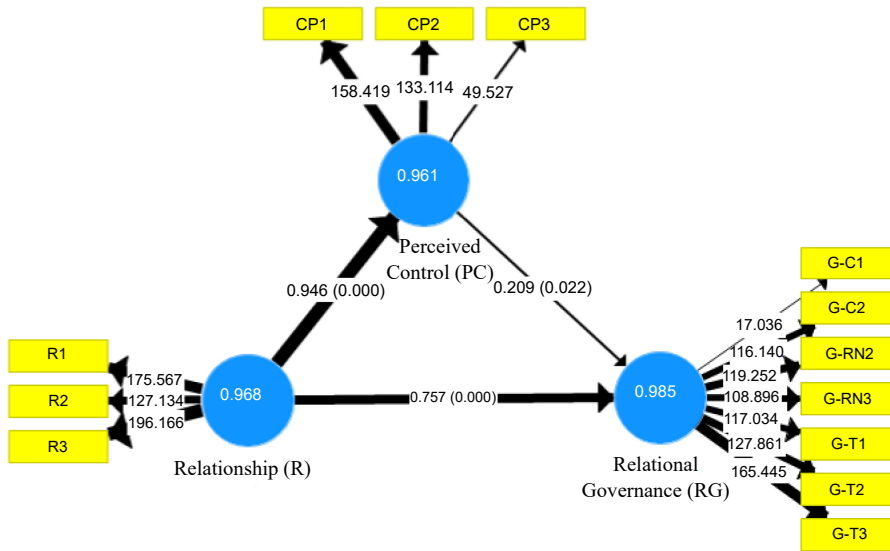
Note(s): The figure represents the strength of the relationship between the public manager's
perceived relationship and Relational Governance with the IT vendor when mediated by
perceived control, highlighted is a change from *t*-value of 4.921 and *p*-value of 0.000
before mediation to 2.288 and 0.022 respectively after control mediation
Source(s): Authors

	Sample mean (M)	Std. Dev	*t*-value	*p*-value	Decision
PC- > C- > RG	0.252	0.083	2.991	*0.003*	Supported
PC- > A- > RG	0.546	0.071	7.719	*0.000*	Supported
PC- > R- > RG	0.198	0.086	2.288	*0.022*	Supported

Note(s): In the bootstrap output, the specific indirect effect option displays the results of all indirect effects. In
this case, the mediating effect of perceived control on competence, autonomy, and relationship is significant at a
95% confidence level with *p*-values ranging from 0.000 to 0.022. Therefore, H4 is supported
Source(s): Authors

the IT area, such as planning, execution and delivery. The results indicate that applying SDT
to IT outsourcing can help the organization define an ideal manager profile to monitor the
execution of outsourced services. From this perspective, it is evident that the competence and
autonomy perceived by the manager complement each other (Rigby and Ryan, 2018; Slemp
et al., 2021). In the public sector, the servants chosen to manage these services need to know
and understand the outsourced object, since the lack of perception of their competence will
make this manager leave the supplier during the entire execution of the object of the contract
(Duhamel *et al.*, 2018; Irún *et al.*, 2020). In addition, there are cases in which competence is not
questioned, however, the public manager is faced with a lack of autonomy to manage the
contract arising from the elevated level of the hierarchy of that Institution, which makes
decision-making difficult (Andrews, 2016).

According to Bicen *et al.* (2021), market-oriented alliances' joint, coordinated and collective actions establish social and cooperative norms that enable RG. In addition, determining whether the contractor and contractor continually fulfill their duties and invest in specific relational assets as a sign of commitment to building a lasting relationship provides an understanding of the fulfillment of expectations and joint goals that motivate the interaction and promotion of a transparent environment of information and knowledge between the parties (Wang *et al.*, 2016; Um and Kim, 2019).

In these cases, the more managers perceive they have control over the stages and delivery of services throughout the outsourcing process, the greater will be their perception of competence and autonomy when managing them, which in turn, contributes to the construction of a satisfactory and lasting relationship between contractor and contractee (Busque-Carrier *et al.*, 2021). Moreover, the contractee's perception of control influences how IT services managed and the servers' performance involved in this process. This fact is due to the relational heterogeneity that the client and the supplier create, allowing the unique challenges when comparing service levels of the intended objectives and discrepancies between the desired and the current state (Wibisono *et al.*, 2019). This aspect requires IT service managers to be able to assess their behavior through self-monitoring or self-assessment skills, which allows them to remedy their weaknesses and effectively apply their skills (Carver and Scheier, 1981; Sauers *et al.*, 1990; Agarwal, 1996; Agnihotri *et al.*, 2014).

In the organizational environment, this occurs when managers perceive that human factor, competence, autonomy and the relationship with their IT suppliers are drivers of a good relationship; therefore, the perceived control positively impacts the outsourcing experience and the scenario for achieving long-term RG (Deci and Ryan, 2017; KiralUcar *et al.*, 2019). SDT enhances contractor performance by focusing on future relational gains with the supplier instead of aiming at contractual tasks (Mueller and Lovell, 2015; Coelho *et al.*, 2021). Finally, when managers perceive greater autonomy with their suppliers, they are more likely to belong to initiative-taking and self-determined profiles. Thus, building the RG with the IT provider will bring benefits and guarantee the future of this partnership (Dalbert, 2001; KiralUcar *et al.*, 2019).

This study is a pioneer as it takes a new look at IT outsourcing in terms of RG, and it contributes to the literature when examines the direct relationship of the manager's profile in achieving the intended objectives with IT outsourcing. In addition, this study expanding the discussions about what relational factors can influence RG with a focus on individuals participating in the process, specifically, contract managers. The results are consistent with recent studies (Busque-Carrier *et al.*, 2021). They indicate that when an IT manager has a keen sense of competence and autonomy, he will feel motivated to manage the outsourced service.

The findings of this research provide some guidelines to support understanding the role of the IT outsourcing contract management as an effective governance mechanism to prevent opportunism in the outsourcing sector and achieving the goals and objectives, similar to the study by Huo *et al.* (2015). In the public context, the results showed that the perceived control related to IT outsourcing can evidence a new behavior related to the increase of intrinsic motivation of the manager. In this case, upper management needs to promote, the necessary conditions, for the management of intrinsically motivated behavior. To achieve this end, public institutions can cultivate a good relationship between customers and IT suppliers through efficient agreements and communication, which allow modeling negotiation strategies and personalities focusing on the satisfaction of the basic psychological variables of SDT, being pertinent to avoid the turnover of these servers in cases where the relationship with the IT supplier is well established (Nepomuceno *et al.*, 2022). Thus, allowing the understanding of the supplier's behavior for decisions related to the maintenance or design of outsourcing contracts/relationships (Nepomuceno *et al.*, 2018, 2022). Already in cases where this relationship is in the process of maturation and consolidation it is necessary to emphasize the satisfaction of the competence and autonomy of this manager (Rigby and Ryan, 2018).

Therefore, it is appropriate that IT managers are selected based on their competencies and behaviors to interact effectively with the supplier. Thus, it is possible, from the identification of the competencies, skills and attitudes required, to identify the gaps in the customer-supplier relationship and from this, to develop training and/or continuing education programs aimed at developing and preparing this servant to perform this function. This analysis is strategic for managers, since it highlights the individual characteristics of IT professionals, which significantly influence the dissemination of knowledge and the effectiveness of outsourced services management.

6. Conclusions and limitations

This study offers managers practical suggestions for satisfying the three basic psychological needs in managing outsourced IT services. The first suggestion is to identify the adherence between the characteristics of the individual and the distinct roles necessary for the successful management of outsourced IT services. The second suggestion is to promote an IT service oriented towards individual development, by promoting an environment that supports the autonomy of servers to increase their level of intrinsic motivation when managing IT services. Finally, this study recommended design a tool for monitoring performance indicators to support the decision to renew or not renew outsourced IT services.

Among the factors found, perceived control is recognized as a factor capable of predicting human behavior, learning, success and failure in certain situations, positively impacting RG. This shows that contractors who believe they have a perception of control over outsourcing will have positive attitudes toward the IT services delivered by suppliers. As IT services allow contracts to be customized, this allows for greater cooperation between the parties and increases the sense of control on the part of the contracting party. This discovery is essential, as the effect of perceived control can lead to the mediation of RG in the IT outsourcing process, in addition to highlighting autonomy, competence and relationship. In this way, we propose that public institutions contracting IT services should pay attention to these determining factors and improve relational management with suppliers to succeed in outsourcing and long-term cooperation with the supplier.

The study was limited to examining the influence of perceived managerial control on RG from the perspective of SDT applied to the context of public institutions. Thus, future studies can expand the number of variables or apply this proposed structure to other sectors and segments. Finally, a practical contribution to the management of IT services identifies new skills and attitudes that help in self-regulation. In addition, this fresh look will allow the organization to develop training aimed at the development of individual aspects, such as self-control, self-motivation, self-organization and internalization of values for the construction of an ideal manager profile for maintaining satisfactory partnerships.

Future studies should consider other mediation processes to examine the relationship between the psychological variables of STD and RG, for example, how control, external to the organization, can impact the competence, autonomy and relationship perceived by the manager and impact governance relationship with the supplier. As of limitations, first, the data are cross-sectional, which means that causal conclusions cannot be drawn. Therefore, defining a causal direction through longitudinal studies becomes necessary. Second, the mediation of perceived control was the only investigated variable in a restricted chosen set; thus, later research should examine how intrinsic and extrinsic motivation of managers can influence RG.

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Further reading

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Appendix

Variables	Questions
Perceived Competence (C)	C1- I am prepared to manage my IT provider C2- I am satisfied with my remote performance in managing the IT supplier C3- I have control of the remote activities conducted by my IT provider C4- The IT provider evaluates my considerations as effective in the implementation of the IT service C5- I am competent in managing the IT outsourcing contract
Perceived Autonomy (A)	A1- The way I deal with my IT supplier is voluntary A2- The IT provider encourages me to express my opinion when we communicate online about the performance of the contract A3- In my actions when dealing with the IT supplier, I consider the future interests of the company A4- I deal with my IT supplier, based on company values
Perceived Relationship (R)	R1- I have good online communication with IT providers R2- My suggestions for the implementation of the IT service are accepted by the IT provider R3- If I need help, I will get it from the IT providers R4- My guidelines on the execution of the outsourced IT service are considered and treated fairly
Perceived Control (PC)	PC1- I can analyze and validate the remote IT activities that will be outsourced PC2- I assess that the disagreements regarding the execution of tasks with the IT supplier do not come from personal factors PC3- I need to control all aspects related to the IT outsourcing contract to ensure the achievement of the intended objectives PC4- I believe that the IT supplier and I are aligned to the same values by sharing common goals, policies, and standards
Relational Governance (RG)	G-RN1- The organization in which I work is committed to new advances that can help the IT outsourcing relationship G-RN2- The organization in which I work is willing to provide information to help with IT outsourcing G-RN3- The organization in which I work is open to modifying agreements in cases of unforeseen events G-T1- The organization, in which I work, believes that IT suppliers are committed to the success of IT outsourcing G-T2- The organization, in which I work, believes in the information provided by IT outsourcing G-T3- The organization, in which I work, believes in managing IT outsourcing G-C1- The organization in which I work believes in preserving a long relationship with the outsourced IT company G-C2- The organization, in which I work, manages conflicts in IT outsourcing to avoid business turmoil G-C3- The organization in which I work is committed to IT outsourcing to achieve satisfactory results

Note(s): The table presents all questions per construct adapted for the IT outsourcing context that made up the survey instrument sent to all IT technicians and analysts who participated in the survey

Source(s): Adapted by the authors from Williams and Deci (1996), Black and Deci (2000), La Guardia et al. (2000), Li et al. (2020), Guan et al. (2020), Kranz (2021)

Table A1.
Questions by variable

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