



08, 09, 10 e 11 de novembro de 2022
ISSN 2177-3866

THE ROLE OF STAKEHOLDERS MANAGEMENT ON PROJECT RESULTS

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Introduction

Research on project management has grown considerably (Winter et al, 2006; Kwak & Ambari, 2009; Pollack & Adler, 2015) 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 was 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 (Phillips, 1997). 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 hence, the company's objectives.

Considering the growing relevance that the Project Stakeholder Management process has received among project management studies and practices, we think this is an opportunity to analyze and discuss the subject deeply. To this end, the purpose of this study is to answer 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 aims to contribute to a better consolidation of knowledge on Stakeholders, Stakeholder Management Practices and its role on Project Performance. From the standpoint of the current business environment, we try to identify stakeholder management practices that favor project performance, as a whole or in its various dimensions.

Theoretical Background

Projects can be defined as a temporary organization and process, created exclusively to attain a certain 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 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 (individual, of a team, and organizational), by modifying their environment and enabling the development of competitive advantage and value creation" (Bredillet, 2003, p. 239).

In fact, 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, which includes the satisfaction of the customer, senior management, other managers, and the team involved. Thus, the evolution on the concept of project performance can be understood from the finding that, in the traditional project management environment, the focus is mainly on the topics of efficiency, operational performance, meeting deadlines and budgets [...], but this focus must be changed, from an operational approach to a strategic one because traditional approach, focused on terms, budget, and performance goals, will result in the loss of a key factor: projects are created by business needs. (Shenhar & Dvir, 2007).

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 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 figure of project's stakeholders emerges as a prominent factor. Such demand is in line with stakeholder theory, which proposes that "the company, represented by its administrators, manages its interactions with employees, consumers, investors, suppliers, government, and the community where it is established" (Phillips et al., 2003, p. 480), given the understanding that "attention to stakeholders is emerging as a critical strategic issue" (Crilly & Sloan, 2012, p. 1174).

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 that the company promises" (Freeman et al., 2004, p. 364). The assumption is that managers should design and implement processes that satisfy interested parties, where the management and integration of the relationship and interests of these groups are relevant, in order to ensure the long-term success of the company, with emphasis on the active management of the business environment, development of relationships, and promotion of shared interests" (Freeman & McVea, 2001, p. 12).

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 are actively involved in the project, or whose interests may be positively or negatively affected as a result of the project's execution or completion. All projects have a multiplicity of stakeholders, in addition to the obvious ones - customer, manager, and project team – such as owner, the general public, eventually public bodies, among others (Williams, 1999). Several stakeholders' existence could result 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 in developing a project that aims to satisfy the interested parties, particularly because the objectives of stakeholders involved in a project might not be coherent" (De Wit, 1988).

The factors that stakeholders consider important for achieving success are different, even the perceptions they have on project performance (Davies, 2014). 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 uses processes to identify, plan, manage, and control people, groups, or organizations that may affect or be affected by a project, thus developing

appropriate management strategies to effectively involve stakeholders in the decision and execution of the project (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. Therefore, understanding the motivation of each stakeholder is an essential challenge for project managers.

The processes comprised in stakeholder project management are essential to ensure success in project management. Therefore, by adopting a formal approach, they require the development of associated basic assumptions and the availability of relevant and appropriate information for the project team. 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) 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 the interests of related parties (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.

Methodological Procedures

This is a 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 discussion of the topic showed that this relationship could be directly influenced by the company's characteristics, of the project, and the participant. Hence, these characteristics were included as **moderating variables**.

The dependent, independent, and moderating variables defined and used to make up the field research questionnaire have their theories explained below. Thus, the **Dependent Variable - Project Performance and its indicators**- is based on Shenhar & Dvir’s (2007) concepts, and is listed in Table 1.

Table 1
Dependent variable: Project performance

VARIABLE	OPERATIONAL DEFINITION		THEORETICAL BASE
PROJECT PERFORMANCE	Efficiency	Stick to the schedule	Shenhar & Dvir (2007)
		Stick to the budget	
		Meeting the need for modifications	
		Meeting efficiency measures	
		Possibility of conducting new projects	

Impact on customer/user	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	Project contributed directly to company's performance
	Project contributed to adding value for shareholders
	Project increased the company's market share
	Project showed a positive return on investment
	Project increased company's profitability
	Project generated economic success for the company
Preparation for the future	Project developed better management abilities
	Project contributed to new business processes
	Project developed new technologies for future use
	Project will help developing new markets
	Project will result in adding new products
	Project result will contribute 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 2. Given the diversity of treatment of this subject by various authors, we defined a more integrated view of the practices that are essentially considered as activities present in stakeholder management. This form of classification aligns with the prescriptive school (Oliveira & Rabechini, 2019). It focuses on the effectiveness of stakeholder management, based on the definition of the group and the understanding of the intensity of the relationships established between the group and the project, to the detriment of the relational school, which focuses on efficiency, where the relationship of trust is built and kept throughout the project life cycle.

Table 2

Independent variable: Management practices of project stakeholders

VARIABLE	OPERATIONAL DEFINITION		THEORETICAL BASE
PROJECT STAKEHOLDER MANAGEMENT PRACTICES	Identification	Stakeholders' identification	Cleland & Ireland (2006)
		Mapping of stakeholders' relevant data	
		<ul style="list-style-type: none"> Identification of persons or groups that have or claim ownership, right, or interest in the project Mapping stakeholders' proximity (primary or secondary) or formality (formal or informal) regarding the project 	
		<ul style="list-style-type: none"> Definition and relevant data collection on stakeholders Assigning responsibility for analysis and interpretation of stakeholders' data 	

	Identification of stakeholders' mission	<ul style="list-style-type: none"> • Identification of stakeholder' interest in the project • Survey on stakeholders' positioning (favorable or not) toward the project 	
	Identification of stakeholders' strategy	<ul style="list-style-type: none"> • Identification of the strategy adopted by stakeholders • Assessment of stakeholders' policies and procedures for using their resources 	
	Analysis	Determination of stakeholders' strengths and weaknesses	<ul style="list-style-type: none"> • Identification of stakeholders' strengths and weaknesses • Assessment of stakeholders' strengths and weaknesses regarding the project
		Prediction of stakeholders' behavior	<ul style="list-style-type: none"> • Identification of associations (effective or potential) among stakeholders • Assessment of stakeholders' impacts and interests on the project
		Implementation of stakeholders' strategy	<ul style="list-style-type: none"> • Implementation of project's stakeholder management strategy • Monitoring stakeholders' perception of the project

Finally, the Moderating Variables' definition started by understanding that our problem applies to projects in general. However, answers may vary based on organizations' perspective regarding projects and their participants. Considering the study focus, variables listed in Table 3 were candidates for Moderating Variables for their ability to influence the relationship between Stakeholder Management Practices and Project Performance. In addition to those, there were obviously others that we did not consider, due to natural limitations as well as to the need for ensuring the "parsimony and simplicity" criteria (Patterson, 1986) in order to (i) maximize the transferability of practical implications to the study context (Patterson, 1986; Guba & Lincoln, 1989; Lincoln & Lynham, 2011) and (ii) interpretation and narrative elegance of the adopted model (Lincoln & Lynham, 2011). Coherently, results show that the selected constructs provide the model with robust explanatory power and goodness of fit.

Table 3
Moderating Variables

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

Professional experience	Adapted from Dias et al. (2017)
Complete qualification	Adapted from Coutinho (2016)

Project team members, role not pre-defined, were defined as the primary information source. We looked for qualified profile participants, basically companies' professionals working as managers or members of project teams. Most of them were MBA and graduate students in Project Management – graduated between 2001 and 2017 – from private educational institutions in the State of São Paulo, Brazil.

So, we chose a non-probabilistic sample, intentionally selected, and *ex post facto* - which means cases already occurred or, more specifically, , 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). The identified participants were invited to select a focus of analysis that fit the purpose of the study, as defined below:

- 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.

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, and we submitted the questionnaire to new tests, in an interactive process, as indicated by Malhotra (2001). In this final phase, we identified points of attention like ensuring the submission of one answer per participant, and the presentation of the questions at random to reduce the Common Method Bias (Casaló et al., 2010; Podsakoff et al., 2003).

Data collection by survey took place through the application of self-administered electronic questionnaires. When accessing the link to the questionnaire, the participant could see a brief description of the research objectives and 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 about the project in question. Then, in the 4th part, they were invited to 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 these 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.

Regarding the performance of the survey, we dropped from 1,765 emails sent to 105 completed fillings (around 6,0%), considering accesses, initiated fillings and drop-outs. Although we think we have applied the questionnaire to a sample considered qualified due to the profile of the invited participants, this number could be considered as an inadequate response rate. Also, only one project team member's response used to characterize a project situation may be considered not totally valid. Furthermore, since an email survey was sent to a single member, who was asked to accurately characterize aspects from memory for a project already finished, we have to believe that the accuracy of such assessments is limited. In conclusion, all these points should be considered as limitations of this study regarding the process of sampling and data collection.

To reach the study objectives, we analyzed data under a multivariate perspective, using, specifically, 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 was considered appropriate.

Later, we analyzed data by Structural Equation Modeling with the Partial Least Squares method, using the SmartPLS 2.0.M3 software. The software creates a visual representation of the associations, facilitating the interpretation of results when studying several constructs. This technique allows the analysis of the relationships between the dependent and independent variables; thus, 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 -, which are 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.

In the analysis of the proposed model, we considered the Measurement Model's evaluation by investigating Convergent Validity and Discriminant Validity among the first-order constructs. 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 Competing Model in the results section, which consists of analyzing the direct relationship between the construct 'Stakeholder Management Practices' and the five first-order variables of the construct 'Project Performance'.

Finally, for the moderation analysis, we considered the variables presented here, which refer 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.

After finding that the characteristics of the company, project, and participant would not act as moderators in the proposed model, they were assessed as Control Variables, by considering the possibility of their influence on the **Dependent Variable** (Project Performance). It was then necessary to adjust the original conceptual model, including the idea of **Control Variables**. These are, "in a sense, exactly like the components of the main or interaction effects, and have the potential to relate to the dependent variable just like their peers on the predictor side of the equation" (Atinc et al., 2012, p. 58).

However, as the final model proposed by the study, shown in Figure 1, 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).

To finish this section, we have to consider some potential limitations of the methodological procedures adopted, regarding:

- that the sample was intentional – data collected cannot be extrapolated to the whole population, both from the point of view of projects and respondents;
- the facts observed *ex-post-facto* - the limitation was the extent of researcher's control over events, as it was not possible to change the object, and the possibilities for interaction were limited;
- the size of the sample of selected cases *versus* the achieved results (number of respondents) – since it was a survey based on respondents' fillings, we can consider as restrictions: the unavailability of respondents and the receipt of biased answers by effective respondents;
- the adoption of data collection by the survey technique without reaching the invited persons by other means than *e-mail*
- the proposition made to the invited participants that their involvement would be confidential, thus precluding the control of sent invitations *versus* fillings, for sending reminders;

- the assumption that the research were focused on the projects, but their assessment would be based on the completed questionnaire by the participant;
- the small number of respondents, which hampered the analysis of the relationship between stakeholder management practices and project performance in the light of the moderating variables. We acknowledge that the alternative of including other control variables would make the model more complex, that is, would increase the number of predictors for the dependent variable (Project performance); hence, considering the calculation by *software* G*Power, the minimum sample size would have to be larger.

Analysis and Discussion of Results

This section shows the main results of the analysis of the relationship between Stakeholder Management Practices and Project Performance through the participants' experience that worked in the project. We present the results associated with 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 questionnaire's application, a number that reached the minimum necessary to continue 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 (2009). In that test, the researcher should discard the effect of variance in the method, equivalent to the least correlation between interest variables. The second test involved the approach of complete collinearity, proposed by Kock (2015). In our study, these approaches indicated the absence of this method's variance, so we did not worry about the collected data's quality.

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 theoretical construct that those items should measure (Hair et al., 2009). The construct is called latent because it cannot be directly measured. 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, p. 62).

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.

In the analysis of Discriminant Validity - understood as an indicator that constructs or variables are independent of each other (Ringle et al., 2014; Wong, 2013) - initially, 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 (1981) 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.

Finally, as results, we have got factor loadings greater than cross-loadings, all of which significant at 5% level (T-Test > 1.96), and AVE values higher than 0.50; therefore, this second criterion also showed evidence of Discriminant Validity in the Final Conceptual Model.

We considered the internal consistency statistics Cronbach's Alpha (CA) and Composite Reliability (CR) to analyze the model's reliability. Such indicators are used to assess whether the sample is free from bias or, even, if the responses are reliable, taken as a whole. 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 value of the construct is satisfactory following Hair et al. (2014).

Structural Model

The Structural Model in Figure 1 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 coefficient of the main proposed relationship, between the second-order constructs 'Stakeholder Management Practices' and 'Project Performance', has a positive coefficient of **0.639**. Figure 2 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 ≤ 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 3 attest to the statistical significance of 5% (that is, T values higher than 1.96) of the estimated path coefficients.

Figure 1. Path Coefficients of the Structural Model

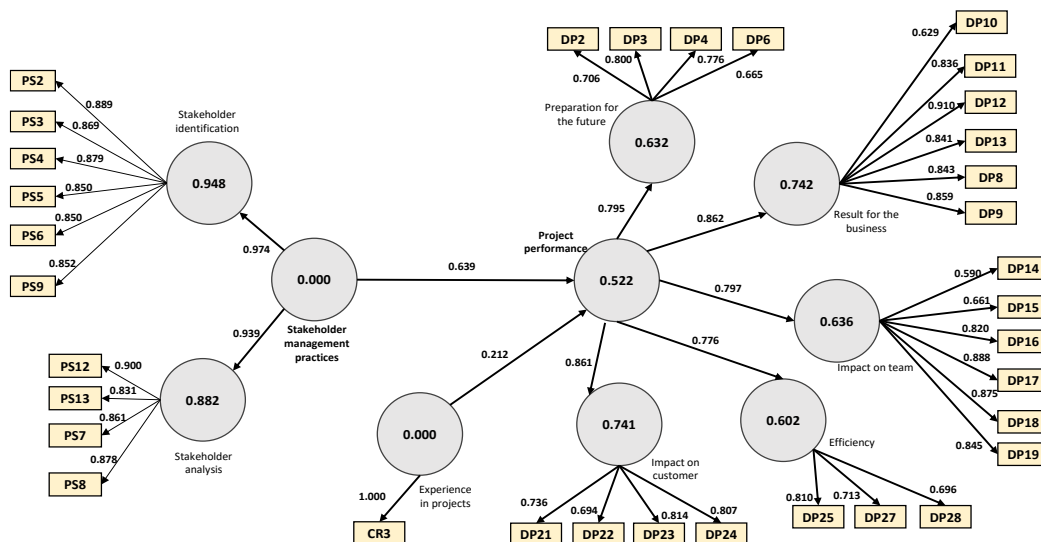
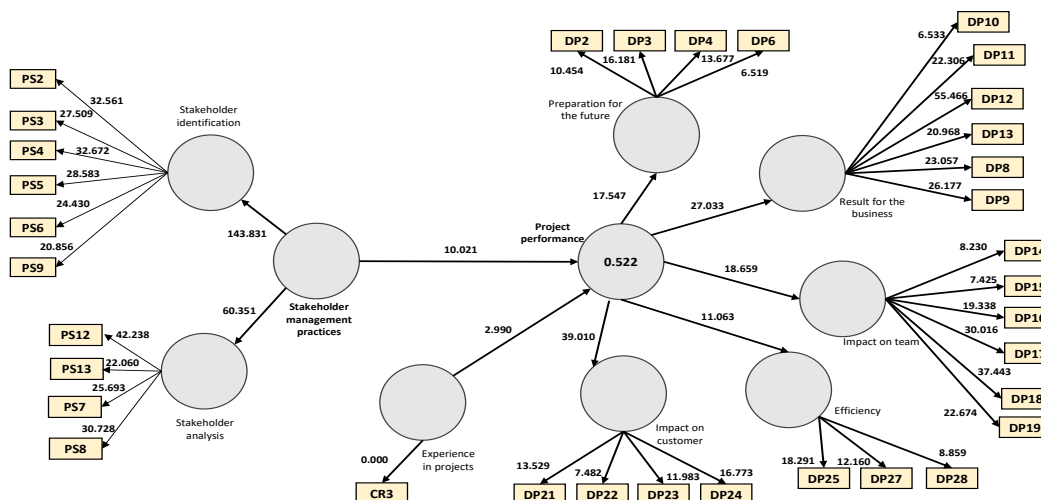


Figure 2. Statistical significance (T-Test) of path coefficients of the Structural Model



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 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).

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

Given this analysis, after evaluating the measurement and structural models, we conclude that there is a positive relationship between Stakeholder Management Practices and Project Performance, at 5% significance level (T-Test > 1.96), with a path coefficient of **0.639**, as shown in Table 4, which indicates that the management practices of stakeholders contribute to the performance of projects carried out in organizations. Table 4 also shows a positive and significant relationship (at 5% significance level) between the control variable ‘Professional experience in projects’ and ‘Project performance’, with a path coefficient of 0.212.

Table 4
Synthesis of the Values of the Final Conceptual Model after data analysis

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

In short, from R^2 we found that the combined effect of ‘stakeholder management practices’ (independent second-order construct) and ‘professional experience in projects’ (control variable) on ‘project performance’ (dependent second-order construct) is of 52.2%; that is, variations in stakeholder management practices can explain 52.2% of the variations in project performance, when combined to high 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 the contribution of stakeholder management practices to project performance.

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

In this study we adopted the Competing Models strategy “as a means of comparing the estimated model with alternatives” (Hair et al., 2009, p. 59). 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.

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. 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), , thus ensuring Convergent Validity.

In the analysis of Discriminant Validity, factor loadings have higher values compared to cross loadings. Regarding Fornell and Larcker’s (1981) criterion for the analysis of Discriminant Validity between the constructs. We also 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.

To analyze the model's reliability, we considered the internal consistency statistics Cronbach's alpha and Composite reliability. 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 3 shows the path coefficients of the relationships between the constructs. All relationships are positive, considering second-order and first-order constructs and the Control Variable. Figure 4 shows the values of the T-Test of the estimated path coefficients. The only non-statistically significant relationships, at 5% level (T values not exceeding 1.96), were the associations between the control variable ‘Professional experience in projects’ and the constructs ‘Impact on team’ and ‘Efficiency’. As a result of the analyses, 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.

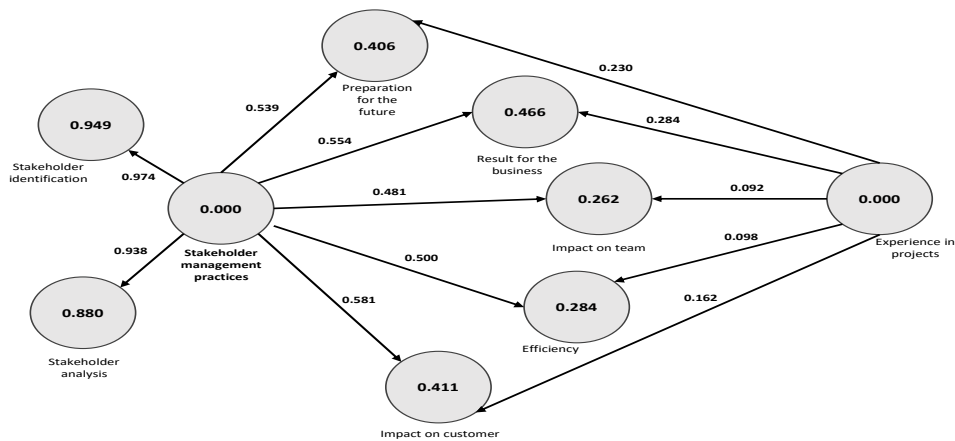


Figure 3. Path Coefficient of the competing Structural Model

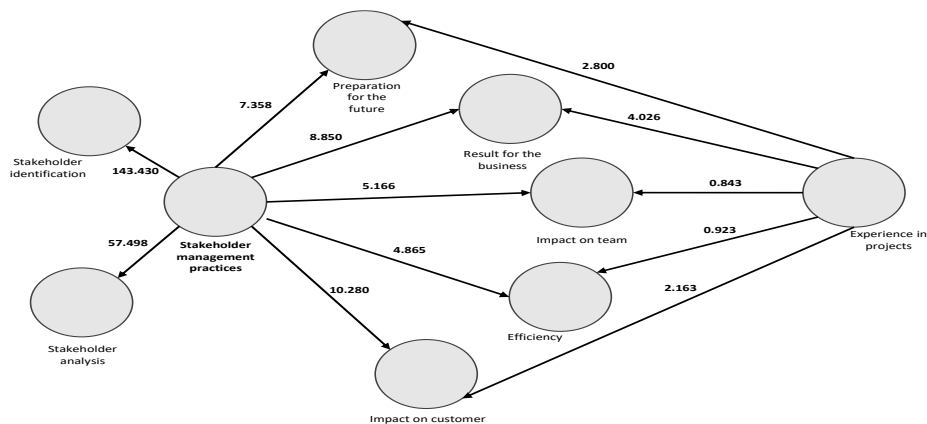


Figure 4. Statistical significance (T-Test) of path coefficients of the competing Structural Model

Explanatory Power – Effect size and Predictive Validity

Regarding 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).

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 5.

Table 5
Synthesis of the Competing Model

	Path Coefficient	Statistical significance (T-Test)	R ²
Associations analyzed:			
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%
Effects of Control Variable:			
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%

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 R² 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, in general, the Competing Model 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, this relationship 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 variations in Project performance that variations in Stakeholder management practices can explain - R² of 52.2% -, value not reached individually by the dimensions of Project performance - R² between 26.2% and 46.6%. All models have quality, with a significant effect, as their R² is above 26% (Cohen, 1988).

Conclusions 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. We received **105** complete responses, equivalent around to **6.0%** of the total questionnaires initiated by the respondents. 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.

As a result, considering the relationship between Stakeholder management practices and Project performance, the use of SEM/PLS 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, that is, **do stakeholder management practices contribute to project performance in organizations?** Findings are as follows:

- The joint effect of Stakeholder management practices and professional experience in projects on Project performance is 52.2%, that is, 52.2% of the variations that occurred in Project performance can be explained by the variations 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 that occurred in the project preparation for the future can be explained by the variations that occurred in Stakeholder management practices and Experience of the project participants.

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 Project Performance dimensions, in a positive and satisfactory way, corresponding to more than 26% of their performance variation, regarding the dimensions Efficiency, Team Satisfaction, Satisfaction of Customer/user, 'Result for the business', and 'Preparation for the future'.

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 seems 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.

From the standpoint of practical application, the study seems 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.

To conclude, 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 in order to include more than one respondent per project. Applying the questionnaire in person, in a controlled environment, and accessing associations of project professionals in order to enhance the massive distribution of the research questionnaire based on snowball technique.

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¹ In accordance with APA (*American Psychological Association*) Style.

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