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## THE ROLE OF STAKEHOLDERS MANAGEMENT ON PROJECT RESULTS

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## **THE ROLE OF STAKEHOLDERS MANAGEMENT ON PROJECT RESULTS**

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# THE ROLE OF STAKEHOLDERS MANAGEMENT ON PROJECT RESULTS

## Abstract

The extension and deepening of project management have resulted in the increasing relevance of stakeholders, regardless of their involvement. This study aimed to discuss the relationship between stakeholder management practices and project performance. By applying a questionnaire to participants of 105 projects, we raised their characteristics, getting perceptions regarding the stakeholders involved, the adoption of management practices, and project performance. We used structural equation modeling for data analysis, and results showed positive and significant relationships among the variables. We concluded that the projects' overall success was explained by stakeholder management, especially when linked to participants' larger experience.

**Keywords:** stakeholders; projects; stakeholder management practices; project performance; project management.

## Introduction

The growth of complexity and competitiveness in the business environment has required increased use of projects to meet organizations' objectives, and consequently, their management practices. This fact stems from the proposition that "project management standards facilitate the effective and efficient use of corporate resources to achieve the sustainable economic development of companies" (Bredillet, 2003, p. 464).

Hence, research on project management has grown considerably and led to so many advances that project management will soon become a completely different discipline from what it has been over the past fifty years (Shenhar et al., 2007). One of the most important consequences of facing this challenge was the treatment given to those directly or indirectly involved with the projects, identified as stakeholders or interested parties. The relevance of stakeholders' role in projects and their attention to the objectives were not sufficiently evident to the professional community - regardless of their permanent or temporary engagement.

Among the diverse and complementary interpretations of stakeholders' practical meaning are those that understand that without their involvement, the organization itself would not exist. From another perspective, stakeholders affect and are affected by the organizations' goals. Although there is a multiplicity of approaches and different concepts, it is clear that there are so many interested parties that it is often difficult to specify all of them. The same relevance achieved by stakeholders in organizations, in general, extends to projects and project management. Therefore, project management studies and practices in organizations must necessarily reflect the recognition, meaning, and importance of considering stakeholders as part of their management process. With Stakeholder Management, it will be possible to meet projects' objectives and the company's objectives.

Considering the growing relevance that the Project Stakeholder Management (PSM) process has received among project management practices, we think this is an opportunity to deeply analyze and discuss the subject. To this end, the purpose of this study was to carry out field research with project participants, based on the following research question: **Do stakeholder management practices contribute to project performance in organizations?**

As a result, from a theoretical point of view, this study allowed a better consolidation of knowledge on Stakeholders, Stakeholder Management Practices, and Project Performance.

From the standpoint of the current business environment, we identified stakeholder management practices that favor project performance, as a whole or in its various dimensions.

### **Theoretical Background**

Projects enable the transformation of concepts and ideas into products, services, strategy implementation, the achievement of competitive advantage, and increase in organizational efficiency, from the support of project management and its framework of procedures, methodologies, and tools widely disseminated (Shenhar & Dvir, 2007), which should be considered an operational asset for organizations (Jugdev & Müller, 2005).

Projects can be defined as a temporary organization and process, created exclusively to attain a specific objective under the limitations of time, budget, and other resources and have become one of the main activities in organizations, providing increasing resources, given the need to develop new products, improve processes, or build new services (Sausser et al., 2009; Shenhar, 2004). In most cases, projects start with a business perspective in mind, and a goal is usually focused on better business results (Shenhar et al., 2007). Roman (1986) highlights that a project, in its organizational context, is not a completely independent operational entity. Projects “act as vehicles to develop competencies, by modifying their environment and enabling the development of competitive advantage and value creation” (Bredillet, 2008).

The relevance of the discussion on the instrumental nature of project management can be seen by the participation of gross capital formation in 23.8% of the global gross domestic product (GDP) of 75 trillion US dollars, according to World Bank data (2018), which should be considered almost entirely based on projects (Bredillet, 2010). It should also be strengthened by the understanding that “the gain achieved through the consistent application of processes in projects stems from the ability to transfer knowledge from one project to another” (Teller et al., 2012, p. 598). Authors like Turner (1999) consider that project management has a little

theoretical foundation, as it is essentially based on practical evidence, which, for a discipline that is intrinsically connected to managerial practice (Maylor, 2001), results in the constant need of remaining relevant and applicable (Bryde, 2003). It follows that there is a debate in the academic community on whether 'project management' should be considered practice or an academic discipline (Kwak & Anbari, 2009).

Even so, research on project management has grown significantly, bringing many advances and a variety of perspectives (Qureshi et al., 2009). One theoretical basis and support for practical application, repeated and disseminated, is PMBOK® - Project Management Body of Knowledge (Project Management Institute, 2004). This structured and varied reference enables the development of learning (Rooij, 2009) in a multidisciplinary field that expands to new practices (Pollack & Adler, 2015).

Besides, there is the concept that successful projects add value to organizations, while project management practices provide organizations with a strategic and valuable asset - formed by a specific set of tools and techniques that results in an intricate subsystem of tacit knowledge that is difficult to replicate (Besner & Hobbs, 2006). In a broader understanding, project management's value does not result from achieving efficiency only but from reaching the degree of success, including customer satisfaction, senior management, other managers, and the team involved. In sum, projects are created by business needs. (Shenhar & Dvir, 2007).

Table 1 presents a summary of the evolution of Project performance concepts.

Table 1  
Project performance concepts

AUTHOR	CONCEPT
<b>Pinto &amp; Mantel (1990)</b>	the implementation process, project perceived value, and customer satisfaction with project delivery are determinants for a project success
<b>Freeman &amp; Beale (1992)</b>	success has different concepts for different people and emphasizes the financial perspective for evaluating project performance - which can capture both the perspective of the project sponsor and the project manager.

<b>Lipovetzky et al. (1997)</b>	The most important dimension of project success is the benefit to the final consumer.
<b>Shenhar et al. (2001)</b>	Time and budget indicators can result in misunderstanding, as they do not mean fully meeting customers' needs or requirements
<b>Shenhar &amp; Dvir (2007)</b>	In the traditional project management environment, the focus is on efficiency, operational performance, and meeting deadlines and budgets [...] and it is recommended to change the focus from operational to a strategic approach, given the potential risk that traditional project management focuses on deadlines, budget, and performance goals results in the loss of a critical factor: business needs create projects.
<b>Aubry et al. (2007)</b>	It must be considered that the success of the project is a vague approximation and, as such, an imperfect system for measuring results, especially regarding that project management is a multidisciplinary field that leads to a variety of evaluation criteria

Regarding this evolution, particular emphasis should be given to the model that considers short and long-term views associated with a project (Shenhar et al., 1997), which later became five dimensions, by including the perspectives of different stakeholders based on cost-benefit analysis and on the idea that what we achieve is the result of what we measure (Shenhar & Dvir, 2007). According to the authors, the first dimension - project efficiency - represents a short-term measure as an assessment of planned versus accomplished; the second dimension – project impact on customer/user - indicates the perception of the main stakeholder on project diagnosis, and measures objectively if the result of the project improved customers' life or how it addressed their demands; the third dimension - impact on the team - indicates, in an often exhausting environment, the result regarding the satisfaction of the project team, loyalty to the company, and keeping morale; the fourth dimension addresses the effective and immediate impact of the project on the company, both in terms of improving its indicators or designing them as a business plan; the last dimension - preparation for the future - addresses the long-term benefits of the project, reflecting how it can help the company prepare its infrastructure for the future, and how to create new opportunities (Shenhar & Dvir, 2007).

From the literature survey on project performance, we confirmed the range of this conceptual discussion, from the technical perspectives, such as meeting deadlines and budgets,



passing through the commercial perspective of projects' output and organizations' internal issues, such as team satisfaction and managers' experience, to strategic aspects, such as value-added to the organization. From this discussion, the project's stakeholders' figure emerges as a prominent factor and is in line with stakeholder theory.

While scholars have advanced in the discussion on stakeholders, little is known about how this theory can be used by managers, “although there has been progress in stakeholder management processes” (Tantalo & Priem, 2016), and there is an understanding that stakeholder theory is managerial, as it reflects and guides how managers operate (Freeman et al., 2004). It is widely recognized that “stakeholder management requires, as its key attribute, simultaneous attention to the legitimate interests of all appropriate interested parties” (Donaldson & Preston, 1995), even though “simultaneous attention to several stakeholders demands an appropriate organizational architecture” (Crilly & Sloan, 2014).

The idea of stakeholder management suggests that managers should develop relationships, inspire their stakeholders, and create communities where everyone strives to give their best to deliver the value promised by the company (Freeman et al., 2004). The assumption is that managers should design and implement processes that satisfy interested parties, where the management and integration of these groups' relationships and interests are relevant, ensuring the company's long-term success. (Freeman & McVea, 2001).

In the field of project management, stakeholders are related parties that are affected or affect project development (El-Gohary et al., 2006), or any related party that is actively involved in the project or whose interests may be positively or negatively affected as a result of the project's execution or completion (Project Management Institute, 2008). All projects have a multiplicity of stakeholders and the obvious ones, resulting in multiple interests and ambitions in a project, depending on the type of involvement and on the role they play in the

project (Kolltveit & Grønhaug, 2004). Hence, capturing their points of view and evaluating their opinions and concerns is crucial because the objectives of stakeholders involved in a project might not be coherent” (Davies, 2014; De Wit, 1988).

Building the ‘project stakeholder’ concept has taken place by associating and emphasizing the importance of the perspectives on different needs, actions, and interests in the projects (Jugdev & Müller, 2005; Kolltveit & Grønhaug, 2004). Thus, “stakeholder management of a project has as scenario not only the relationship established between the project/company and the respective stakeholders but also the interaction among the latter” (Williams *et al.*, 2015, p.94), - although some authors like Cova & Salle (2005) consider that management must focus on the participants themselves, without considering the relationship among them, that is, ignoring the fact that they interact or establish relationships.

A restricted perspective indicates that key project stakeholders are customers/users (Baccarini, 1999), while in a broad view, the following people and groups should be considered project stakeholders, given the context specificity and the wide range of organizational formats that include: i) Company management body, company functional managers, project managers, and project team; ii) Customers (users), suppliers, and subcontracted; iii) Government and government agencies; iv) Company employees (and their families, if applicable); v) Creditors and shareholders; vi) Social, political, and environmental organizations; vii) Competitors; viii) Local communities and the general public; ix) Professional and commercial organizations and unions; x) Educational, health, and religious institutions, and civic groups; and xi) Media (Cleland & Ireland, 2007, p. 151).

Specifically, from a conceptual perspective, stakeholder management should develop appropriate management strategies to effectively involve stakeholders in the project's decision and execution (Project Management Institute, 2008). In this sense, in a project management

process, “managers must understand the factors that foster the participation of interested parties, if they want to enjoy the benefits of involvement in decisions and appropriation by stakeholders” (Purvis et al., 2015, p. 3). Such understanding is effectively necessary, given that stakeholders must make choices about participating in the projects and to what extent.

Project stakeholder management processes consist of the functions of planning, organizing, directing, and controlling the resources used to deal with the strategies of external stakeholders”, and they consist of seven phases: i) Identification of stakeholders; ii) Mapping stakeholders’ relevant data; iii) Identification of stakeholders’ mission; iv) Determination of stakeholders’ strengths and weaknesses; v) Identification of stakeholders’ strategy; vi) The anticipation of stakeholders’ behavior; and vii) Implementation of stakeholders’ management strategy (Cleland & Ireland, 2006).

However, in addition to this linearity, a new term, ‘stakeholder analysis’, is seen as the most widespread approach for better understanding related parties' interests (Lienert et al., 2013). It consists of activities that can be considered a “holistic procedure that aims to understand the system and evaluate the impact of changes in that system, through the identification of the main players or interested parties, and the assessment of their respective interests in the system” (Grimble & Wellard, 1997, p. 75). Therefore, the stakeholder process of analysis should be considered of high relevance in stakeholder management - which indicates the need to structure activities and procedures that support the location and assessment of stakeholders’ demands in their interactions with the company, even if, “in strict sense, this process is often done *ad hoc*” (Reed *et al.*, 2009, p. 1933) by “project managers who seek to understand the environment of project's stakeholders, in order to determine the correct type of action regarding them” (Aaltonen, 2011, p. 167). Objectively, according to Mok et al. (2017), the stakeholder process of analysis has three steps: (1) identification of stakeholders -

when all stakeholder groups are listed, together with their concerns for the project and the significant relationships among them; (2) stakeholder assessment – to analyze stakeholders’ relational structures, measuring their impact and the importance of their concerns; and (3) stakeholders’ prioritization - to decide which of them are influential and which are under-engaged, and determine which concerns should receive higher priority.

Given the diversity of treatment of this subject by various authors, Table 2 presents a more integrated view of the practices that are essentially considered activities present in stakeholder management. This form of classification aligns with the prescriptive school (Oliveira & Rabechini, 2019). It focuses on stakeholder management's effectiveness, based on the group's definition and the understanding of the relationships’ intensity established between the group and the project. Focusing on efficiency, where the relationship of trust is built and kept throughout the project life cycle.

Table 2  
Map of the stages of Stakeholders’ management practices

PHASES		STAGES	
		IDENTIFICATION	ANALYSIS
IDENTIFICATION OF STAKEHOLDERS	ACTIVITIES	<ul style="list-style-type: none"> <li>• Identification of persons or groups who own or claim ownership, right, or interest</li> <li>• Mapping the proximity (primary or secondary) or formality (formal or informal) of <i>stakeholders</i></li> </ul>	-
MAPPING STAKEHOLDERS’ DATA		<ul style="list-style-type: none"> <li>• Definition and survey of relevant data</li> <li>• Assigning responsibility for the analysis and interpretation of data</li> </ul>	-
IDENTIFICATION OF STAKEHOLDERS’ MISSION		<ul style="list-style-type: none"> <li>• Identification of stakeholders’ interests</li> <li>• Survey on stakeholders’ positioning (for or against)</li> </ul>	-

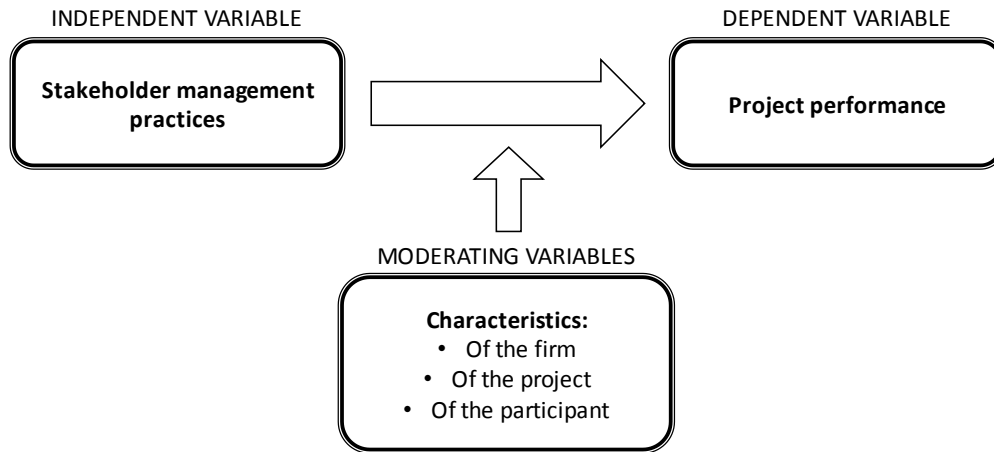
DETERMINATION OF <i>STAKEHOLDERS'</i> STRENGTHS AND WEAKNESSES		-	<ul style="list-style-type: none"> <li>• Identification of stakeholders' strengths and weaknesses</li> <li>• Assessment of stakeholders' strengths and weaknesses</li> </ul>
IDENTIFICATION OF <i>STAKEHOLDERS'</i> STRATEGY		<ul style="list-style-type: none"> <li>• Identification of the strategy adopted by stakeholders</li> <li>• Assessment of policies and procedures adopted by stakeholders for the use of their resources</li> </ul>	-
ANTICIPATION OF <i>STAKEHOLDERS'</i> BEHAVIOR		-	<ul style="list-style-type: none"> <li>• Identification of associations (effective or potential)</li> <li>• Evaluation of stakeholders' impacts and interests</li> </ul>
IMPLEMENTATION OF <i>STAKEHOLDERS'</i> MANAGEMENT STRATEGY		-	<ul style="list-style-type: none"> <li>• Implementation of stakeholders' management strategy</li> <li>• Monitoring stakeholders' perception</li> </ul>

Once built the theoretical framework, we present the methodological procedures used for the field research.

### Methodological Procedures

This is typical quantitative and correlational research based on empirical data. Schematically, the Research Design that resulted from the literature review and the concepts under discussion can be seen in Figure 1. Its purpose is to serve as a framework for analyzing the hypothetical relationship between the **independent variable** – stakeholder management practices - and the **dependent variable** - project performance. The topic's discussion showed that this relationship could be directly influenced by the company's characteristics, of the project, and of the participant. Hence, these characteristics were included as **moderating variables**. In our case, which is typical of studies in the field of social relationships, the

objective was to seek those that were only contributory, unnecessary, or sufficient (Selltiz et al., 1965).



**Figure 1. Original conceptual model**

The theories that sustain the conceptual model's variables are explained in Table 3, 4 and 5 below. The **Dependent Variable - Project Performance and its indicators-** is based on Shenhar & Dvir's (2007) concepts and is listed in Table 3.

Table 3  
**Dependent variable: Project performance**

VARIABLE	OPERATIONAL DEFINITION		THEORETICAL BASE
<b>PROJECT PERFORMANCE</b>	Efficiency	Stick to the schedule	Shenhar & Dvir (2007)
		Stick to the budget	
		Meeting the need for modifications	
		Meeting efficiency measures	
	Impact on customer/user	Possibility of conducting new projects	
		Customer use of the product	
		Meeting requirements	
		Customer satisfaction	
		Customer performance improvement	
	Impact on team	Satisfied or motivated team	

		Highly committed team
		Team with moral and energy
		Team stimulated by the project
		Team shows personal growth
		Team remained at organization after the project
	Result for the business	Direct contribution to company's performance
		Add value for shareholders
		Increase the company's market share
		positive return on investment
		Increase company's profitability
	Preparation for the future	Generating economic success for the company
		Development of better management abilities
		Contribution to new business processes
		Development of new technologies for future use
		Help developing new markets
		Result in adding new products
		Contribution to company's future projects

The concepts on **Independent Variable – project Stakeholder management practices**, presented in the literature review, supported the breakdown of its operational definition, as shown in Table 4.

Table 4  
Independent variable: Management practices of project stakeholders

VARIABLE	OPERATIONAL DEFINITION			THEORETICAL BASE
PROJECT STAKEHOLDER	Identification	Stakeholders' identification	<ul style="list-style-type: none"> <li>Identification of persons or groups that have or claim ownership, right, or</li> </ul>	Cleland & Ireland (2006)

<b>MANAGEMENT PRACTICES</b>			<p>interest in the project</p> <ul style="list-style-type: none"> <li>Mapping stakeholders' proximity (primary or secondary) or formality (formal or informal) regarding the project</li> </ul>	
		Mapping of stakeholders' relevant data	<ul style="list-style-type: none"> <li>Definition and relevant data collection on stakeholders</li> <li>Assigning responsibility for analysis and interpretation of stakeholders' data</li> </ul>	
		Identification of stakeholders' mission	<ul style="list-style-type: none"> <li>Identification of stakeholder' interest in the project</li> <li>Survey on stakeholders' positioning (favorable or not) toward the project</li> </ul>	
		Identification of stakeholders' strategy	<ul style="list-style-type: none"> <li>Identification of the strategy adopted by stakeholders</li> <li>Assessment of stakeholders' policies and procedures for using their resources</li> </ul>	
	Analysis	Determination of stakeholders' strengths and weaknesses	<ul style="list-style-type: none"> <li>Identification and assessment of stakeholders' strengths and weaknesses</li> </ul>	
		Prediction of stakeholders' behavior	<ul style="list-style-type: none"> <li>Identification of associations (effective or potential) among stakeholders</li> <li>Assessment of stakeholders' impacts and interests on the project</li> </ul>	



		Implementation of stakeholders' strategy	<ul style="list-style-type: none"> <li>• Implementation of project's stakeholder management strategy</li> <li>• Monitoring stakeholders' perception of the project</li> </ul>	
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Finally, the Moderating Variables' definitions are listed in Table 5 as candidates for Moderating Variables for their ability to influence the relationship between Stakeholder Management Practices and Project Performance.

Table 5  
Moderating Variables

VARIABLE	OPERATIONAL DEFINITION	SOURCE
<b>FIRM ATTRIBUTES</b>	Annual Gross Operating Revenue	BNDES (National Bank for Economic and Social Development) – <i>Financing Guide</i> ( <a href="https://www.bndes.gov.br/wps/portal/site/home/financiamento/guia/quem-pode-ser-cliente">https://www.bndes.gov.br/wps/portal/site/home/financiamento/guia/quem-pode-ser-cliente</a> )
	Company operating sector	Adapted from Coutinho (2016)
<b>PROJECT ATTRIBUTES</b>	Purpose	Adapted from Tukul & Rom (2001)
	Duration	Adapted from Yang et al. (2012)
	Participants' origin	
	Number of areas involved	
<b>PARTICIPANT ATTRIBUTES</b>	Role in the project	Adapted from Russo (2012)
	Professional level	
	Professional experience	Adapted from Dias et al. (2017)
	Complete qualification	Adapted from Coutinho (2016)

Projects were the research units chosen for field research as part of companies where they were carried out. We chose a non-probabilistic sample, intentionally selected, and *ex post*

*facto* (cases already occurred or projects already completed), where the researcher and the research participant had no direct control over the variables, either because they had already happened or because they could not intrinsically be manipulated (Kerlinger, 1979). Thus, we prepared the questionnaire based on initial criteria that aimed to select projects that fit the purpose of the study:

- a single, specific project should be considered when preparing responses;
- the respondent should have participated in the project team or in the company team where the project took place;
- the project should have been completed at least 12 months, and at most 36 months, from the date of the survey.

Project participants were the primary information source. Thus, we applied the questionnaire to a sample considered qualified due to the profile of the invited participants, composed by professionals working as managers or members of project teams. This sample was extracted from a list of MBA and graduate students in Project Management – graduated between 2001 and 2017 – from a private educational institution in the State of São Paulo, Brazil.

In preparing the questionnaire, we carried out a pre-test with experienced professionals who had participated in different projects to test questions' pertinence (face validity). Comments received in the pre-test - such as clarity of the questions, their sequence, the variability of answers, and understanding of the words used - were considered for the adjustments made. We then submitted the questionnaire to new tests, in an interactive process, as indicated by Malhotra (2001). In this final phase, we identified attention points like ensuring the submission of one answer per participant and presenting the questions at random to reduce

the Common Method Bias (Casaló et al., 2010; Podsakoff et al., 2003; Podsakoff & Organ, 1986).

Data collection by survey took place through the application of self-administered electronic questionnaires - a technique based on speed and low cost of application - so that the respondent would not be accompanied by the researchers at the time of collection.

When accessing the questionnaire's link, the participant could see a brief description of the research objectives and received information on answers' confidentiality. The research instrument - structured in four blocks composed of 113 items sought to allow that, for a specific project, the respondent could indicate some attributes of the company where the project was carried out, some of his/her characteristics, and some of the projects in question, and express his/her degree of agreement with several propositions regarding the identification of stakeholders, the Stakeholder Management Practices used, and the performance of the specified project. Thus, in three blocks, answers were achieved on an agreement scale with scores from 0 to 10, grouped into five categories (Nakagawa, 2008) - "with the items presented in the form of statements or judgments" (Sampieri *et al.*, 2006, p. 306), following Dalmoro and Vieira's (2013) recommendations.

The performance - accesses, initiated fillings, drop-outs, and completed fillings - of the survey can be seen in Table 7.

Table 7  
Results of the questionnaire

NUMBERS	SINGLE E-MAILS SENT	ACCESSES	INITIATED FILLINGS	DROP-OUTS	COMPLETED FILLINGS
	1,765	557	291	186	105
CONVERSION RATES	-	31.55% <sup>1</sup>	52.24% <sup>2</sup>	63.92% <sup>3</sup>	36.08% <sup>3</sup>

**Note.** 1: in relation to single e-mails sent

2: in relation to accesses

3: in relation to initiated fillings

To reach the study objectives, we analyzed data from univariate and multivariate perspectives. Initially, we conducted a univariate descriptive analysis of the variables that comprised: i) frequencies of categorical variables, considering the characteristics of the project, of the company, and the project participant (respondent); ii) descriptive statistics (mean and standard deviation) of the variables related to project performance and stakeholders, including their identification and management practices. Regarding multivariate analyses, specifically for Structural Equations Modeling (SEM), initially, we gave attention to the treatment of missing data (Hair et al. 2014), thus removing 19 observations that did not reach 85% of items' completeness, considering all items and each multiple-choice question.

Therefore, in SEM analysis, the final sample comprised **86 observations**. To assess the adequacy of this sample size, as recommended by Ringle et al. (2014), we used the G \* Power 3.1.9 software for the minimum sample size (Faul et al., 2009). For the calculation, we considered the test power of 0.80, the effect size ( $f^2$ ) of 0.15, and the number of predictors equal to 1 (since, according to the model, the project performance' construct receives only one arrow). Technically, the minimum sample size should be 55 observations. Hence, the research sample size is appropriate.

Later, we analyzed data by Structural Equation Modeling with the Partial Least Squares method, using the SmartPLS 2.0.M3 software. We used such modeling to analyze the relationship between Stakeholder management practices and Project performance.

The original conceptual model investigated the associations between the two second-order constructs - Stakeholder management practices and Project performance-supported by their respective first-order constructs. In detail, the construct 'Stakeholder management practices' is a theoretical and unobserved concept, which can be represented by the first-order

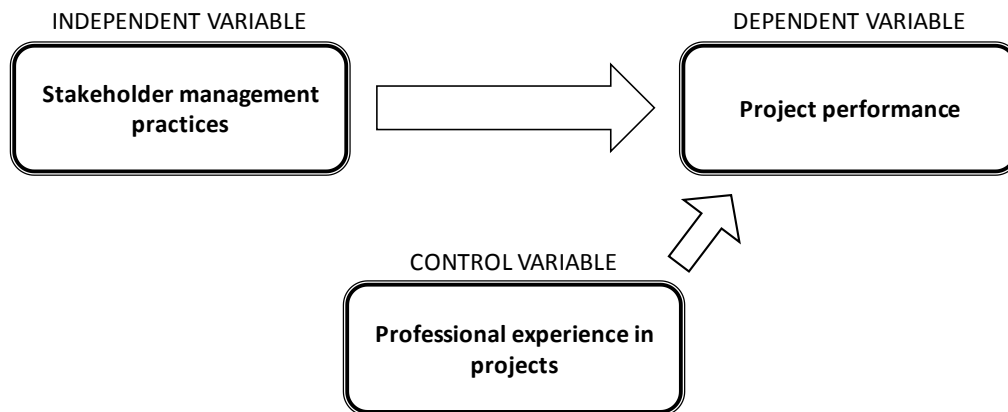
variables ‘Stakeholder identification’ and ‘Stakeholder analysis’. Likewise, the construct ‘Project Performance’, also not observed, can be indirectly measured by the five indicators used: Efficiency, Impact on customer/user, Impact on the team, Result for the business, and Preparation for the future.

We considered the Measurement Model's evaluation by investigating Convergent Validity and Discriminant Validity among the first-order constructs in analyzing the proposed model. We also carried out tests to check the scales' reliability and validity to ensure that the instruments were appropriate for the measures we wanted to do (Wong, 2013). Finally, we assessed the Structural Model by investigating the intensity and statistical significance of path coefficients. To test the significance of the mentioned relationships, we used the Bootstrapping resampling technique, as indicated by Ringle et al. (2014), where subsamples are randomly defined (with replacement) the original data - in our study, we used 1,000 resamples.

A complementary analysis is presented as the Competing Model in the results section, which analyzes the direct relationship between the construct ‘Stakeholder Management Practices’ and the five first-order variables of the construct ‘Project Performance’.

Finally, we considered the variables presented here for the moderation analysis, which refers to the project's attributes, the company, and the participant. However, after separating the sample into subgroups, referring to each response category of all variables, we found an N size of observations per category less than 55, the minimum recommended value by G\*Power software. Thus, to not reach an inconsistent model, since the sample size per category was less than the minimum indicated (Ringle et al., 2014), we decided not to conduct the moderation analysis, but, in another way, assess them as Control Variables, by considering the possibility of their influence on the **Dependent Variable** (Project Performance). So, it was then necessary to adjust the original conceptual model, including the idea of **Control Variables**.

However, as the final model proposed by the study, shown in Figure 2, we only considered, for the result analysis, the control variable **Professional experience in projects**, as this was the only variable, among all attributes originally proposed, that was statistically significant at a 5% level in Student's T-test (95% confidence level).



**Figure 2. Final Conceptual Model**

Some potential limitations of the methodological procedures involve the intentional sampling, the small number of respondents, the adoption of data collection by the survey technique without reaching the invited persons by other means than e-mail, and others, which hampered the analysis of the relationship between stakeholder management practices and project performance in the light of the choosed control variable.

## **Analysis and Discussion of Results**

This section shows the results of analyzing the relationship between Stakeholder Management Practices and Project Performance through the participants' experience that worked in the project. We present the results of PLS-SEM use in the Final Conceptual Model and, subsequently, in a Competing Model. To do that, we used the 86 valid responses attained

through the questionnaire's application, a valid sample to proceed with the analysis (Wong, 2013).

### **Final Conceptual Model for analyzing the relationship between stakeholder management practices and project performance**

The proposed final conceptual model comprised the direct relationship between the second-order constructs 'Stakeholder management practices' and 'Project performance', also including the control variable 'Professional experience in projects', as already presented. Before starting the model analysis, we adopted a procedure to assess data collection's sensitivity to the Common Method bias and the consequent variance generated by this method. We ran two tests: the first, through the partial correlation approach (Lindell & Whitney, 2001), used in studies by Jarvenpaa and Majchrzak (2008) and mentioned by Richardson et al. (2009). The second test involved the approach of complete collinearity, proposed by Kock (2015).

Next, we carried out the analysis of the model adjustment in three stages. First, we evaluated the measurement models; after adjusting them, we evaluated the path model (Henseler et al., 2009; Götz et al., 2010); finally, the model's explanatory power.

#### *Measurement Model*

To analyze the Measurement Model, we examined the following quality criteria: i) Convergent Validity; ii) Discriminant Validity; and iii) Reliability of the model's first-order constructs.

Construct validity is the extent to which a set of measured items reflects the latent (that can not be directly measured) theoretical construct that those items should measure (Hair et al., 2009). We obtain Convergent Validities by observing the Average Variance Extracted (AVE), that is, how much, on average, variables correlate positively to their constructs. Thus, when

AVE is higher than 0.50, we assume that the model converges to a satisfactory result (Ringle et al., 2014; Wong, 2013).

In the initial model, all factor loadings showed values higher than 0.50, except for ‘Efficiency’ and ‘Preparation for the future’ constructs. Therefore, for a second round, we excluded variable DP26 of the ‘Efficiency’ construct, and variable DP5 of the ‘Preparation for the future’ construct from the model. After the exclusions, Preparation for the future’ construct still had AVE below 0.50. Thus, variable DP7, with the lowest factor loading, was also removed from the model. Finally, after these adjustments, the model achieved convergent validity, according to the AVE criterion.

The model did not show Discriminant Validity, since the square roots of AVE of the first-order constructs ‘Identification of stakeholders’, ‘Analysis of stakeholders’, and ‘Impact on customer/user’ showed lower values for some correlations. To adjust Discriminant Validity, we excluded variables that had the least factor loading for these constructs: variable PS1 for Identification, PS14 for Analysis, and DP20 for Impact on customer/user. Even after these exclusions, Fornell and Larcker’s criterion was not satisfactory. Thus, we had to remove variables PS10 (for Stakeholder Identification) and PS11 (for Stakeholder Analysis) to adjust the Discriminant Validity model (Table 8).

Table 8  
Discriminant Validity: Fornell & Larcker for the Final Conceptual Model

	I	II	III	IV	V	VI	VII
<b>I – Identification</b>	<b>0.863</b>						
<b>II – Analysis</b>	0.836	<b>0.868</b>					
<b>III – Efficiency</b>	0.514	0.482	<b>0.741</b>				
<b>IV - Impact on team</b>	0.473	0.473	0.613	<b>0.788</b>			
<b>V – Impact on customer</b>	0.625	0.533	0.677	0.578	<b>0.764</b>		
<b>VI – Preparation for the future</b>	0.564	0.585	0.501	0.622	0.554	<b>0.738</b>	
<b>VII – Result for the business</b>	0.623	0.536	0.572	0.458	0.741	0.627	<b>0.824</b>



Finally, Table 9 presents these results, with factor loadings greater than cross-loadings, which are significant at 5% level ( $T\text{-Test} > 1.96$ ), and AVE values higher than 0.50; therefore, this second criterion also showed evidence of Discriminant Validity in the Final Model.

Table 9  
Factor loadings and cross-loadings in the Final Conceptual Model

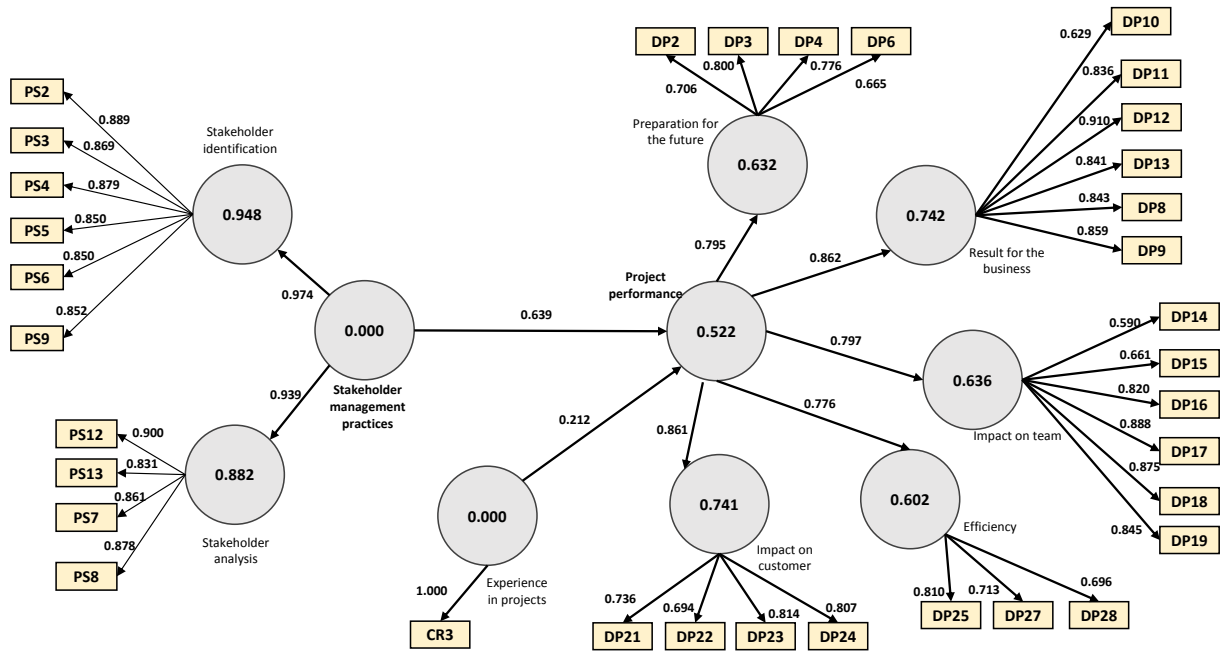
	Identification	Analysis	Efficiency	Impact on team	Impact on customer	Preparation for the future	Result for the business	T-Test
PS2	0.889							32.561
PS3	0.869							27.509
PS4	0.879							32.672
PS5	0.850							28.583
PS6	0.842							24.430
PS9	0.852							20.856
PS7		0.861						25.693
PS8		0.878						30.728
PS12		0.900						42.238
PS13		0.831						22.060
DP25			0.810					18.291
DP27			0.713					12.160
DP28			0.696					8.859
DP14				0.590				8.230
DP15				0.661				7.425
DP16				0.820				19.338
DP17				0.888				30.016
DP18				0.875				37.443
DP19				0.845				22.674
DP21					0.736			13.529
DP22					0.694			7.482
DP23					0.814			11.983
DP24					0.807			16.773
DP2						0.706		10.454
DP3						0.800		16.181
DP4						0.776		13.677
DP6						0.665		6.519
DP8							0.843	23.057
DP9							0.859	26.177
DP10							0.629	6.533
DP11							0.836	22.306
DP12							0.910	55.466
DP13							0.841	20.968
AVE	0.745	0.754	0.550	0.621	0.584	0.545	0.680	-

We considered the internal consistency statistics Cronbach's Alpha and Composite Reliability to analyze the model's reliability, both indicators: the traditional Cronbach's Alpha (CA), based on intercorrelations of variables, and Composite Reliability (CR), which prioritizes variables according to their reliability.

To evaluate these indicators, CA values above 0.60 and 0.70 are considered adequate in exploratory research, and CR values of 0.70 and 0.90 are also satisfactory (Ringle et al., 2014; Wong, 2013). Although the Efficiency construct has a value below 0.70, the composite reliability, valuing 0.785, is satisfactory Hair et al. (2014)

### *Structural Model*

The Structural Model in Figure 3 presents the path coefficients of the relationships between this study's constructs, showing that all relationships are positive, considering the second-order and first-order constructs and the control variable. We highlight that the main proposed relationship's coefficient, between the second-order constructs 'Stakeholder Management Practices' and 'Project Performance', has a positive coefficient of **0.639**. Figure 4 shows the values of the T-Test statistics of the path coefficients estimated for the Structural Model - which evaluates the **statistical significance** of correlations and regressions. For high degrees of freedom, values above 1.96 correspond to p-values  $\leq 0.05$  (between -1.96 and +1.96 correspond to a 95% probability, and outside this range to 5%, in a normal distribution). All values presented in Figure 4 attest to the statistical significance of 5% (that is, T values higher than 1.96) of the estimated path coefficients.



**Figure 3. Path Coefficients of the Structural Model**

### *Explanatory Power – Effect Size and Predictive Validity*

As for explanatory power – effect size and predictive validity, we adopted Cohen's (1988) classification of the social and behavioral sciences, which proposes that  $R^2 = 2\%$  is a small effect,  $R^2 = 13\%$  a medium effect, and  $R^2 = 26\%$  a significant effect. Other indicators of the quality of the model's adjustment: Relevance or Predictive Validity ( $Q^2$ ), or Stone-Geisser indicator and Effect size ( $f^2$ ), or Cohen's Indicator (1988), where the first ( $Q^2$ ) evaluates how close is the model from what was expected (or the quality of model prediction, or accuracy of the final model). As an evaluation criterion, values greater than zero should be achieved. A perfect model would have  $Q^2 = 1$  (shows that the model reflects reality - without errors). The second ( $f^2$ ) is attained by including and excluding the model's constructs (one by one). It evaluates how much each construct is "useful" for model adjustment. Values of 0.02, 0.15, and 0.35 are considered small, medium, and large, respectively (Hair et al., 2014).

Table 10 shows the values of the determination coefficient ( $R^2$ ), Cohen's indicator ( $f^2$ ), and Stone-Geisser indicator ( $Q^2$ ), where we can see that: i) all  $R^2$  coefficients showed a significant effect; ii) the evaluation results on how much each construct is “useful” for model adjustment was considered with more significant effects; and iii)  $Q^2$  values were higher than 0, considered as satisfactory as for Predictive Validity.

We conclude that there is a positive relationship between Stakeholder Management Practices and Project Performance, at a 5% significance level ( $T\text{-Test} > 1.96$ ), with a path coefficient of **0.639**, which indicates that the management practices of stakeholders contribute to the performance of projects carried out in organizations. Thus, there is a positive and significant relationship (at a 5% significance level) between the control variable ‘Professional experience in projects’ and ‘Project performance’, with a path coefficient of 0.212.

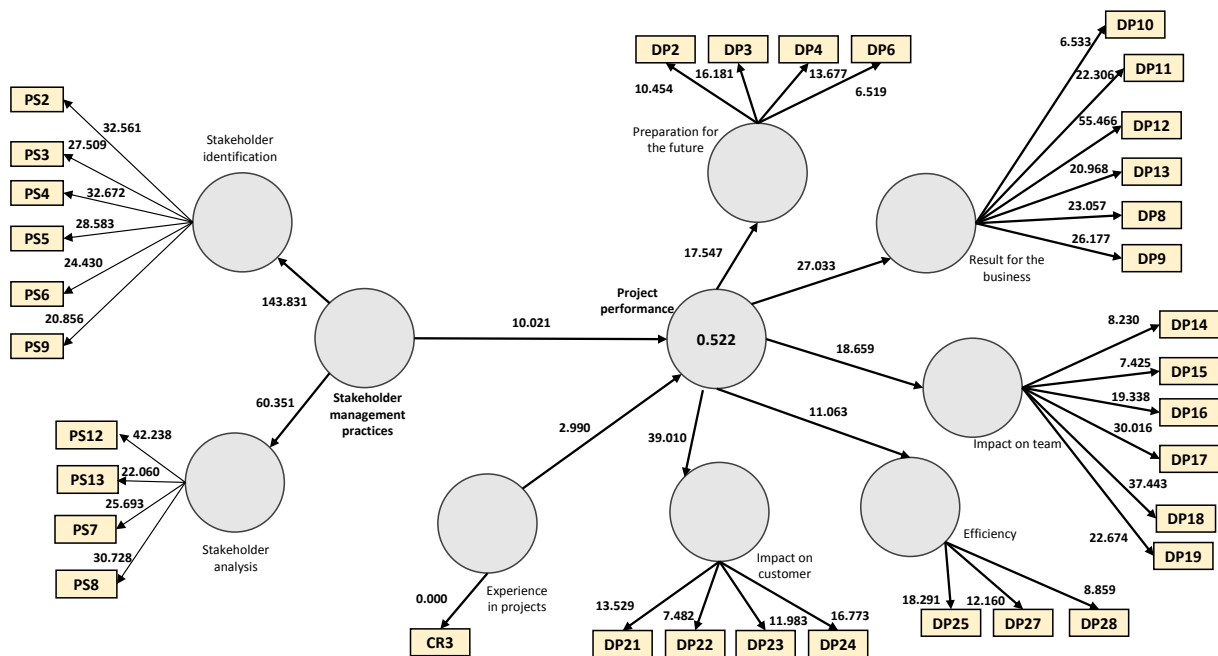


Figure 4. Statistical significance (T-Test) of path coefficients of the Structural Model

Table 10  
**Explanatory Power ( $R^2$ ) and model's general adjustments**

	$R^2$	$Q^2$	$f^2$
<b>Identification</b>	0.948	0.706	0.745
<b>Analysis</b>	0.882	0.664	0.754
<b>Efficiency</b>	0.602	0.326	0.550
<b>Impact on team</b>	0.636	0.385	0.621
<b>Impact on customer</b>	0.741	0.429	0.584
<b>Preparation for the future</b>	0.632	0.339	0.545
<b>Result for the business</b>	0.742	0.501	0.680
<b>Stakeholder management practices</b>	*	*	0.689
<b>Project performance</b>	0.522	0.046	0.410

**Note:** \*Not applicable – Explanatory variable

In short, from  $R^2$ , we found that variations in stakeholder management practices can explain 52.2% of the variations in project performance and related to the professional experience of participants in projects. Considering all the analyzed results, we concluded that the proposed Final Conceptual Model is valid and can be used to understand stakeholder management practices' contribution to project performance (Table 11).

Table 11  
**Synthesis of the Values of the Final Conceptual Model after data analysis**

	<b>Path Coefficient</b>	<b>Statistical Significance (T-Test)</b>	<b><math>R^2</math></b>
<b>Research question</b>			
Do stakeholder management practices contribute to project performance in organizations?	0.639	10.021	52.2%
<b>Control Variable Analysis</b>			
Does the participant's professional experience in projects contribute to project performance in organizations?	0.212	2.990	

### **Competing Model for analyzing the relationship between stakeholder management practices and project performance**

In this study, we adopted the Competing Models strategy to compare the estimated model with alternatives (Hair et al., 2009). The Competing Model comprises the direct

relationship between the second-order construct (stakeholder management practices) and the five first-order constructs associated with project performance, which are: Efficiency, Impact on customer/user, Impact on the team, Result for the business, and Preparation for the future. The Competing Model is shown combined with the path coefficients of the relationships between the constructs and the T-Test of the estimated path coefficients in Figure 5.

For measuring the Competing Model, we analyzed the same quality elements as in the Final Conceptual Model, namely Convergent Validity, Discriminant Validity, and Reliability of the model's first-order constructs. The values presented below are similar to those of the Final Conceptual Model since we kept the building of the first-order constructs, that is, the indicators that make up the first-order constructs adopted in both models (final conceptual and competing) are the same. Therefore, we expected similar values for the quality criteria.

#### *Measurement Model*

For the analysis of Convergent Validity, we considered the values and the significance of the factor loadings and AVE. In that model, all factor loadings showed values higher than 0.50, statistical significance at 5% level (T-test values higher than 1.96), and satisfactory AVE values (above 0.50), as shown in Table 12, thus ensuring Convergent Validity.

Table 12  
Factor loadings and cross-loadings of the Competing Model

	Identification	Analysis	Efficiency	Impact on team	Impact on customer	Preparation for the future	Result for the business	T-Test
PS2	0.889							33.213
PS3	0.869							27.262
PS4	0.878							31.413
PS5	0.850							28.169
PS6	0.842							23.944
PS9	0.852							20.268
PS7		0.861						24.811
PS8		0.878						31.570
PS12		0.900						43.325
PS13		0.832						23.146
DP25			0.765					10.485
DP27			0.771					11.259
DP28			0.689					6.130

DP14	<b>0.624</b>						7.913
DP15	<b>0.648</b>						6.771
DP16	<b>0.817</b>						17.176
DP17	<b>0.875</b>						22.790
DP18	<b>0.872</b>						31.204
DP19	<b>0.838</b>						17.617
DP21		<b>0.763</b>					14.556
DP22		<b>0.674</b>					6.764
DP23		<b>0.786</b>					8.628
DP24		<b>0.820</b>					15.708
DP2			<b>0.704</b>				10.271
DP3			<b>0.797</b>				15.578
DP4			<b>0.779</b>				13.292
DP6			<b>0.667</b>				6.840
DP8				<b>0.826</b>			17.627
DP9				<b>0.848</b>			20.810
DP10				<b>0.665</b>			8.004
DP11				<b>0.838</b>			22.414
DP12				<b>0.908</b>			49.757
DP13				<b>0.834</b>			19.429
AVE	0.745	0.753	0.551	0.617	0.582	0.545	0.678
							-

In the Discriminant Validity analysis, factor loadings have higher values than cross-loadings, as shown in Table 10. Regarding Fornell and Larcker's (1981) criterion for the analysis of Discriminant Validity between the constructs, Table 13 shows the results.

Table 13  
Discriminant Validity: Fornell & Larcker for the Competing Model

	I	II	III	IV	V	VI	VII
<b>I – Identification</b>	<b>0.863</b>						
<b>II – Analysis</b>	0.836	<b>0.868</b>					
<b>III – Efficiency</b>	0.512	0.487	<b>0.742</b>				
<b>IV - Impact on team</b>	0.482	0.485	0.599	<b>0.786</b>			
<b>V - Impact on customer</b>	0.633	0.535	0.648	0.590	<b>0.763</b>		
<b>VI – Preparation for the future</b>	0.563	0.586	0.493	0.622	0.561	<b>0.739</b>	
<b>VII - Result for the business</b>	0.630	0.549	0.576	0.464	0.741	0.635	<b>0.823</b>

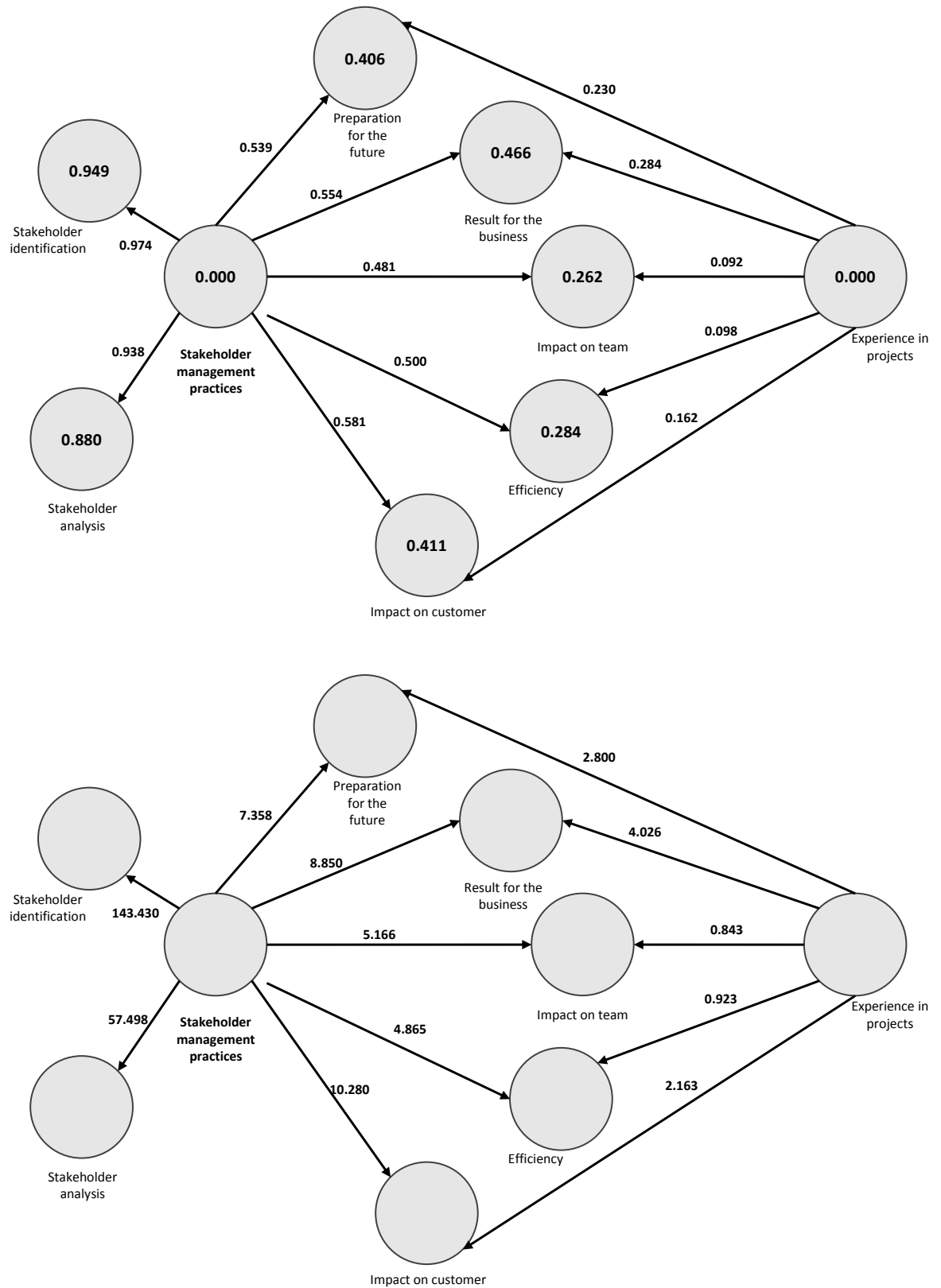
We notice that the values of AVE square roots - shown diagonally in bold - are higher than other correlations between the constructs. Therefore, this second criterion also attested the Discriminant Validity of the final Competing Model.

Although the Efficiency construct has a value below 0.70, as in the Final Conceptual Model, the value for the construct's Composite reliability was satisfactory (Hair et al., 2014).

*Structural Model*

Figure 5 shows the path coefficients of the relationships between the constructs and the T-Test of the estimated path coefficients. All relationships are positive, considering second-order and first-order constructs and the Control Variable. We conclude that the independent variable 'Stakeholder management practices' has a positive and significant relationship with all dimensions of 'Project performance'; hence, we can confirm stakeholder management practices' contribution to these dimensions.





**Figure 5. Path Coefficient of the competing Structural Model and T-Test of the estimated path coefficients**

*Explanatory Power – Effect size and Predictive Validity*

Table 14 presents the values of determination coefficient ( $R^2$ ), Cohen's Indicator ( $f^2$ ), and Stone-Geisser Indicator ( $Q^2$ ). Given these values, all  $R^2$  coefficients showed effects close to large; therefore, as explained in the final conceptual model analysis, data can be considered satisfactory (Hair et al., 2014).

Table 14  
**Explanatory Power ( $R^2$ ) and model's general adjustment**

	$R^2$	$Q^2$	$f^2$
<b>Identification</b>	0.949	0.707	0.745
<b>Analysis</b>	0.880	0.662	0.753
<b>Efficiency</b>	0.284	0.018	0.551
<b>Impact on team</b>	0.262	0.016	0.617
<b>Impact on customer</b>	0.411	0.041	0.582
<b>Preparation for the future</b>	0.406	0.063	0.545
<b>Result for the business</b>	0.466	0.101	0.678
<b>Stakeholder management practices</b>	*	*	0.689

**Note:** \*Not applicable – Explanatory Variable

After evaluating the Measurement and Structural Models of the Competing Model, we found that Stakeholder management practices have a positive and significant relationship, not only with the second-order construct 'Project performance' (Final Conceptual Model) but also with all first-order dimensions that compose it, as shown in Table 15.

Table 15  
**Synthesis of the Competing Model**

	<b>Path Coefficient</b>	<b>Statistical significance (T-Test)</b>	<b><math>R^2</math></b>
<b>Associations analyzed:</b>			
Stakeholder management -> Efficiency	0.500	4.865	28.4%
Stakeholder management -> Impact on team	0.481	5.166	26.2%
Stakeholder management -> Impact on customer/user	0.581	10.280	41.1%
Stakeholder management -> Result for the business	0.554	8.850	46.6%
Stakeholder management -> Preparation for the future	0.539	7.358	40.6%
<b>Effects of Control Variable:</b>			
Experience in Projects -> Efficiency	0.098	0.923	28.4%
Experience in Projects -> Impact on team	0.092	0.843	26,2%
Experience in Projects -> Impact on customer/user	0.162	2.163	41.1%

Experience in Projects -> Result for the business	0.284	4.026	46.6%
Experience in Projects -> Preparation for the future	0.230	2.800	40.6%

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We also identified more significant effects of Stakeholder management practices on the dimensions 'Impact on customer/user' (path coefficient of 0.581 and T-test of 10.280), 'Preparation for the future' (path coefficient of 0.539 and T-test of 7.358), and 'Result for the business' (path coefficient of 0.554 and T-Test of 8.550). The control variable 'Professional experience in projects' did not show a significant statistical effect at a 5% level (T values below 1.96) on the dimensions 'Efficiency' and 'Impact on team'. However, it was considered statistically significant, at a 5% level, for the variables 'Result for the business', 'Preparation for the future' and 'Impact on customer/user', with path coefficients of 0.284, 0.230, and 0.162, respectively. Finally, considering  $R^2$  values, the most significant joint effects of 'Stakeholder management practices' and 'Participants' experience' were on 'Result for the business', 'Preparation for the future', and 'Impact on customer/user'.

When comparing the two proposed models - Final Conceptual and Competing -, we found that the latter helps to detail the effect of the independent variable (Stakeholder management practices) on the dependent variable (Project performance). Such results indicate that besides a positive contribution relationship, it also occurs between Stakeholder management practices and the five dimensions of Project performance. The first relationship can be considered stronger, given the higher percentage of Project performance variations that variations in Stakeholder management practices can explain -  $R^2$  of 52.2% -, value not reached individually by the dimensions of Project performance -  $R^2$  between 26.2% and 46.6%. All models have quality, with a significant effect, as their  $R^2$  is above 26% (Cohen, 1988).

## CONCLUSION AND FINAL REMARKS

Companies seek to improve project management and strive to get their stakeholders involved (interested parties) since the recognition and understanding of their interests in the projects can affect them, their results, and, as a consequence, the business. Thus, this study aimed to identify and discuss the relationship between stakeholder management practices and project performance.

Based on a conceptual model built from the literature review, we prepared an electronic research questionnaire applied through the survey method. After pre-tests and adjustments to the questionnaire, we invited 1,765 professionals to participate as respondents of the study since they attended some criteria, receiving 105 complete responses (36.08% of initiated fillings).

We then carried out a multivariate analysis, based on the structural equation modeling technique, to identify the dependence between Stakeholder Management Practices and Project Performance, in the light of the moderating variables defined in the original conceptual model - characteristics of the company, project, and participant. Unfortunately, the number of complete responses received was insufficient for some of the intended analyses; therefore, we analyzed moderating variables as control variables for the Project Performance variable in an adjusted conceptual model. After the statistical analysis, only the participant's attribute 'Professional experience in projects' was statistically significant. Thus, it was the only control variable in SEM models as a method for data analysis.

As a result, considering the relationship between Stakeholder management practices and Project performance, SEM's use made it possible to propose and analyze two models of the relationship under discussion, the Final Conceptual and the Competing models. For both models, we could answer the research question proposed in this study: **Do stakeholder**

**management practices contribute to project performance in organizations?** Findings are as follows:

- 52.2% of the variations that occurred in Project performance can be explained by the variations that occurred in Stakeholder management practices and the experience of project participants;
- When considering the relationship between Stakeholder management practices and the Performance dimensions of the projects, as proposed in the Competing Model, covering the participant's professional experience in projects, the combined effect of Stakeholder management practices and Professional experience translated into the following results:
  - Efficiency: 28.4% of the variations in project's efficiency can be explained by the variations in Stakeholder management practices and Experience of project participants;
  - The Impact on the team: 26.2% of the variations that occurred in the Impact on the project team can be explained by the variations in Stakeholder management practices and the Experience of project participants;
  - The Impact on customer/user: 41.1% of the variations in Impact on project's customer/user can be explained by the variations in Stakeholder management practices and the Experience of project participants;
  - Result for the business: 46.6% of the variations occurred in Result for the project business can be explained by the variations occurred in Stakeholder management practices and Experience of project participants;

- Preparation for the future: 40.6% of the variations in the project preparation for the future can be explained by the variations in Stakeholder management practices and the project participants' experience.

Given these results, the most prominent joint effects of stakeholder management practices associated with participants' professional experience in projects regard the dimensions 'Impact on customer/user', 'Result for the business', and 'Preparation for the future'. Therefore, in summary, this study showed that Stakeholder management practices associated with the participant's professional experience in projects contribute to Project performance, positively and satisfactorily, as they correspond to more than 52% of the variation in Project performance. They also contribute to Performance dimensions positively and satisfactorily, corresponding to more than 26% of their performance variation.

From the discussion on the concepts and results of the quantitative analysis of the relationship between Stakeholder management practices and Project performance, associated with participant's professional experience in the analyzed projects, the study enabled the identification of theoretical and practical opportunities. From a theoretical point of view, the study was relevant to:

- extend the conceptual discussion on projects' stakeholders, with ramifications for future empirical research;
- deepen the understanding of the dimensions of project performance that can be better explained or more affected by stakeholder management practices, and
- evaluate the perceptions on Project performance and its dimensions by discussing some of our findings in future longitudinal research.

From the standpoint of practical application, the study was relevant to emphasize the importance of effective adoption of stakeholder management practices, as methodologies for

project management, replicable for projects in general, recognize the importance of participation of experienced professionals in projects and, extend the adoption of the concept 'organizational stakeholders' to 'project stakeholders' as an opportunity for clarification and alignment in project management.

As restrictions and recommendations for future studies, we could mention the use of single data from multiple projects, and therefore, in subsequent studies, we recommend triangulating project perspectives to include more than one respondent per project. Applying the questionnaire in person, in a controlled environment, and accessing project professionals' associations to enhance the research questionnaire's massive distribution based on the snowball technique.

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