Influence of Indirect Internal Stakeholders in the Performance of Strategic Projects: Understanding the Behavior of Projects in Universities in Bogotá

By

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Dedication

To the everlasting and almighty God who gave me the possibility of carrying out this doctorate, to Most Holy Mary for being the guide of my life, my wife Sandra, and my daughters Mariana and Gabriela, without their love this beautiful experience would not have been possible.

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Abstract

The purpose of this research is to discover the effect of the extent, engagement, and empowerment of indirect stakeholders on the performance of internal strategic projects through the moderating effect of complexity. This research was done in the city of Bogotá in public and private universities from a sample of 356 respondents. The system of statistical analysis used to test the hypothesis of the research was structural equation modelling (SEM). The findings carry theoretical implications for these bodies of knowledge in management: Project Management and Strategic Management. Stakeholder extent has a significant effect on Performance of internal strategic projects. Stakeholder engagement does not have a significant effect on performance of internal strategic projects. Stakeholder empowerment has a significant effect on Performance of internal strategic projects. Complexity is the moderating variable between stakeholder extent and stakeholder engagement on Performance of internal strategic projects. This paper's originality is manifest in the variables used, and in its depth of analysis of a gap found in the literature related to indirect stakeholders.

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Chapter 1: Introduction

This study addresses the fields of Project Management (PM) and the Stakeholder Theory and its relationship in the universities in Bogotá, this sector, apart from being strategic, has a relevant social importance because in education there is the motor of development of the city.

Stakeholder theory and PM are two important areas of knowledge in Business Management since several researches have concluded that these are critical areas of success in organizations.

According to Scopus database, research in the fields of project management, and stakeholders have increased significantly in the last 16 years, in this period, nearly 10,000 documents have been written in both fields of knowledge. Several authors have carried out research on the management of stakeholders in the area of construction projects.

Through the literature reviewed it has been possible to establish the relationship between Project Management and strategic planning (Kerzner, Strategic planning for project management using a project management maturity model, 2001) (PMI, 2013) (Blichfeldt & Eskerod, 2008) (Englund & Graham, 1999) (Buttrick, 2000) (Phillips J. , 2010) (Archer & Ghasemzadeh, 1999) (Ansari, Shakeri, & Raddadi, 2015). That means, PM is the route by which the designed strategic plans are operationalized, this entails establishing that part of the company's survival in the long term depends on an adequate implementation of the strategic plan through projects.

Similarly, one of the characteristics in Project management is the continuous analysis of its critical factors. According to (Felix, Quelhas, Shimoda , & Franca, 2014) there are two major components for project management: Effectiveness and Efficiency; these components are divided in some variables o critical success factors, and one of these factors are related with the stakeholders.

A project is considered as a construction of several dimensions, technical, economic, behavioral, commercial and strategic so that it is considered as successful (Bannerman, 2008) (Cao & Hoffman, 2011) (Ika, 2009) (Jugdev & Müller, A retrospective look at our evolving understanding of project success, 2005) (Jugdev, Thomas, & Delisle, Rethinking project management: old truths and new insights, 2001) (Thomas & Fernández , 2008).

In a similar way, different authors have identified different performance indicators through which the fulfillment of project objectives is measured (National Research (US) Committee for Oversight and Assessment of US Department of Energy Project Management, 2005) (PMI, 2013) (Archibald, 2008) (Menches & Hanna, 2006) (Linzalone & Schuima, 2015) (Philips, Bothell, & Snead, 2002) (Floricel, Michela, & Piperca, 2016) (Makarova & Sokolova, 2014) (Apostol, 2013). One of these indicators is related to the influence and measurement of the stakeholders in the projects outcomes (Oppong, Chan, & Dansoh, 2017). This means that in the design of a project, the requirements of the stakeholders must be identified, and subsequently, performance measures are established to provide necessary information on the fulfillment of the objectives and stakeholders requirements and expectations.

However, organizations today evaluate mainly their investment projects from a financial perspective, through indicators such as the Net Present Value, the Rate of Return, and the profitability indicator, among others; but the generation of value goes beyond the field of profit making. Nevertheless, the generation of value not only occurs in the evaluation phase of a project (previous phase), this generation of value also occurs in the implementation of the project itself. In addition, in this implementation it becomes necessary to determine some additional criteria that allow establishing an adequate performance of the project.

According to Miranda (2012), the cycle of a project is as follows:

- Pre-investment: Identification, Selection, Formulation, and Evaluation.
- Investment: Administration of implementation.
- Operation: Administration of operation.
- Ex-post evaluation: When the project has been completed, an evaluation of the results initially established is done.

The analysis and determination of the project performance criteria are established in the investment stage, and it is at this stage that this research is centered.

Several investigations that have been carried out in the field of project management involve the analysis of the stakeholders that have a direct influence on the project; however, very few investigations have been carried out to study those stakeholders that do not have direct influence.

The objective in this research is to establish the relationship of the indirect internal stakeholders within the strategic projects, these actors play an important role at the level of decision-making or influence in the projects, and several authors have conducted research on the relationship between project management and Stakeholders, such as performance indicators, corporate strategic plan, and corporate value (Pintardi, Artama, & Kaming, 2014) (Inganson & Jónasson, 2009) (Thomas & Mullaly, 2008) (Dalcher & Drevin , 2003) (Turner J. , The Handbook of Project-Based Management, 2009) (Bourne, Stakeholder Relationship management. A maturity model for organisational implementation, 2009) (Ward & Chapman, 2008) (Atkin & Skitmore, 2008) (Winter, Smith, Morris, & Cicmil, 2006).

This research aims to establish the influence of indirect internal stakeholders in strategic internal projects performance, identifying how complexity in projects as a moderating variable affects this relationship.

In this sense, it is necessary to define precisely the concepts of indirect internal stakeholders and strategic internal projects. Indirect internal stakeholders are those individuals or groups within the organization that do not have a direct association in the project, but which may influence the execution of the project (Lester, 2006) (Project Management Institute, 2008).

On the other hand, the internal strategic projects are those projects that are carried out within the organizations in order to comply with the previously designed strategic plan, that is, through its implementation ensures the sustainability of the company and Generate competitive advantages (Shenhar A. , 1999) (Jebrin, 2013).

According to (Ansari, Shakeri, & Raddadi, 2015) (Jebrin, 2013) there is a relationship between the development and implementation of strategies and the PM as the mechanism for completing the operations necessary to achieve the objectives.

That means, “Projects are commonly used as a means of implementing specific organizational strategy” (Cooke-Davis , 2009, pág. 111).

The importance of developing this research is presented in two areas; the first one is the utility for organizations, and the second is related to the academic relevance. Through this research, the universities will be able to include in their project performance analysis a new factor related with the indirect stakeholders, that when analyzed in contexts of complexity allow to establish more accurate decision criteria in the project performance.

At the academic level, this research will establish the degree of influence of the indirect stakeholders in the implementation of projects focused on the fulfillment of the strategic plan of the organizations of university education sector in Bogotá, and will allow deepening the analysis of this type of stakeholders that has currently generated few results at the investigative level.

This chapter identifies the problems to be investigated, the research questions and hypotheses to be tested, the theoretical framework to be developed, and finally the importance of carrying out this research and its donation to the generation of new knowledge.

This basic research is descriptive, the selected population and sample will be conformed by universities education sector in Bogotá, the necessary information will be collected through surveys and data analysis will be performed through the application of a Structural Equation Modeling.

Finally, the research is divided into three chapters, in the first one the problem is defined, establishes the theoretical framework and the variables, in the second one the literature review is done, and in the third is the design of research, population, Sample, collection and analysis of data, and reliability and validity criteria.

Background of the problem

The concept of Project Management (PM) has evolved over the last 50 years. Its initial development was given as an organizational tool, which was used as a means for the implementation of projects, however, after several years, PM became a field of knowledge that supports the business strategy, and therefore seeks the generation or corporate value. According to Lewis (1993), PM was considered as a series of steps that contained tools and that allowed the implementation of projects, and these steps were project planning, project monitoring, and project controlling.

Subsequently, and as a result of several investigations, the steps described above were transformed into processes through which new methodologies were developed in project management. Packendorff (1995) established that a project is a temporary organization that consists of cultural factors, relationships with the environment,

conceptions, processes, people and the strategic levels that come together when designing or implementing a project.

However, and according to Lewis (1993) this trend should be expanded because a good plan does not only include a cost estimate, or programming times and activities, an adequate plan must perform additional steps like risk management and the compliance of the stakeholders.

Munns & Bjeirmi, (1996) argue that several authors propose a group of variables and factors that affect the capacity to reach the objectives initially established, these factors and variables are: objectives, project administration, third parties, relations with client, human parties, contracting, legal agreements, politics, efficiency, conflicts, and profits (Munss & Bjeirmi, 1996).

According to the most important and globally recognized methodologies, a project is successful if it is able to meet two major objectives, the first one related to meet profitability expectations designed, and the second focused on the fulfillment of three basic restrictions or limitations: time, cost and scope (PMI, 2013).

However, it is necessary to include the analysis other factors that also affect the performance of a project, and one of them is related to the human factor. According to Nikander & Eloranta (2001) it is necessary to collect more accurate and reliable information to anticipate to possible problems during project development and consequently, in its performance. In addition, part of the variables that affect the project performance are the related to the stakeholders because they have different measures or degrees of influence in projects (Lester, 2006).

In the early 2000´s the concept of PM changed, and its essence was to provide support in implementing the strategy in the organization, that means, project management has become a path of organizational work structure (Milosevic, 2003) (Bakker, 2010).

According to (Jugdev, Thomas, & Delisle, Rethinking project management: old truths and new insights, 2001), project management, as a holistic discipline focused on efficiency, effectiveness and innovation requires appropriate ways of analysis and evaluation.

However, the new knowledge advances in projects understanding has caused the incorporation of new factors or limitations in the different analysis to be made. Different authors as a result of their research have mentioned other restrictions or limitations:

- Image (reputation)
- Business Value
- Tolerance for risk
- Quality (Kerzner & Belack, Managing com plex projects, 2010, pág. 27).

One of the main factors that significantly influence the design and implementation of projects is related to stakeholders, who have become key success factors, that means, there is a relationship between stakeholder management and project performance (Dainty, Cheng, & Moore, 2003) (Chan & Chan, 2004) (Wang & Huang, 2006) (Littau, Jyothi, & Adlbrecht, 2010) (Johnson, Creasy, & Fan, 2015). According to (Mitchell, Agle, & Wood, 1997) (Jamali, 2008) (Walker, Bourne, & Shelley, 2008) Project performance should reflect the corporate value goals established by the Stakeholders.

In this sense, a conceptual and application gap has been found, because none of the revised methodologies establishes measurement indicators in indirect stakeholders. An indirect stakeholder is one that is not directly involved in the execution of the project, but can have an influence on project execution (Project Management Institute, 2008) (Lester, 2006).

According to (Lester, 2006) there are two groups related to the stakeholders, positive and negative, each group have two sub-groups, Direct and Indirect, and finally those groups have the next division:

Table 1. *Groups of Stakeholders*

Positive stakeholders				**Negative Stakeholders**	
Direct		**Indirect**		**Indirect**	
Internal	**External**	**Internal**	**External**	**Internal**	**External**
Sponsor	Client	Management	Stockholders	Disgruntled employees	Disgruntled end user
Project Manager	Contractors	Accounts Dept	Banks		Pressure groups
Project team	Suppliers	HR Dept	Insures		Unions
Project office	Consultants	Tech	Utilities		Press (media
			Local		Competitors
			Government agencies		Politicians
					Residents' associations

Source: (Lester, 2006)

Projects have different stakeholders, who have interests and demands that must be analyzed and managed in order to ensure success in the implementation of a project (Cleland, 1986; Diallo & Thuillier, 2005; Olander & Landin, 2005). "By conducting stakeholder analysis, project managers attempt to build a "correct" picture of their stakeholder environment upon which the organizational action concerning stakeholders can be determined" (Aaltoen K, 2010, p. 165).

Different definitions for the stakeholder concept are summarized in table 2:

Table 2. Stakeholder concept definitions

DEFINITION	AUTHOR
Stakeholder: Individual, group, or organization who may affect, be affected by, or perceive himself, herself or itself to be affected by a decision, activity, or outcome of a project.	(PMI, 2013, p. 392)
Any group of individuals who can affect or be affected by the achievement of the organization's objectives.	(Freeman, 1984)

Almost any person or organization with an interest in a project can be termed.	(Lester, 2017)
Stakeholders are people/groups having or claiming interest in a project and its activities	(Cleland & Ireland, 2002)
Direct Stakeholders: Individual directly associated or involved in the planning, administration or execution of the project	(Lester, 2017).
Indirect Stakeholders: Composed of all those people indirectly associated with the project, such as internal managers of the organization and support staff not directly involved in the Project. Indirect stakeholders are unable to express their claim directly to the organization. They have no 'voice'.	(Lester, 2017). (Kaplan Financial Knowledge Bank, 2019)

Traditionally, projects have a variety of related Stakeholders that have different levels of interests that can influence their planning and execution (Ward & Chapman, 2008). According to (Bourne & Walker, 2005 p. 2) “the ability to understand the often hidden power and influence of various stakeholders is a critical skill for successful project managers”.

The last factor to be analyzed is the one that refers to the complexity, which means, all projects in varying degrees have levels of complexity. According to Williams (1999), it is necessary to study and tackle projects in complex environments, that is, projects are design, coordinated, and implemented in changing environments that demand efficient and rapid responses. Similarly, Baccarini (1996) considers that the concept of project complexity is worthy of further consideration.

Project, in this model, is strongly related to the perceptions of each individual stakeholder and proposes that any organizational activity has supporters who provide funding, assistance or are beneficiaries (Bourne, 2009), this means that if a project is a sum of activities the stakeholders have a high or low level of influence, and this influence can affect project performance measures.

Various empirical studies at an academic level have used Stakeholders as an independent variable, and as a dependent variable they have used economic performance (Berman, Wicks, Kotha, & Jones, 1999) (Choi & Wang , 2009) (Hillman & Keim, 2001). If Stakeholders are analyzed as a dependent variable, and the organizational system as an independent variable, we can have a model with the potential to establish the generation of business value (Harrison & Wicks, 2013), this implies that beyond measures of performance at the level of profitability, the stakeholder study within a project must be broad and at appropriate levels of depth to understand the way that stakeholders determine their own utility functions.

Finally, it is important to mention that education sector in Colombia is strategic, and this importance can be established in various objectives contained in the National Development Plan 2014 – 2018 (Departamento Nacional de Planeación, 2015).

According to (Departamento Nacional de Planeación, 2015), the development of the education sector is a priority for the Colombian government, for which it has established some clearly defined:

a. "Reduce the population and territorial gaps in the provision of quality services in health, education, public services, infrastructure and connectivity".
b. "Close the gaps in access and quality to education, among individuals, population groups and between regions, bringing the country closer to high international standards and achieving equal opportunities for all citizens".
c. "Promote ICT as a platform for equity, education and competitiveness".
d. "Close the gap in access and quality of education, to improve the formation of human capital, increase social mobility and encourage the construction of citizenship".

According to (Ministerio de Educación, 2016) most of the offer of higher education is still strongly concentrated in some departments or cities of the country. In Bogotá for example, 32% of the total number of students in higher education are enrolled.

Additionally, the dropout rate at the university level in Bogota for the year 2015 was 45.2%, and enrollment in undergraduate higher education went from 1,219,968 in 2006 to 2,149,504 enrolled in 2015, which allowed to increase the coverage rate from 30.0% to 49.4% in the same period and represents an average annual growth 6.5%.

According to (MINHACIENDA, 2016) the budget that the government of Colombia established for the education sector is approximately US $ 11,400,000, which represents a 7% increase in relation to the 2016 budget.

Some of the problems currently facing higher education in Colombia can be summarized as follows:

a. Small installations.
b. Lack of laboratories.
c. Rooms without minimum technological conditions.
d. Foundations for profit.
e. Inactive academic programs.
f. Few universities with high quality accreditation.

This situation, in addition to showing this sector as a key to the society, indicates the need to generate higher levels of competitiveness and quality.

Statement of the problem

The problem identified, and from which there is no evidence, is the influence of the indirect internal stakeholders in projects performance.

In a traditional way, projects are analyzed with stakeholders who have a direct influence such as managers, presidents, and investors; however, it is necessary to

understand the behavior of all stakeholders, since according to Ward & Chapman (2008) stakeholders are the main source of uncertainty in projects. This is complemented by (Lefley, 2004) who has established that models of traditional investment analysis are unable to consider strategic benefits that can arise in an investment project.

Inappropriate stakeholder management can have the following consequences: reduces the satisfaction of the products obtained in the project, influences negatively the capabilities of the organization, and prevents future opportunities for collaboration (Bourne, Project relationship and the stakeholder circle, 2006) (Aaltonen, Jaakko, & Tuomas, Stakeholder salience in global projects, 2008).

A relevant aspect that reinforces the idea of carrying out this research is "Far less attention has been devoted to understanding the stakeholder side of project stakeholder management, i.e. how stakeholders actually behave and how they are able to influence the Project Management's decision making process" (Aaltonen, Jaakko, & Tuomas, Stakeholder salience in global projects, 2008, p. 1).

The understanding of the stakeholders is a critical success factor for the organizations, according to (Aaltonen & Kujala, Towards an improved understanding of project stakeholder landscapes, 2016):

> "Understanding stakeholders, their influences and devising engagement strategies based on the analyses of stakeholder landscapes has become one of the key capabilities within project-based firms" (p.1).

There are stakeholders directly involved in the projects formulation and evaluation of processes, but there are also stakeholders who are not have a directly linked to a project; these other stakeholders are the indirect stakeholders, that is, people who do not have a direct influence on the project, but that indirectly could affect both the implementation and operation of it.

The different performance indicators of the projects are affected by an inadequate stakeholder analysis, and some of those indicators are related to the generation of corporate value. This study aims to establish the influence of indirect internal stakeholders in strategic internal projects performance, that is, the level of influence of indirect stakeholders in the performance of projects aimed at fulfilling the strategic plan of the organization, establishing that currently projects are formulated, evaluated and implemented in complex environments.

According to (PMI, 2013) the traditional approach to measuring a project has been established in terms of cost, time and scope, and usually the influence of the stakeholders (investors, managers, area managers) are analyzed at the time of design and subsequent implementation.

Complementarily, in recent years, some authors consider that in the performance of a project, it is necessary to analyze some other dimensions as risk, quality, and corporate image, nonetheless, none of the dimensions mentioned by the authors establishes a perspective of indirect stakeholders.

Stakeholders have a high importance in the planning and execution of projects, however, little attention has been paid to the ways to generate value for these Stakeholders and their measurement; nevertheless, research conducted on Stakeholders has shown that financial performance is the most important measure in the creation of corporate value. (Harrison & Wicks, 2013).

One of the reasons of this little attention, and according to Agle, Mitchell, & Sonnenfeld (1999) is that the concept of value is already understood as economic value, however, while economic returns of the investment are fundamental to a firm's core stakeholders, some interested parties have established different requirements (Bosse, Phillips, & Harrison, 2009).

The analysis of the different factors surrounding a project is critical to understand why firms succeed over time, why stakeholders are drawn to (and remain with) some firms, and which firms do the most for their stakeholders.

Cooke-Davies, Crawford, & Lechler (2009) affirm that the project administrations systems must be adapted to the specific strategic position of each organization in order to deliver maximum value. This important element strengthens the realization of this research and illustrates a problematic situation.

Although financial performance is important, this is not the only aspect of value that is important to stakeholders, since stakeholders define their own utility function (Harrison & Wicks, 2013).

Purpose of the study

The purpose of this basic, quantitative and descriptive research is to establish the influence of indirect internal stakeholders in strategic internal projects performance. This research will contribute with the generation of new knowledge about the impact of the different factors to consider when formulating and implementing an investment project, this implies the generation of a new perspective for the analysis of projects.

This research analyzes the following specific contexts:

- **Strategic Projects:** This type of investment projects are carried out in order to fulfill the strategic objectives of the company.
- **Indirect internal stakeholders:** As indicated in the Problem Background, this type of stakeholders is not directly involved in the execution of the project, but may have an influence on the execution of the project.

This research will take place in universities public and private located in the city of Bogotá.

The dependent variable is the performance of internal strategic projects, and the independent variables are indirect stakeholder extent, indirect stakeholder engagement, and indirect stakeholder psychological empowerment, and as a moderator variable, complexity in projects.

Significance of the problem

According to (Lefley, 2004), traditional investment analysis models are not able to consider some of the strategic benefits offered by an investment project, this can be supported in the fact that it is not possible to identify in the traditional models of project evaluation the causes that affect project performance, different from financial and technical.

One of the key success factors in a project that a manager must analyze is the impact of the stakeholders in its formulation and evaluation (Pintardi, Artama, & Kaming, 2014); this is one of the reasons why this variable should be analyzed.

Several studies have shown that adequate stakeholder management is related to the long-term survival of the organization (Clarkson, 1995; Freeman, 1984; Donaldson & Preston, 1995; Mitchell, Agle & Wood, 1997; Rowley & Moldoveanu, 2003).

Consequently, a project must ensure appropriate inputs in terms of quality and quantity of information and within this information it is necessary to consider the related to stakeholder analysis.

This research is particularly important because it intends to change the traditional paradigm in which projects are traditionally characterized as independent entities designed to generate only profitability, on the other hand, the results of this research will be useful for the 52 Universities registered in Bogotá.

Traditionally, projects are not understood as a development unit in the companies, which connects the organizational strategy with the different processes and areas in the

company, and according to this analysis, a gap occurs in the analysis of the inputs when evaluating a project and the negative effects can cause that the previously established financial expectations fail. In this respect (Srivannaboon S. , 2006) significant progress has been made in research related to Project Management and integration into business strategy, this means that the projects are executed for the purpose of generating profitability in the specific areas, the planning and execution phases must meet the criteria for generating corporate value.

On the other hand, the current state of education sector in Colombia has shown signs of stagnation, evidencing a crisis that has been informing for some time.

Through this study, a better understanding of: (a) the influence of indirect stakeholders in the performance of projects; (b) to what extent the moderating variable, complexity in projects, affects the relationship between these stakeholders and project performance, will be generated.

This acquired knowledge will help to understand in an integral way the environment in which a project of a strategic type is developed, and will provide a new approach aimed at improving aspects of competitiveness in the higher education sector.

Nature of the study

This research will have a quantitative approach, because it aims to establish a measure of influence of indirect internal stakeholders in strategic internal projects performance.

Descriptive scope and type of design is not experimental since the independent variables are not subject to simulation, and because they work with historical data collected from a selected sample of companies. Finally, this research follows a cross-sectional design because the sample is analyzed at a given time.

Research Questions

1. What is the relationship between indirect internal stakeholder's extent and the performance of internal strategic projects?
2. What is the relationship between indirect internal stakeholder's engagement and the performance of internal strategic projects?
3. What is the relationship between indirect internal stakeholder's empowerment and the performance of internal strategic projects?
4. What is the influence of project complexity in the relation between indirect internal stakeholders and the performance of internal strategic projects?

Hypotheses

1. The extent of indirect internal stakeholders affects project performance (H1).
2. Indirect internal stakeholders' engagement affects project performance (H2).
3. Indirect internal stakeholders' empowerment affects project performance (H3).
4. Project complexity moderates the relation between indirect internal stakeholders and the project performance (H4).

Theoretical Framework

The theoretical framework illustrated in figure one shows the purpose of this study:

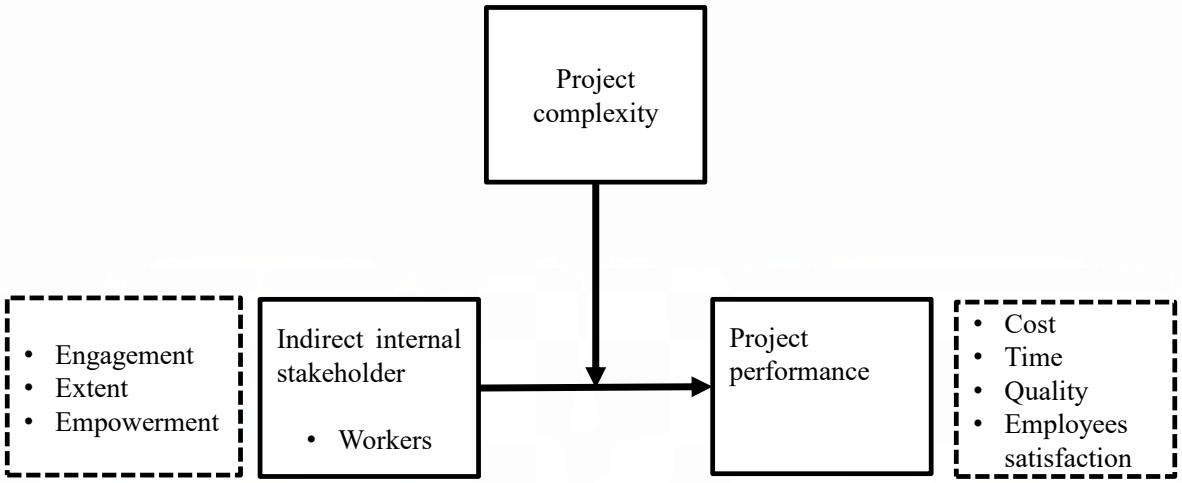


Figure 1. General Theoretical Framework

Indirect internal stakeholder:

Several authors establish the relationship between the management of stakeholders as a factor of success in the performance of projects (Johnson, Creasy, & Fan, 2015) (Beringer, Jonas , & Kock, 2013) (Aaltoen K. , 2011) (Assudani & Kloppenborg, 2010) (Wang & Huang, 2006) (Donaldson & Preston, 1995).

The stakeholder theory provides a vehicle for connecting ethics and strategy (Phillips R. , 2003) and at the same time, the firm seeks to meet the expectations of stakeholders by creating value over time fulfilling its strategic plans. According to (Freeman, Harrison, Wicks, Parmar, & De Colle, 2010) the stakeholders are made up of one or several people who are affected or who can affect the goals of the organization. The understanding of the stakeholders in the projects, as well as their adequate management in environments of uncertainty, is a requirement for the proper performance in projects (Ward & Chapman, 2008). This uncertainty encompasses the relevant stakeholders, how they could influence the project, and what their motives are in so far as their actions affect project activity

In order to establish a more appropriate definition of this research and according to (PMI, 2013):

> "the stakeholders are individual, group, or organization who may affect, be affected by, or perceive itself to be affected by a decision, activity, or outcome of a project" (p.392).

The different interests held by the Stakeholders in a project can affect their performance positively or negatively, and similarly these interests can generate various conflicts within the project.

According to (Cleland & Ireland, 2002) the process of Project Management must include the analysis of internal and external stakeholders, and internal stakeholders include clients, workers, investors, project teams and financial sponsors.

This research is four types of latent variables, one of them is the dependent variable that is explained later, and three of them, extent, engagement, and empowerment are explained below.

According to (Nguyen, Skitmore, & Wai, 2009) stakeholder extent helps the project manager to determine the type and extent of attention needed for each stakeholder, that means, the degree of influence that each stakeholder may have in the project.

According to (Ayuso, Rodríguez, García, & Ariño, 2014) "Stakeholder engagement processes range from identification of key stakeholders to long-term project teams and partnerships".

According to (Morgan & Rowlinson, 2009) "the concept of employee empowerment has thus been emphasized as key to closing the emergent power gaps, to curb the growing powerlessness in project settings and thereby engender the performance of project participants". Emerging empirical evidence also suggests that manager's power-sharing behaviors are significantly related to project participant's motivation and performance (Liu & Fang, 2006). Empowerment is made up of a group of factors that manifest as a sense of competence, impact and self-determination, that means, individuals

who feel that their jobs are meaningful and that by completing their job responsibilities they have an impact on others within and outside of the organization are motivated to perform well (Liden, Wayne, & Sparrowe, 2000).

Project performance:

Traditionally, the basic criteria that determine success in a project are cost, time and quality; these are known traditionally as the iron triangle (Turner & Cochrane, 1993). However, new scientific evidence shows new ways to measure performance in a project; according to (Shenhar, Levy, & Dvir, Mapping the Dimensions of Project Success, 1997) there are four dimensions to consider in project performance: project efficiency, impact on costumer, business success and preparing for the future. Recent research made by (Ling, Low, Wang, & Lim, 2009) revealed that factors that may affect project performance are scope, time, cost, quality, risk management, human resource management, communication management, procure management, and integration management.

This research proposes the following performance indicators time, cost, quality, and personnel satisfaction.

According to (PMI, 2013) the time consists of estimating the duration of the project; the cost is the amount of money to budget to finalize the project; the quality refers to the satisfaction of the client managing their expectations, and the personnel satisfaction refers to the degree of moral level (Samee & Pongpeng, 2015) (Center for business practices, 2005).

According to (Center for business practices, 2005) some additional metrics of project performance are financial measures, customer measures, process measures, learning and growth measures, and productivity measures.

Therefore, corporate value has a range of stakeholders that must be satisfied in the best way possible, they are not considered individually, and meeting their expectations, the

value for the organization is generated and maintained. In addition, to the extent that these parts are interconnected they efficiently generate better responses to market opportunities through better exploitation of their internal resources and capacities (Marr, Schiuma, & Neely, 2004).

Projects in complex environments:

According to (Lee & Y-H, 2011) argued that there are different stakeholders with complex interrelations that can affect the fulfillment of the projects. Zhu & Mostafavi (2017) (Kardes, Ozturk, Cavusgil, & Cavusgil , 2013) established that the performance of a project is related to the environment of complexity in which it develops.

The field of complexity in projects is one of the most important research topics with multiple factors and scenarios for analysis; one of them is the strategic importance of the project, where it should include the factor of complexity.

A complex project has as an inherent feature with different components, actors or factors that are interconnected (Xia & Chan , 2012).

Baccarini (1996) proposed a definition for this field "Complex projects consist of a variety of parts that are interrelated" (p.201), however, this was one of the first steps towards understanding not only the definition, but to structure an idea in which the projects have a series of characteristics that to a lesser or greater magnitude make them have complexity.

Subsequently, the most elaborate characterizations were produced because of various researches. According to (Geraldi & Adlbrecht, On faith, fact and interaction in projects, 2007) project involves complex dynamics and uncertainty, and the study of projects complexity has been recognized as one of the most important issues in research (Cicmil, Williams, Thomas, & Hodgson, 2006).

According to (Snowden & Boone, 2007), a complex system has the following characteristics:

1. It involves large numbers of interacting elements.
2. The interactions are nonlinear, and minor changes can produce disproportionately major consequences.
3. The system is dynamic, the whole is greater than the sum of its parts, and solutions are not enforced.
4. The system has a history, and the past is integrated with the present; the elements evolve with one another and with the environment; and evolution is irreversible.
5. However, a complex system in retrospect may appear to be ordered and predictable, hindsight does not lead to foresight because the external conditions and systems constantly change.

In accordance with (Hass, 2009, p. 40) some of the sources that make a complex project are already set:

1. Details: Number of variables and interfaces.
2. Ambiguity: Lack of awareness of events and causality.
3. Uncertainty: Inability to pre-evaluate actions.
4. Unpredictability: Inability to know that will happen.
5. Dynamic: Fast exchange rate.
6. Social structure: Number and type of interactions.

The complexity of a project is not only determined by the level of investment, or by the amount of activities. Consequently, the complexity of a project is not binary, that is, it is not possible to declare that a project has or does not have complexity; it occurs at different levels and progressively.

Finally, and according to (Kerzner & Belack, Managing com plex projects, 2010) there are some components of complex projects:

1. Interactions: Relationship between the various activities, and internal and external actors with a project.
2. Size and Cost: Each project has a specific size, and therefore, the cost will vary.
3. Culture: The development of projects depends on different environments with people who have different types of cultural progress.
4. Uncertainty: According to its duration, size, costs and interrelations between different cultures, a project will have different levels of uncertainty, that is, its variables will behave probabilistically**.**
5. Multi-stakeholder: "There are several stakeholders that you must interface with, and getting them all to agree on the scope, the deliverables, and the approval of change requests will be difficult. Stakeholders may have their own agendas for the project" (Kerzner & Belack, Managing com plex projects, 2010, pág. 31).

The analysis of these components, especially, the last one, leads to establish that the different stakeholders in the projects can affect the formulation and implementation, that means, they form a critical factor to analyze. Thus proposing migrate from traditional triple constraint for projects (Time, cost and scope) to the following restrictions:

Figure 2. Project modified restrictions.

The new configuration of constraints showed in the figure above established by different author means that each project must be evaluated not only from a profitability perspective, but also in different dimensions of affectation that can negatively infer with the value creation.

Definition of Terms

The following terms form an integral part of this research:

- **Project:** Temporary endeavor undertaken to create a product, service or result (PMI, 2008, p. 4). Unique process consisting of a set of coordinated and controlled activities with start dates and deadlines, undertaken to achieve an objective according to specific requirements, including constraints of time, cost and resources (British Standard, 2000, p. 10).
- **Project Management:** In order to achieve the required performance in a project based on time, cost, quality and performance, aspects such as the motivation of the stakeholders, and proper planning, monitoring and control are necessary (British Standard, 2000). Application of knowledge, skills, tools and techniques to achieve the objectives (PMI, 2008). Project Management has a similarity to various organizational strategies used to achieve different objectives of the company, framed in a well-defined calendar and budget (Srivannaboon & Milosevic, 2006).
- **Project Performance:** "mechanisms that underlie the transformation of projects' and programs' outputs into socio-economic effects, arguing that making them explicit allows understanding why a project or program is successful" (Linzalone & Schuima, 2015, pág. 1).
- **Complex environments:** A complex system is a difficult system to limit description to a limited number of parameters or variables that characterize and it consists of several interconnected parts whose links contain additional information

and communication between them that can be hidden from the observer (Pavard & Dugdale, 2000).

- **Projects in complex environments:** A complex project environment is established from the behavior of five elements: size and cost, interactions, cultural implications, uncertainty, and stakeholders (Kerzner & Belack, Managing com plex projects, 2010).
- **Corporate Value:** It refers to operating philosophies or principles that guide the conduct of internal organization and their relationship with customers, partners and shareholders. The core values are generally summarized in the mission statement or declaration of the core values of the company (Business dictionary, s.f.).
- **Strategic alignment of projects:** Businesses should focus on the alignment of Project Management with its business strategy in order to have a successful general management strategy and projects (Alsudiri, Al-Karaghouli, & Eldabi, 2013). The alignment and compatibility between the organizational strategy and the projects must be clearly defined and must be prioritized (Srivannaboon S. , 2006).
- **Stakeholder:** Stakeholders can be made up of people, groups or companies that in some way can affect or be affected in the planning and implementation of a project (PMI, 2013, pág. 361).

Assumptions

The assumptions on which this research is based are the following:

a. This study was designed based on Project and stakeholder theory, and these theories reflect the phenomenon to be studied in Colombia.
b. Turner and Zolin (2012) recognized that projects have various stakeholders and that perception can change over time, which means, projects are related to the stakeholders.

c. Turner (2012) argued that project success and its criteria must encompass "the perceptions of multiple stakeholders".

d. According to Rowlinson & Cheung (2008) stakeholder management influence the outcomes of the project, and stakeholder's interests influence the project performance, therefore, it is assumed that a correlation exists.

e. According to (Samee & Pongpeng, 2015) project performance is related to corporate performance, therefore, corporate value area related to project performance.

f. The potential stakeholders of a project are external and internal, within the internal stakeholders are workers as internal managers, support staff, accounts department, secretariat, and senior management not directly responsible for the projects.

g. According to (Suchman, 1995) and (Nguyen, Skitmore, & Wai, 2009) In the latent variable called stakeholder extent there is an additional indicator variable called Legitimacy that in this investigation is not taken into account because it is assumed that the actions of an entity are desirable, proper or appropriate within some socially constructed system of norms.

h. According to (Ayuso, Rodríguez, García, & Ariño, 2014) an additional variable analyzed in the stakeholder engagement is called customer engagement, and reflects different feedback channels with external clients, however, because this research aims to establish impacts on internal stakeholders, this variable is excluded.

Research limitations

It is expected that this research may present the following limitations:

1. This is a cross-sectional study.

2. Information will be collected in a single time.
3. Access to the sample: the limitation at this point is related to the appropriate number of responses to the questionnaire, due to the various access difficulties to the sample.
4. The questionnaires will be applied directly and also by mail, one of the limitations of this point is the prompt response to questionnaires via mail, which could cause delays in the application phase.

Delimitation of research

The following aspects delimit this study; the research will be carried out in universities located in Bogotá (Colombia), in organizations that are legally constituted. In the same way, public and private universities will be considered.

The higher education sector in Colombia is important because to the social importance that for the development of a society possesses.

"The strategic importance of higher education becomes visible as soon as the effects of the incorporation of science and technology are recognized, and of the reflection elaborated on the ends, in the work processes, in the production of material wealth and symbolic and in the development of social organization " (Misas, 2004).

Higher education must acquire the responsibility of assuming the changes it requires from work and of creatively incorporating the new tools that guarantee the radical increase of productivity, to enable a development with autonomy that allows the country to face economic globalization, without renouncing the social security of workers and the development of their individual potential (Misas, 2004).

For 2016, the enrollment for university education was the highest among all levels of education (education) (Ministerio de Educación Nacional, 2017).

According to (Observatorio Laboral, 2017) the number of graduates in undergraduate, specialization, masters and doctorate in Bogotá between 2001 and 2014 was 40,983 students.

Chapter 2: Review of the literature

Introduction

This chapter aims to generate a solid conceptual framework to looking forward to identifying issues in order to address own research hence to generate a clear interpretation of the problem to be addressed.

The literature review has the following structure:

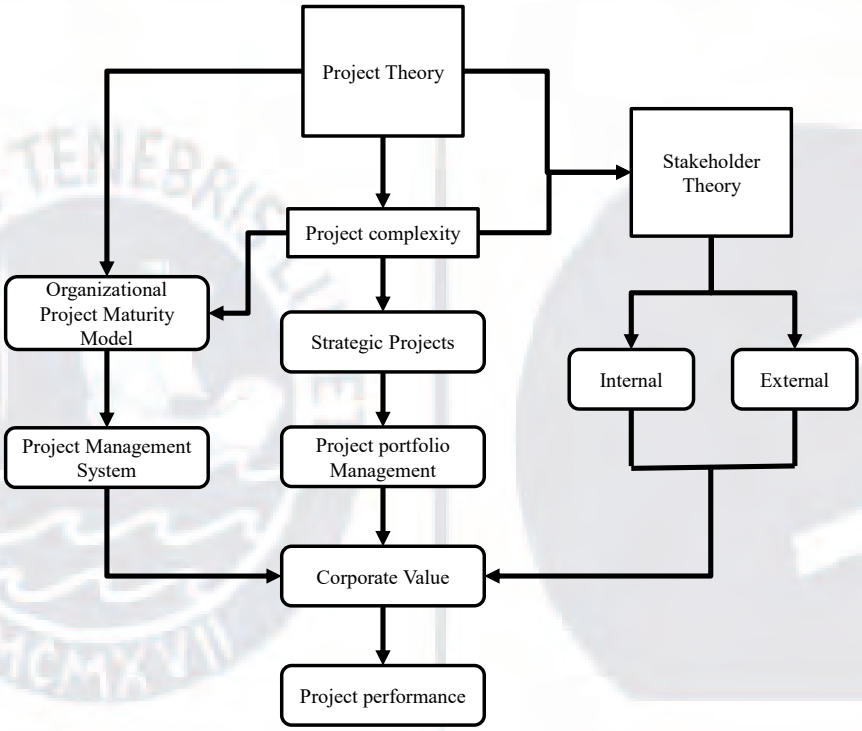


Figure 3. Literature review map

The protocol followed for this literature review had the next steps:

a) Availability of documents in databases and journals.

b) Documents mainly published in English but, depending on the study, some were included in Spanish. Studies were taken from databases such as Elsevier, ScienceDirect, Scopus, Wiley, Emerald, Web of Science, Project Management Journal, International Journal of Project Management, the Project Management Association and the international journal of Managing Projects in Business.

c) Documents related to Project Management and stakeholder theory.

d) The terms used for searching information and publications were: Project Management, project performance, projects in complex environments, corporate value, organizational impact of projects, investigatory trends in Project Management, strategic planning and Project Management, project portfolio management, stakeholder theory, project performance.

e) Selection of documents: Duplicate documents were removed, relevant articles selected by the author in the field of their research were selected, and finally, the information was organized by topics.

Figures four and five show research trends that have occurred from 2000 to 2016 at the level of the themes that are addressed in this study. In these trends, it is evident that research in the fields of performance, stakeholders and complexity in projects has increased.

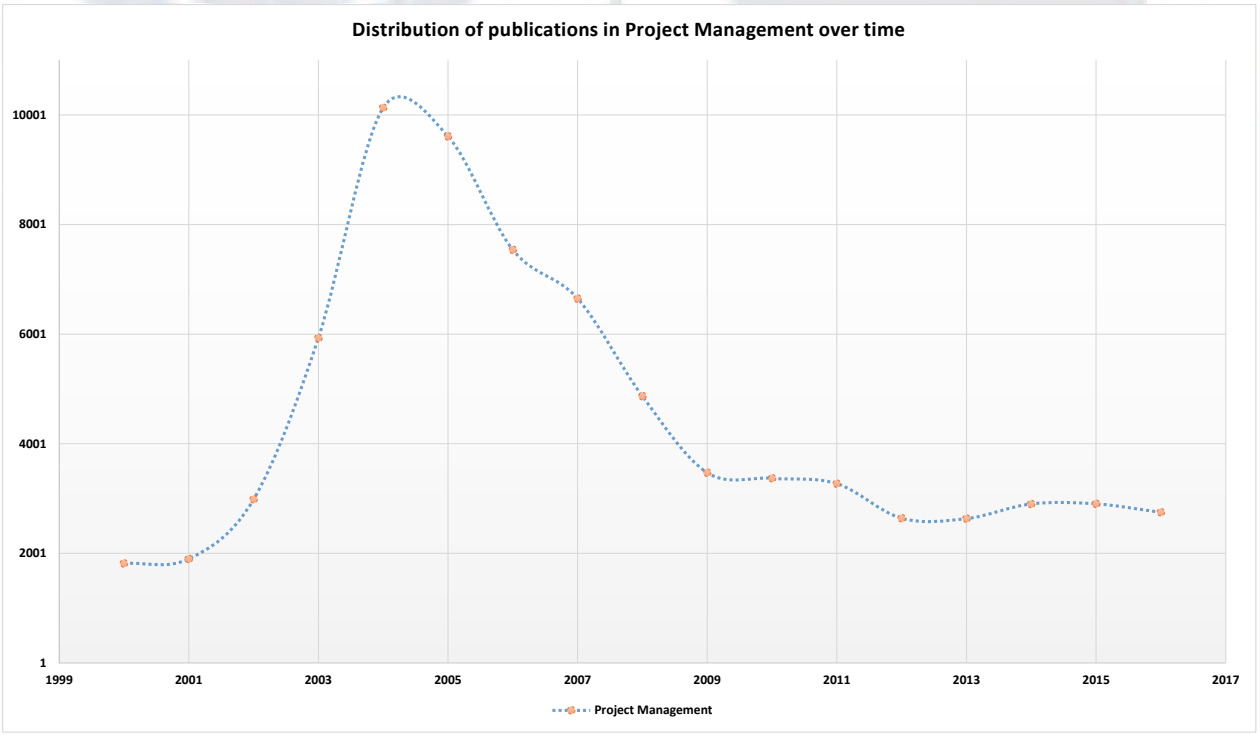


Figure 4. Research trends on related topics 2000-2016

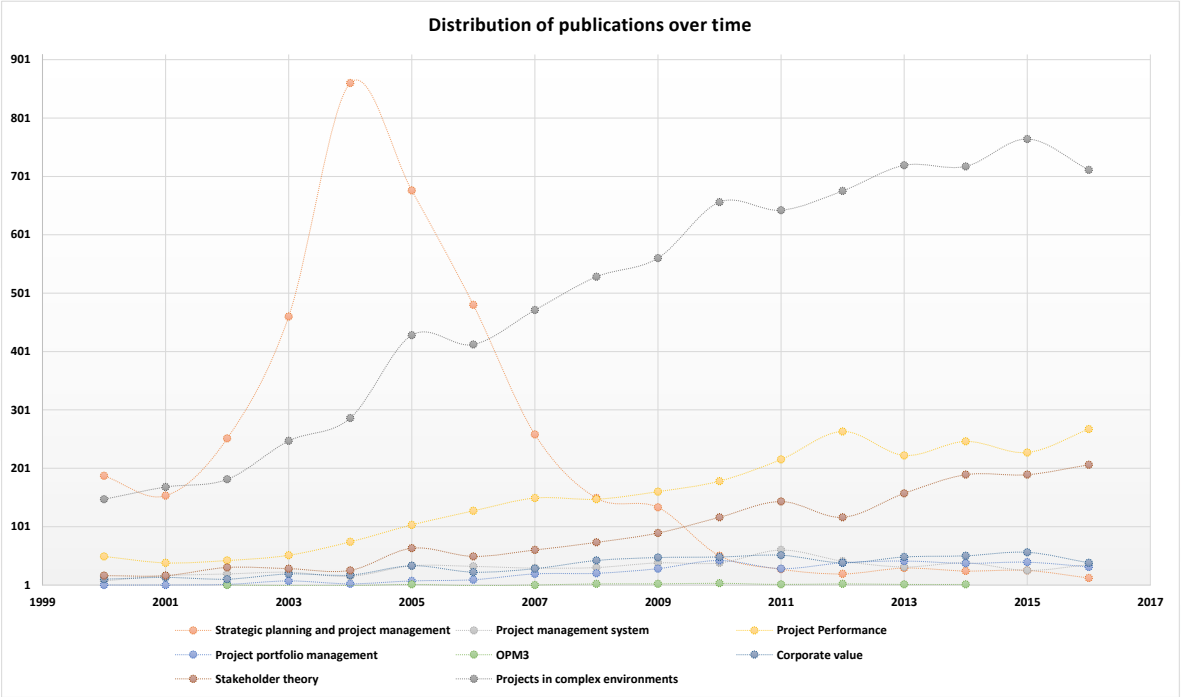


Figure 5. Research trends on Project Management 2000-2016

PROJECT THEORY:

A theory consists primarily from concepts and causal relationships that relate these concepts. “Managing projects is one of the oldest and most respected accomplishments of mankind” (Morris P. , 1994, pág. 1). Once the Second World War ended, project management emerged as a practice related to technological development and infrastructure (Cicmil & Hodgson, 2006, pág. 112).

Morris (1997) and Engwall (1995) described in some detail the emergence of Project Management, highlighting its development in practice through a number of major projects that can be traced back to the Manhattan project in the 1940s. The operational research was the quantitative technique on which the development in this field was based until the 60´s.

In the twentieth century, the field of Project Management changed and was assumed in a more serious way. Although the field of knowledge of PM has changed, the basic concepts remain in analysis and discussion (Cicmil & Hodgson, 2006).

In prior literature, it is generally seen that there is no explicit theory of PM (Shenhar A. , From Theory to Practice: Toward a Typology of Project Management Styles, 1998) (Turner J. , The handbook of project-based management: improving the processes for achieving strategic objectives, 1999).

However, and according to Turner (1993) the central point of PM is the scope management, which means, project must clearly define its requirements and objectives. The theory of project is provided by the transformation view on operations, where a project is conceptualized as a transformation of inputs to outputs (Koskela & Howell, 2002), and it has some operations principles such as: division of labor into tasks, minimization of costs, start dates and deadlines determined for tasks (PMI, 2013).

According to Turner (2009) the development of Project Management over time has generated a series of assumptions that governs it, and on which the projects are formulated, evaluated and implemented:

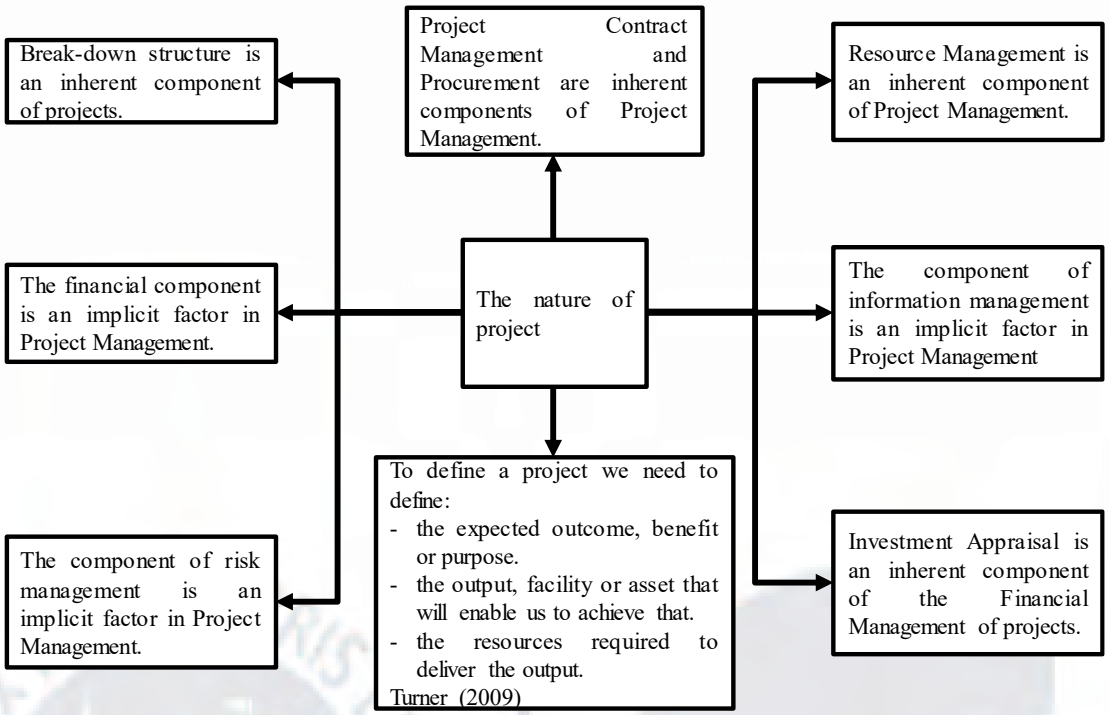


Figure 6. The nature of Project Management
Source: (Turner J. , The Handbook of Project-Based Management, 2009)

In the research made by Koskela & Howell (2002), they established the ingredients of a new theoretical foundation of Project Management, and the new model proposal was as follows:

Table 3. *Theoretical Foundation of Project Management*

Subject of theory		**Relevant Theories**
Project		Transformation
		Flow
		Value Generation
Management	Planning	Management-as-planning
		Management-as-organizing
	Execution	Classical communication theory
		Language/action perspective
	Control	Thermostat model
		Scientific experimentation model

Strategic Projects

The field of strategic planning has an extensive history that tries to explain how process is related to achieve management objectives.

Some of the projects carried out by the organization must respond to the strategic planning designed to achieve the strategic objectives. According to (Ursulescu & Popa, 2013) (Papke-Shields & Boyer-Wrigh, 2017) (PMI, 2013) the strategic plan designed by the organization is divided into strategic objectives, these in turn are incorporated into a portfolio of projects, and for its implementation, individual projects are managed, that is, strategy implemented through projects (Jebrin, 2013).

Strategic planning can be understood as the process through which the mission and vision of the organization is sought (Kerzner, 2001). The strategic planning area has an extensive development history, which includes the proposals of multiple models and theories that have tried to establish their relation with the management objectives (Papke-Shields & Boyer-Wrigh, 2017). According to (Johnson, Scholes, & Whittington, 2009) strategy is "the direction and scope of an organization over the long term, which achieves advantage in a changing environment through its configuration of resources and competences with the aim of fulfilling stakeholder expectations." (p.4). Strategy is about designing and driving the journey that the company must take while remaining profitable (Ramashala, Pretorius, & Steyn, 2016).

There is evidence of a link between strategy and business plans. Organizations must ensure that the right projects are initiated and that decisions are aligned to the strategy (Buttrick, 2000) (Phillips J. , 2010). The corporate strategy is summarized in a series of projects that are grouped and prioritized in portfolios, and finally taken to the project level (Archer & Ghasemzadeh, 1999). Project Management gains importance when strategies

are implemented in project-based organizations through selecting and performing the projects (Ansari, Shakeri, & Raddadi, 2015) (Srivannaboon & Milosevic, 2006). Some recent research shows that many organizations have absorbed this concept and try to implement their company's strategies through projects (Ansari, Shakeri, & Raddadi, 2015).

There is an evident relationship between the projects and the strategic planning which indicates that the projects must be the result of strategic planning processes carried out by the companies. "Projects are often initiated as part of a broader strategic planning process, thus the field of strategic planning would seem to be an appropriate source of ideas for planning and managing projects" (Papke-Shields & Boyer-Wrigh, 2017, pág. 170).

According to (Jebrin, 2013) strategy is implemented through projects. Every project should have a clear link to the organization strategy.

The strategic process begins with the establishment of opportunities and threats in the environment, in the same way as internal strengths and weaknesses, so that strategic objectives can be established. Looking forward to achieving objectives, the management formulates different strategic alternatives. Consequently, those projects that have the greatest impact on the fulfillment of the company's strategy should be selected.

Project Management System (PMS): Is the aggregation of the processes, tools, techniques, methodologies, resources, and procedures to manage a project (PMI, 2013, p. 555). According to (Cooke-Davies, Crawford, & Lechler, 2009) the design and implementation of a PMS could better meet the specific strategic requirements and that maximizes the value to the organization of projects implemented.

When an organization formulates and implements different types of projects, it must generate a structure that allows its proper implementation; "Projects are often

embedded in the context of *Project Management Systems*" (Cooke-Davies, Crawford, & Lechler, 2009, pág. 111)

Organizational Project Maturity Model: Provides a way for the achievement of strategic objectives of an organization through the application of best practices in projects (Project Management Institute, 2003).

The maturity models of Project Management are used by organizations to assess and establish routes for improvement based on the maturity level desired by organizations, according to their conditions and characteristics (Solarte & Sánchez, 2013). Moreover, projects became the way of implementing the company's strategy.

Maturity models identify strengths and weaknesses in the company in Project Management, these are integrated into the business strategy in order to identify concrete ways of improvement (Jugdev & Thomas, Project management maturity models: the silver bullets of competitive advantage?, 2002). The greater effectiveness and efficiency in the projects is achieved by organizations with higher levels of maturity, which in the long run brings as a consequence a competitive advantage (Cooke-Davies & Arzymanowc, 2003).

The models of maturity in projects aim to provide companies with a way to implement best practices in projects in order to achieve the objectives of the organization (PMI, 2003). Mention for the first time to the models of maturity in the Institute of Software Engineering at Carnegie Mellon University in the United States (SEI) in 1987 (Humphrey & Sweet, 1989).

Subsequently, researchers related to the PMI presented the design of a maturity model made by themselves, but focused on a Project Management perspective (Ibbs, Kwak, & Hoon, 2000).

Maturity model standard formulation may be applicable to organizations of different sizes, types and cultures, thus guiding companies to develop best practices in

Project Management; the field of maturity models is relatively new and offers a process-based framework for its implementation (Li, Bai, Feng, & Guo, 2010). Each project is unique and therefore some authors frame it as a temporary organization, with its own characteristics and factors, which is why maturity models allow "*to identify drivers of project results and set standards for excellence*" (Hu, Li, & Hu, 2012, pág. 1363).

Project maturity models are based on the idea of generating best practices in organizations to achieve the strategic objectives, so the maturity in the formulation and implementation of projects is achieved through best practices (PMI, 2003).

There are five levels of this type of excellence standards that organizations can achieve (Kerzner, 2001, p. 47).:

- Common Language
- Common Processes
- Singular Methodology
- Benchmarking
- Continuous Improvement

Project Portfolio Management:

The management of project portfolios has the function of planning and control of various projects aligned to the organizational strategy with limited resources, therefore, the work of managers is to prioritize these projects to achieve the greatest possible benefit (Cooper, Edgett, & Kleinschmidt, 1997) (Kaiser, Arbi, & Ahlemann, 2015). According (PMI, 2013) Project Portfolio Management was created in order to prioritize the allocation of resources and alignment with the strategy of the organization. However, to carry out the strategies designed, various projects are implemented, and in normal conditions exceeds the capacity of existing resources in the organization. This is why an adequate design of

projects and their subsequent prioritization through a portfolio of portfolios is a critical success factor (Engwall & Jerbran, 2003).

During the last decade, the administration of project portfolios has been the object of research and practical application in the organizations, which today has generated that its administration according to international standards (PMI, 2008). Project Portfolio Management has risen to prominence as a selecting and managing method for organization's projects

The strategic aspect of portfolio management has increased interest in research, and there is now an extensive literature on the connections between project portfolios and business strategies (Artto K. , 2001) (Morris & Jamieson, 2005).

With the development of standardization in project portfolios, organizations have adopted the framework that this discipline offers in factors such as project evaluation, decision criteria, control routines and the formalization of portfolios (Martinsuo & Poskela, 2011) (Müller, Martinsuo, & Blomquist, 2008) (Teller, Unger, Kock, & Gemünden, 2012).

The analysis of project portfolios integrates and reinforces the concepts of Project Management and strategic planning of the organization, since this discipline concludes that projects should be selected, prioritized and managed according to the strategy of the organization (Archer & Ghasemzadeh, 1999) (Artto & Dietrich, Strategic business management through multiple projects, 2004) (Artto, Dietrich, & Nurminen, Strategy implementation by projects, 2004) (Englund & Graham, 1999).

As in individually managed projects, project portfolios must be measured in their performance. The basic quantitative performance criteria are (turnover, profit, cost reduction, human resource efficiency, reduction in execution time, and quality) (Elton, Brown, Gruber, & Goetzmann, 2014).

A portfolio reflects investments made or planned by an organization, one of its main characteristics is that they are oriented with the organization's strategic goals and objectives (Ursulescu & Popa, 2013). Portfolio management focuses on the management of strategic projects in organizations. The purpose of managing project portfolios is to ensure that the resources available in the organization are allocated to projects that generate the greatest possible impact and that are aligned with the organization's objectives (PMI, 2013).

Project Management

According to several authors, a project is a temporary endeavor or unique process consisting of a set of coordinated and controlled activities undertaken to create a unique product, service, or result. Projects may be small or large, short term or long term, low risk or high risk, and involved financial, human and material resources (PMI, 2013) (Karten, 2016) (Cavalieri, 2000) (Turner J. , The handbook of project-based management: improving the processes for achieving strategic objectives, 1999).

The projects constitute the basis for development of a business. Through their formulation and implementation, organizations can achieve their strategic goals, so, it is vital for organizations to implement best practices in Project Management.

Traditionally a project is successful if it met three types of requirements, time, cost and scope (PMI, 2013). This integration is the triple constraint on projects or iron triangle.

However, with the advances that have occurred in Project Management, it has been established that a project consists in the integration of multiple factors:

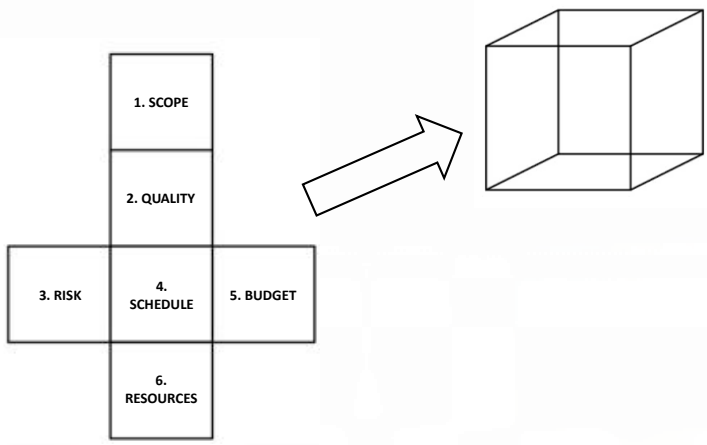


Figure 7. Structure of restrictions on projects

The constraints that are now analyzed in the projects should not be seen in isolation. Figure 9 shows a comprehensive way to analyze a project should be sought.

The Theory of project has the following assumptions (Koskela & Howell, 2002, pág. 3):

- Tasks are independent, except sequential relationships.
- Tasks are discrete and bounded.
- Uncertainty as to requirements and tasks is low.
- Requirements exist at the outset and it is decomposed along with work.

According to the above definitions, Project Management (PM) is the application of knowledge, skills, tools, and techniques to project activities seeking to meet project requirements, is the planning, monitoring and control of all aspects of a project (PMI, 2013) (Cavalieri, 2000).

Project Management is an increasingly important topic of discussion today because all organizations at one time or another, small or large, are continually involved in implementing a new business process, product, service, or other initiative (Richardson, 2015).

Project Management has been considered a proven method of mastering complex tasks that must be completed under demanding constraints, such as high time pressure, the

need to include specialists from different fields, and cooperation between different departments or companies, but this is not enough, an effective management of projects entails an adequate administration of risks and opportunities (Hillson, 2002) (PMI, 2013), additionally, Project management plays a role in every organization (private, public or non-profit) that cannot be substituted (Kostalova & Tetrevova, 2014).

Corporate Value

According to Integrated Reporting (2013) the value creation (VC) asks organizations to focus on factors; not just financial in the long term.

That is, the VC is the result of multiple interactions that occur inside and outside the organization. As stated by (Cranfield University) the factors that make the creation of value are: (a) Culture, (b) Physical infrastructure, (c) Finance, (d) intellectual property, (e) business Practices, and (f) Relationship with stakeholders,

Ippolito (2009) reinforces the above by establishing a number of additional components namely concept: (a) benefits received, (b) income, (c) understanding of the consumer, (d) ability to transfer and integrate knowledge, (e) value for associated company, (f) ability to generate relationships networks.

This implies that the corporate strategy is related to the creation of value. (Bowman & Ambrosini, 2007).

As argued by Morris (2013), Project Management should have among its objectives the creation of value to achieve the goals planned by the project sponsor and other organizations or areas concerned, that is, through an operating system that is in net result. Corporate value represents the quality of products and services, company performance, organizational behavior and corporate identity (Karadal, Celik, & Saygin, 2013), reflecting the growth of competitiveness level.

According to (León, 2003), a value creation system containing three dimensions, each with different processes to know:

1. Strategic Direction

    1.1 Adoption of strategic thinking

    1.2 Implementation of the strategy

2. Financial Management

    2.1 Definition and management of value indicators

    2.2 Identification and micro-management of value drivers

    2.3 Business valuation

    2.4 Monitoring value

3. Human Resource Management

    3.1 Education, training and communication

    3.2 Compensation tied to results associated with the value

According to (Marr, Schiuma, & Neely, 2004) business networking for value creation can be viewed as follows:

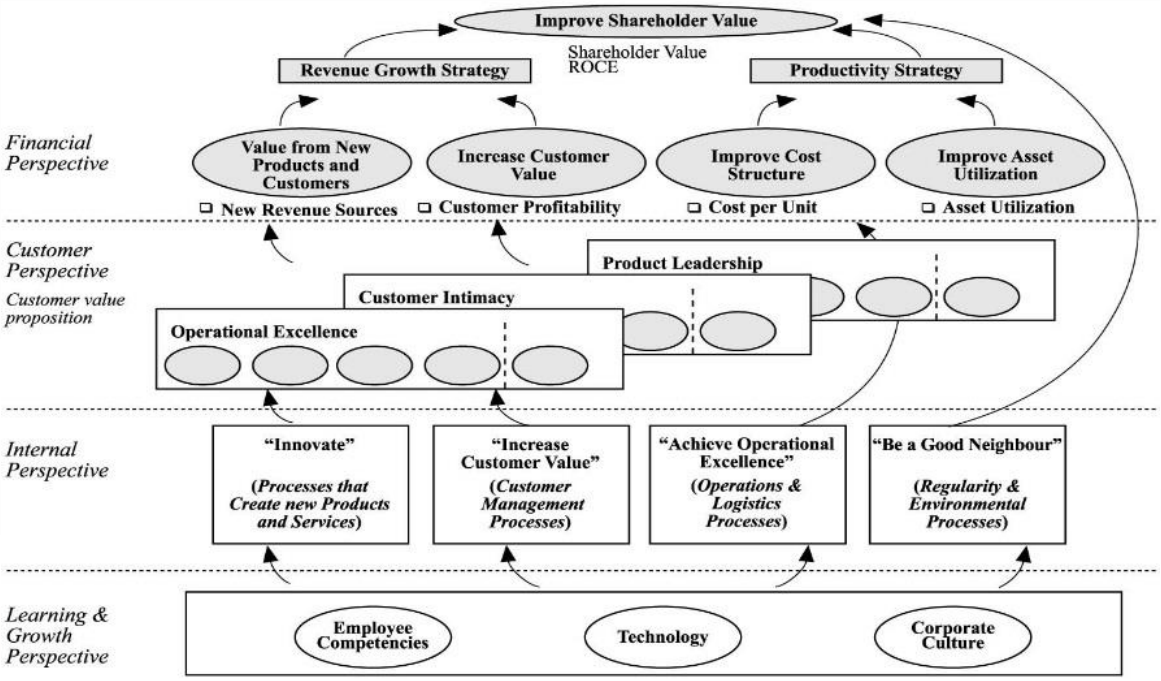


Figure 8. Business networking for value creation

Figure two shows the network in which value is generated in the organization incorporating an internal and external perspective to the company. The generation of value does not always imply higher profits, this generation is produced through innovation, improving cost structures, and improving the productive use of assets.

Similarly, it should be noted that the generation of value is not a static process in the short term, it should also be a comprehensive long-term process.

Traditional ways of measuring value in the company (generation of utility) should switch to a broader concept; therefore, project evaluation should also change its traditional financial analysis to a broader analysis of cost benefit.

Project performance

The purpose of measuring performance is to assist organizations in understanding how decision-making processes or practices have led to successes or failures in the past and how this understanding can be used to plan for future improvements and developments

(National Research (US) Committee for Oversight and Assessment of US Department of Energy Project Management, 2005).

The results traditionally expected in a project have time, cost and quality performance criteria (PMI, 2013) (Archibald, 2008) (Menches & Hanna, 2006). Nowadays, organizations carry out more structured projects in different fields producing several effects; these effects and changes involve a variety of dimensions and a several variables, qualitative and quantitative, that make their evaluation and management a complex, even though strategic, subject (Linzalone & Schuima, 2015).

According to (Philips, Bothell, & Snead, 2002), it is necessary to identify Business Impact and investment return from the Project Management Solution, and finally the evaluation timing. One of the output indicators of a project is the value creation, which measures the extent to which a project meets expected financial returns, satisfies users' and stakeholders' needs, and enhances promoters' reputation (Floricel, Michela, & Piperca, 2016).

In the paper of Linzalone (2015), due to research carried out, a list of 75 ways in which project evaluation can be considered is summarized as follows:

Table 4. *Project Evaluation Models*

Typology	Evaluation Model	Nature
Peer review (PR)	Direct PR, Modified direct PR, Ancillary PR, Traditional PR, Indirect PR, Pre-emptive PR	Qualitative
Case study CS	Prospective CS, Retrospective CS	Quali-quantitative
Technological forecasting	Scenario planning	Qualitative
	Cross-impact matrices (or inter-dependency matrices)	Quali-quantitative
	Morphological analysis	Qualitative
Financial methods	Internal rate of return, Net present Value, Payback period	Quantitative/financial
	Binomial option Pricing model	
	Trinomial option Pricing model	Quantitative
Economic-based methods	Cost-benefit/Cost-effectiveness analysis	Quantitative/financial
	Social accounting matrix	Quantitative
	Experimental economics data	Quantitative
	Instrumental variables	
	Computational methods	
	Structural econometrics	
	Contingent valuation	
Technological-based methods	Technology assessment, Technology dynamics, Technology forecasting	Ex-ante, quantitative
Narrative methods	Storytelling, Impact narratives, Most significant change	Qualitative
Ethnographic methods	Ethnographic evaluation	Qualitative
Behavioral methods	Outcome mapping	Qualitative
Scoring methods	Analytic hierarchy process, Earned value analysis/management, Program assessment rating tool, Key performance indicators	Quantitative
Scorecard methods	Balanced scorecard, Performance prism	Quali-quantitative
Bibliometric methods	Main science and technology indicators	Quantitative
Pathways analysis	Participatory impact pathways analysis	
	CPM/PERT	Qualitative
	Critical path method/program evaluation and review technique	Quantitative
Logic model/framework	Logical framework approach	Qualitative
	Kellogg's logic model	Quali-Quantitative
	CIPP evaluation framework	Qualitative
	Weaver's triangle	Qualitative
TQM approach	Malcom Baldridge Award/Model, European Foundation for Quality, Management excellence model	Quali-Quantitative
Strategic	SWOT analysis, Strategy map, Critical success factor	Qualitative
Breakdown/tree structures	Work breakdown structure	Qualitative
	Cost breakdown structure	Quantitative
	Problem tree analysis	Qualitative
Statistical	Six sigma	Quali-quantitative
Multicriteria analysis	Multicriteria decision analysis	Quantitative
Impact assessment	Environmental impact assessment	Quantitative
	Social impact assessment	Quali-quantitative

Similarly, authors like (Makarova & Sokolova, 2014) (Apostol, 2013) established that projects should be evaluated from a financial perspective establishing yields on investments.

According to (Center for business practices, 2005) the measures to determine the value of Project Management and the organizational success dimensions are:

Table 5. *Measures of Value on Project Management*

Financial measures	Return on investment (ROI); Return on Capital Employed; Economic Value-Added (EVA); Sales Growth % ; Sales Growth $; Productivity; Cost Savings; Earnings Per Share; Cash Flow Per Share; Return on common equity (ROE); Profit per employee	Customer measures	Customer Satisfaction index; Customer Retention rate; Customer Acquisition; Customer Profitability; Market Share; Customer Use; Corporate image; On time delivery
Project / process measures	Project Budget Performance; Project Schedule Performance ; Requirements Performance; Process Errors; Defects; Rework; Resource Utilization; Time to Market; Scope Changes; Project Completions; Business Strategy; Project Risk	Learning and growth measures	Employee Satisfaction; Employee Turnover; Training Time; Employee Productivity; Employee Motivation; Employee Empowerment; Information System Availability
Time	Cycle time; Response time for complaint; Equipment downtime; Overtime; Average delay time; Time to project completion; Processing time; Supervisory time; Training time; Meeting time; Repair time; Efficiency (time-based); Work stoppages; Order response time; Late reporting; Lost time days	Costs	Budget variances; Unit costs; Cost by account; Variable costs; Fixed costs; Overhead costs; Operating costs; Delay costs; Penalties/fines; Project cost savings; Accident costs; Program costs; Sales expense; Administrative costs; Average cost reduction
Quality	Scrap; Waste; Rejects; Error rates; Rework; Shortages	Quality	Product defects; Deviation from standard; Product failures; Inventory adjustments; Percentage of tasks completed properly; Number of accidents; Customer complaints

Source: (Center for business practices, 2005).

The measures of project performance have a wide variety of indicators; which use will depend on what the project manager or stakeholders intend to measure. The indicator used to evaluate should reflect the overall purpose of the project.

Projects in complex environments

Complexity in projects is a broad field of knowledge, in this field we study the interrelations of the different variables that make up a project. “The complexity of a system (physical, biological, sociological, etc.) makes it difficult and occasionally impossible to recognize, and fully understand all of its variables and all of the relationships among them” (Ramasesh & Browning, 2014, pág. 193).

Project Management is not a new concept, in the mid-50s Dupont technicians led by Kelley Walker engineers and technicians with the Remington Rand devised a system called CPM (Critical Path Method) (Noriega, 1984).

Subsequently, between 1960 and 1995, an important development in the area related to projects is generated (Themistocleous & Wearne , 2000), (Urli & Urli, 2000), (

Betts & Lansley, 1995) y (Kloppenborg & Opfer, 2000) indicate a continuing interest in the development of the following areas:

a. Contracts
b. Information management
c. Leadership
d. Monitoring and control
e. Planning
f. Purchase
g. Risks
h. Success criteria
i. Program management
j. Organization projects
k. Projects administration
l. Teamwork
m. Innovation

Additionally, since 1995 and until about 2000, according to (Zobel & Wearne, 2000), (Morris, Patel, & Wearne, Research into revising the APM project management body of knowledge, 2000) y (Morris P. , Researching the unanswered questions of project, 2000) new areas of interest and deeper developments in the following fields were developed:

- Competition
- Context and environment
- Financial administration
- Industrial relations
- Information management

- Leadership
- Legal criteria
- Lifecycles
- Monitoring and control
- Quality
- Risks
- Programming
- Time

However, Lynes, Cooper & Els (2001) expanded the definition that projects are fundamentally dynamic complex systems, this definition was extended in some way by (Svejvig & Andersen , 2013) stating that the project will not be seen as a system has various subsystems.

Moreover, and according to (Shenhar & Dvir, Reinventing Project Management: The Diamond Approach to Successful Growth and Innovation, 2007) (Sebaux, Clothier, & Parker, 2011) (Kapsali, 2013) the traditional approach to Project Management is not precise, they argue that this approach stresses predictability, which in turn places an overemphasis on planning, design and development, and is ineffective for managing projects which entail high levels of complexity and uncertainty and the classical drivers of Project Management are no longer sufficient in the current business environment.

Parallel to these concepts, a series of developments were presented with regard to the concept of complexity.

First, this issue was addressed in a comprehensive manner and over time the investigations were presenting a more structured network and directed toward complexity in Project Management, so as (Baccarini, The concept of project complexity a review,

1996) introduces the theme of complexity in identifying projects the importance of analysis and application as a means to ensure that projects are successful,

According to (Shenhar & Dvir, Toward a typological theory of project management , 1996), (Dvir, Lipovetsky, Shenhar, & Tishler, 1998) and (Williams T. , The need for new paradigms for complex projects, 1999) complemented the initial theory of complexity in projects with an additional variable called uncertainty, which in turn referred to the present and future of each system states elements, the way they interact and the impact of the interactions.

Through further research it is possible to determine what these complex systems linked to projects become dynamic systems, ie, it refers to the complexity caused by changes in the project components and their relationships (Ribbers & Schoo, 2002) y (Xia & Lee, 2005).

In the 2000s, a theoretical movement proposed that projects are targeted in diverse ways according to their nature, this indicates that each project has its own distinctive characteristics (Williams T. , Assessing and moving from the dominant project management discourse in the light of project overruns, 2005), (Dvir, Sadeh, & Malach-Pines, Projects and project managers: the relationship between project manager's personality, project, project types, and project success, 2006) y (Shenhar & Dvir, Reinventing Project Management: The Diamond Approach to Successful Growth and Innovation, 2007).

Ending the first decade of 2000, (Geraldi & Adlbrecht, On faith, fact and interaction in projects, 2007) and (Remington & Pollack, 2007) defined a new dimension further of the structure of these projects, this new area of knowledge, discussion and development was based on the socio-political analysis.

This type of dimension has an effect on a particular group of people known as stakeholders, given the implementation of a project due to issues such as language, discipline, culture, etc., this is reinforced and extended by (Winter, Smith, Morris, & Cicmil, 2006) (H.Th. & M.M. , 2014) who state that it is necessary to incorporate new areas of thought and social processes, value creation and professional development.

According to (Winter, Smith, Morris, & Cicmil, 2006) to propose the need to develop new models and theories that will expand existing knowledge on complex projects.

Additionally, in their article (Lu, Luo, Wang, Le , & Shi, Measurement model of project complexity for large-scale projects from task and organization perspective, 2015) a structure measurement in a project complexity is propose (see figure 9):

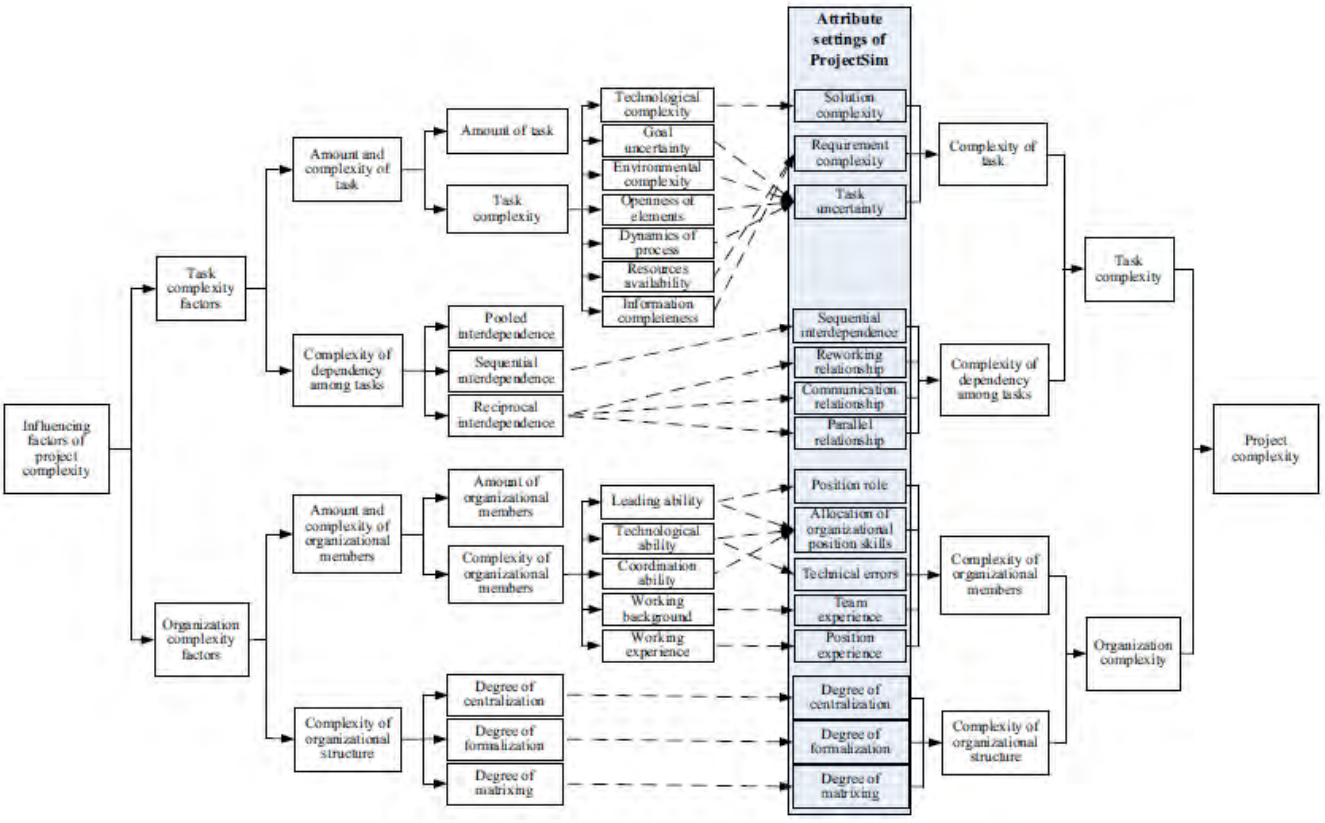


Figure 9. Framework for measurement of complex projects

Figure 9 shows a preliminary network of the structure of measurements in a project in complex environments, that is, a project not only must be evaluated with the traditional indicators as Net Present Value, Internal Rate of Return, or Benefit – Cost relation.

Also with the structural relationship between business strategy, portfolio management and Project Management within the complexity of systems and corporate value.

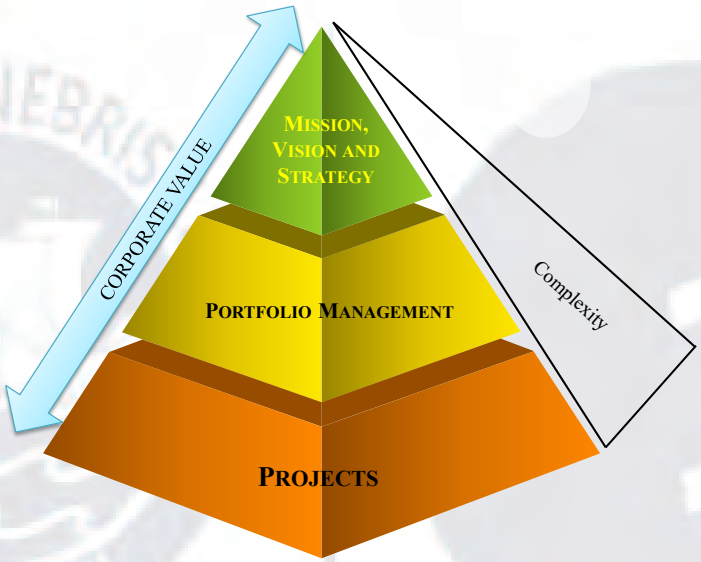


Figure 10. Structural relationship between business strategy, portfolio management and Project Management within complexity

Figure 10 shows the importance of the projects within the organization. Profitability is important, but the value creation and sustainability are aspects that must be incorporated into the organizational culture. The mission and vision are reached through the strategic plans, and in turn, these plans are operationalized with the formulation and execution of projects. In addition to generating corporate value, these projects are framed in environments of complexity, which implies that the implementation of a project may affect different areas in the organization. This means that traditional way of analyzing projects must change and include the impact in different areas of the organization, since

traditional indicators are not in a position to measure the effects of projects on stakeholders who do not seek to generate profits.

STAKEHOLDER THEORY

Since the birth of investment projects theory is a conceptual widespread practice of hope, only the implementation of a project will generate a pre-established levels of profitability; however this notion of utility projects has been transformed to be considered as important as the organizational strategy, this is because a strategic project has the potential to extend the life cycle of the company. (Lefley, 2004).

Traditional methodologies to analyze the suitability of an investment have been unable to consider and involve strategic benefits arising from the evaluation and implementation of an investment project (Lefley, 2004). Freeman (1984) is credited with the foundation and development of the stakeholders definition a person or group of people that can affect or be affected in the planning and execution of projects, this means that a stakeholder group may be in opposition to development activities.

In an investigation carried out by Ward & Chapman (2008), they designed a model to provide a structure for an approaches review to analyze stakeholders and related uncertainty management issues. Atkin & Skitmore (2008) appropriate management of stakeholders can result in the reduction of risks, and the reduction of negative actions by stakeholders towards projects.

This issue has taken a new path of analysis to the point that many organizations no longer have the fundamental concern capital management, systems or facilities; this type of management is based on projects maximizing income generation and generating benefits for stakeholders (Winter, Smith, Morris, & Cicmil, 2006).

Because the structures for projects must be aligned in most cases with the business strategy, organizations must create a project-management system that maximizes the value of the assets in use (Cooke-Davis , 2009).

That is to say, the organization should necessarily ensure strategic alignment between structure and projects, although this link and variables for the first decade of 2000 was not properly determined (Cooke-Davis , 2009).

This also is quoted by (Inganson & Jónasson, 2009) who state that Project Management increasingly focuses more on personal interactions and strategic alignment. These developments have advanced to the point of generating new alignment schemes that have been called project portfolios, which are precisely sought to align link the strategy of developing concrete actions (Turner, Anbari, & Bredillet, Perspectives on research in project management: the nine schools, 2013). According to (Patanakul, 2015), some attributes of a portfolio management should possess were identified: (a) Strategic Alignment, (b) internal and external adaptability, (c) the expected value of the portfolio, (d), project portfolio management is the manifestation of the strategy business (Marcelino-Sadaba, Gonzalez-Jaen, & Perez-Ezcurdia, 2015).

Project Management provided evidence of an improvement in tangible benefits, such as cost savings, increased returns, and a decreased need for rework, as well as evidence of intangible benefits, including improvement of organizational culture, increased effectiveness of human resource management, and improved management (Thomas & Mullaly, 2008).

The last paragraph states that projects not only provide return of investment, it can also cause impact in the organization, (Patah & Carvalho, 2007) indicated improvements in productivity, customer satisfaction, requirement management, and project steering, among others. Some literature suggest that stakeholder can have different perceptions of what

project success constitutes, both in terms of the importance of criteria and project performance (Dalcher & Drevin , 2003) (Turner J. , The Handbook of Project-Based Management, 2009).

According to (Thomas, Wong, & Wong, 2010) in their article there is evidence of the relation between project feasibility and stakeholder satisfaction, this research was carried out through a model of structural equations. Recently, (Pintardi, Artama, & Kaming, 2014) established in their research the relationship between the success of a project and various factors related to stakeholders.

Some stakeholder management methodologies developed over time can be summarized as follows:

Table 6. *Stakeholder Management Methodologies*

Methodology	Individual, group or organization	Comments
Definition of categories of stakeholders.	(Savage, Nix, Whitehead and Blair 1991) (Mitchell, Agle and Wood 1997)	Four generic types- supportive, mixed blessing, non-supportive, marginal. Eight-part stakeholder typology based on assessments of the strengths of three attributes: power, legitimacy and urgency.
Comprehensive stakeholder identification, assessment and engagement.	(Briner, Hastings and Geddes 1996)	Focus on communication as important part of stakeholder management.
Focus on enhancing economic value and organizational wealth as well as recording what stakeholders require from the project.	(Fletcher, Guthrie, Steane, Roos and Pike 2003) (Frooman 1999)	A process for mapping stakeholder expectations based on value hierarchies and Key Performance Areas (KP A). An analysis of ways organizations can plan their stakeholder management
Stakeholder Circle® visualization tool and methodology.	(Bourne 2008)	Continual process for identification, prioritization, engagement strategy for developing long-term relationships.

Source: (Bourne L. , Stakeholder Relationship management. A maturity model for organisational implementation, 2009)

Summary

Project Management has submitted a development from 1950. Initially it was considered an operational area, however, with the investigations carried it could be established that Project Management is the area of organizational development.

Traditionally, it has been thought that a project was successful and fulfilled the requirements of cost, time, and scope. However, it has been discovered that more variables are involved in its implementation as quality, risk, corporate image, etc.

It is necessary to analyze the different impacts that occur in the organization when a project is implemented, as these can cause lower performance than expected and may cause a negative impact on generating shareholder value, and additionally, these impacts occur in various levels in some areas of the company.

Conclusion

Although the financial evaluation of projects is a traditional methodology that guides the investor in determining the selection of the best alternatives to generate profitability, it is necessary to perform additional analyzes to really establish the impact of varied factors on diverse levels and in different areas of the organization.

With the completion of this review, it has been established that there is not enough to only analyze the cost, scope, and time on a project.

A study of financial evaluation of projects does not guarantee the creation of value for investors, it is necessary to conduct an analysis of organizational impact.

Projects should be analyzed from the perspective of complexity, (ie, the interrelation of variables, investment, number of activities, times, etc.). Since there is

evidence that any project has a certain level of complexity, what is important is to establish the level of complexity and its implications at the level of a project development.

Chapter 3: Method

With the conceptual framework defined, this chapter establishes the research methodology, which follows a descriptive quantitative approach. The study population are Higher Education Universities.

"Choosing an appropriate research design is crucially important to the success of your project" (Bordens & Abbott, 2011).

According to Bordens and Abbot (2011), scientific studies focus on two major activities. The first one is the exploratory data collection and analysis; in which, the variables and their relationships are identified.

The second activity is the hypothesis testing, which consists of evaluating potential explanations for the observed relationships.

This chapter describes the design of this research, the appropriateness of such design, the research questions, the target population, the sample size, and explains the construction and validation of the measuring instrument.

Research Design

Projects have different stakeholders, who have interests and demands that must be analyzed and managed to ensure the project implementation success (Cleland, 1986; Diallo & Thuillier, 2005; Olander & Landin, 2005).

The scientific approach of this research is deductive, which means that the factors related to project performance and the structure of stakeholders are analyzed from a quantitative approach.

The quantitative research that characterizes this study is based on the models proposed by Pintardi, Artama & Kaming (2014), Samee & Pongpeng (2015), Monteiro de Carvalho & Rabechini (2015), and Pintardi (2015).

The literature review allowed us to identify the existence of mathematical models that include the variables to be addressed in this research such as project performance, stakeholder influence, and complexity.

This research will use the survey as an instrument to measure and obtain the information to analyze the variables associated with the stakeholders and their relation to projects performance.

Therefore, this study analyzes the following relationships: between indirect internal stakeholder (extent, engagement and empowerment) and the performance of internal strategic projects; and the moderating effect of project complexity in both.

Given this background and according to the questions and proposed research objectives, this study followed a non-experimental methodology as the research seeks to estimate the effects of the phenomenon, the effects are not modified, only selected and observed, its orientation is towards the past (Murillo, 2016).

The theoretical perspective is the Positivism, which is associated with quantitative studies and numerically examines the relationships between variables. This paradigm has an approach for quantitative measures, deductive approximation, and formulate and test the hypotheses (Gray, 2004).

The nature of this study is descriptive because the purpose is to provide a picture of a phenomenon as it naturally occurs, that is, to explain while providing additional information about a topic (Gray, 2004, pág. 32).

Appropriates of design

In quantitative studies, the theory is deductively used and is the basis in the development of this proposal. With the objective of testing and verifying a theory rather than developing it, the researcher goes deeper and analyzes the available theory, collection

of data in order to prove them statistically, and carry out analysis of results (Creswell, 2009). The variable can be measured using statistical procedures.

Additionally, in quantitative research, it is important to test the theories to answer the research questions; such tested theories form historical precedents.

As this research uses a quantitative approach, it is important to bear in mind different concepts and methodologies of different authors, for instance (PMI, 2013) (Bower & Finegan, 2009) establish traditional and new quantitative measurements of project called earned value theory and phase earned value analysis, (Thomas, Wong, & Wong, 2010) perform a quantitative measurement through structural equations. Later, Linzalone & Schuima (2015) finds that there are about 18 methods of quantitative assessments on projects through financial methods, economic-based methods, technological-based methods, scoring methods, pathways analysis, breakdown / tree structures, statistical, multicriteria analysis and impact assessment.

As for this study, a statistical model called Structural Equitation Modeling (SEM) is used.

SEM allows to test a theory that contains multiple equations involving interrelated dependence relationships among the measured variables and the latent constructs (Ghofar & Islam, 2015). Therefore, the use of SEM in this study is appropriate, since there are multiple latent and observed variables that make up the proposed model.

According to Schumacker & Lomax (2016), there are four main reasons to use SEM:

- "SEM permits relations amongst multiple variables to be modeled and statistically tested"
- "Structural equation modeling techniques explicitly take measurement error into account when statistically analyzing data. SEM analysis includes latent

and observed variables with their associated measurement error terms in the many different SEM models"

- Ability to analyze advanced models
- Increase in the use of friendly software for SEM modeling. (p. 6).

Consequently, following the philosophy of the research the applied strategy was the survey and a questionnaire as a method to collect information. The study time horizon is cross-sectional because it examined the phenomena at a particular period in the time.

Research questions

1. What is the relationship between indirect internal stakeholders' extent and the performance of internal strategic projects?
2. What is the relationship between indirect internal stakeholder's engagement and the performance of internal strategic projects?
3. What is the relationship between indirect internal stakeholder's empowerment and the performance of internal strategic projects?
4. What is the influence of project complexity in the relation between indirect internal stakeholders and the performance of internal strategic projects?

Hypotheses

Hypotheses H1 to H4 are formulated building on past research and empirical findings about the relationship between the different components of internal stakeholders (extent, engagement, and empowerment), and the performance of internal strategic projects (Pintardi, Artama, & Kaming, 2014; Nguyen, Skitmore, & Wai, 2009; Ayuso, Rodríguez, García, & Ariño, 2014; Rowlinson & Cheung, 2008; Monteiro de Carvalho & Rabechini, 2015). According to (Nguyen, Skitmore, & Wai, 2009), stakeholder extent helps the project manager determine the type and extent of attention needed for each stakeholder; in the research carried out by these authors, they established that there is

significant correlation between the extent of the direct stakeholders and the projects. Similarly, this variable was analysed by (Pintardi, Artama, & Kaming, 2014). Their research established in the same way that there is a significant relationship between direct stakeholder extent and project performance.

Direct stakeholder engagement was analysed by Ayuso, Rodríguez, García, & Ariño (2014). This variable deals with development and sustenance of relationships among stakeholders; in this research, stakeholder engagement had a significant and positive effect on Return on Equity (ROE). Similarly, Rowlinson & Cheung, 2008 showed that an approach based on engagement and management is instrumental in aligning participants and their perspectives on project success (Rowlinson & Cheung, 2008).

Stakeholder empowerment was analysed by (Morgan & Rowlinson, 2009). In this research, empowerment was defined as the reaching of a successful relationship in the management process, which negotiates the needs of stakeholders into tangible outcomes. It concluded that stakeholder empowerment not only has direct and positive performance consequences but also indirect effects mediated by intrinsic motivation, opportunity to perform and ability to perform, this shows that the relationship between empowerment and performance is more complex than previously thought. Kerzner, 2009 suggested that the definition of project success be modified to include completion within the allocated time period, within the budgeted cost, at the proper performance or specification level accepted by customer, with minimum or mutually-agreed-upon scope of changes, without disturbing the main workflow of the organization, and without changing the corporate culture (Kerzner, 2009). According to (Toor & Ogunlana, 2010; Takim & Akintoye, 2002) the traditional way to determine the success of a project is to look at

fulfilment of the expected times, a planned budget, and the quantification of stakeholder expectations that must be met.

Shenhar and Dvir have performed research using the contingency approach in the area of Project Management. They classified project types into two dimensions: technological uncertainty and system scope. In their subsequent studies, the authors created other dimensions until they came up with a significant model called Diamond, which includes four dimensions: novelty, complexity, technology, and stage (Shendar & Dvir, 2007). The dimension of complexity had been considered significant by authors in the area of product development (e.g., Wheelwright & Clark, 1992). Subsequently, some research has shown that complexity in a project influences its performance (e.g., Cleland & Ireland, 2002; Schwalbe, 2007; Crawford, Hobbs, & Turner, 2004). Accordingly, and based on the evidence found in the literature, this research proposed the following hypotheses, relating indirect stakeholders to project performance:

a. The extent of indirect internal stakeholders affects project performance (H1).
b. Indirect internal stakeholders' engagement affects project performance (H2).
c. Indirect internal stakeholders' empowerment affects project performance (H3).
d. Project complexity moderates the relation between indirect internal stakeholders and the project performance (H4).

Population

The target population of this research consists of Higher Education Universities located in the city of Bogotá. The unit of analysis is the worker (indirect stakeholder) as internal managers, support staff, accounts department, secretariat, and senior management.

The types of organizations to be studied are Universities located in Bogotá publics and privates.

This research is confined to Higher Education Universities because it is a strategic sector of the Colombian society, for the government and for the economy.

In Bogotá, there are 52 Universities registered and actives, these universities are divided into two large groups, public and private universities.

The selection of the population to study was based on the statistics provided by the Ministerio de Educación Nacional.

Informed Consent

The Participation in interviews or surveys will be voluntary and confidential. Every participant in the study will be requested to previously read the following information: "In CENTRUM we are conducting a research on consumer choice of mobile services in the country. We appreciate your cooperation by responding to a brief anonymous questionnaire. It contains very simple questions. It is not a test of knowledge. There are no right or wrong answers. Do you accept to work with us? "

Participants will be informed about these conditions before responding the questionnaire. Participants may agree or disagree but in anyway, they can accept or reject to participate in this study.

Sampling frame

The sampling procedure followed in this proposal is as follows:

1. Determination of population size: 52 public and private universities located in the city of Bogotá.
2. Determination of the sample size: Probabilistic stratified sampling resulting in a sample of 38 Universities. This sample is representative of the population, and

if SIX surveys of workers are carried out by university, a sufficient amount of data will be obtained for the model of structural equations.

The universe is divided into two groups, so a stratified sampling will be performed, and a sample will be chosen from each group.

The protocol used to calculate the sample size is as follows:

1. To establish the strata in which the population is divided.
2. To establish the sample size of each of the identified strata through unrestricted random sampling.
3. To compare the sample sizes obtained with what the literature suggests in case of SEM models.

"A randomized stratified sample is obtained by separating elements of the population into groups that do not show overlaps, called strata, and the subsequent selection of a single random unrestricted sample of each stratum" (Scheaffer & Mendenhall, 1986, pág. 78).

Some of the reasons why this kind of sampling is proposed are described by (Scheaffer & Mendenhall, 1986):

1. Stratification can generate smaller limits for estimation errors.
2. The cost in the survey can be reduced.
3. Population parameter estimates can be obtained by population subgroups who must then be identifiable strata.

The following table summarizes the number of companies that exist according to their size and the sample for each stratum with a confidence level of 95%, and maximum error of 10%:

Table 7. *Type and Number of Universities in Bogota*

TYPE OF UNIVERSITY	QUANTITY	SAMPLE SIZE WITH RANDOM SAMPLING WITH 95% CONFIDENCE LEVEL	EMPLOYEES TO BE TAKEN BY UNIVERSITY
Private Universities	43	30	6
Public Universities	9	8	6
TOTAL	52	38	228

Finally, an analysis of the literature is performed to establish the appropriate sample size in structural equation models, according to Wang & Wang (2012), there is no consensus in the literature regarding what would be the appropriate sample size for SEM. However, there is evidence in the literature that has established that an N = 100-150 is considered the minimum size to perform an SEM study (Anderson & Gerbing, 1988) (Ding, Velicer, & Harlow, 1995) (Tabachnick & Fidell, 2001).

According to Nicolaou & Masoner (2013), for four latent variables, the sample size is approximately 200, which validates the sample size established in table number five.

Confidentiality

All companies surveyed remain anonymous, each survey will be properly encoded and stored in a database with their respective data backup.

Geographic Location

This research will be developed in Colombia, specifically in the city of Bogotá.

Instrument

In order to achieve the purpose of this study data collection will be done through surveys, a structured questionnaire, and information obtained will come from apparel companies included in the sample.

It is important to take into account that universities are heterogeneous with respect to each other, in terms of infrastructure.

This research is based on three theoretical components, performance of internal strategic projects as dependent variable, stakeholder extent, engagement and empowerment as independent variable, and complexity in projects as a moderator variable.

The instrument for Performance of internal strategic projects was adapted from (Pintardi, Artama, & Kaming, Model of Stakeholder Influence on Project Success: Finding from Construction Project in East Java, 2014), in this instrument the indicator variables are: a) Time, b) Cost, c) Quality, and d) Personnel satisfaction.

The instrument for Stakeholder extent was adapted from (Nguyen, Skitmore, & Wai, 2009), in this instrument the indicator variables are: a) urgency. b) Proximity. c) Knowledge and d) Attitude.

The instrument for Stakeholder engagement was adapted from (Ayuso, Rodríguez, García, & Ariño, 2014), in this instrument the indicator variables are: a) Employee. c) Scope and c) Process.

The instrument for Stakeholder empowerment was adapted from (Rowlinson & Cheung, 2008), in this instrument the indicator variables are: a) intrinsic motivation. c) Opportunity to perform, c) ability to perform, d) task behavior, and d) Contextual behavior. The instrument for Project Complexity was adapted from (Monteiro de Carvalho & Rabechini, 2015) as a moderating variable.

Data Collection

The method of collecting information is probabilistic and stratified random sampling, surveys sent by mail to internal managers, support staff, accounts department, and senior management not directly responsible for the projects. The reason why these types of workers are chosen is because they are expected to have an integral vision of both the company and the projects that have been implemented, thus increasing the level of reliability of the research.

For this investigation, only active universities will be taken into account.

Data Analysis

Data analysis will be done through a structural equation model (SEM) with the SPSS AMOS application, as these models are focused on the estimation and validation of statistical relationships between latent variables or constructs (Chión & Charles, 2016).

The model of structural equations that represents the objective and research question is the following:

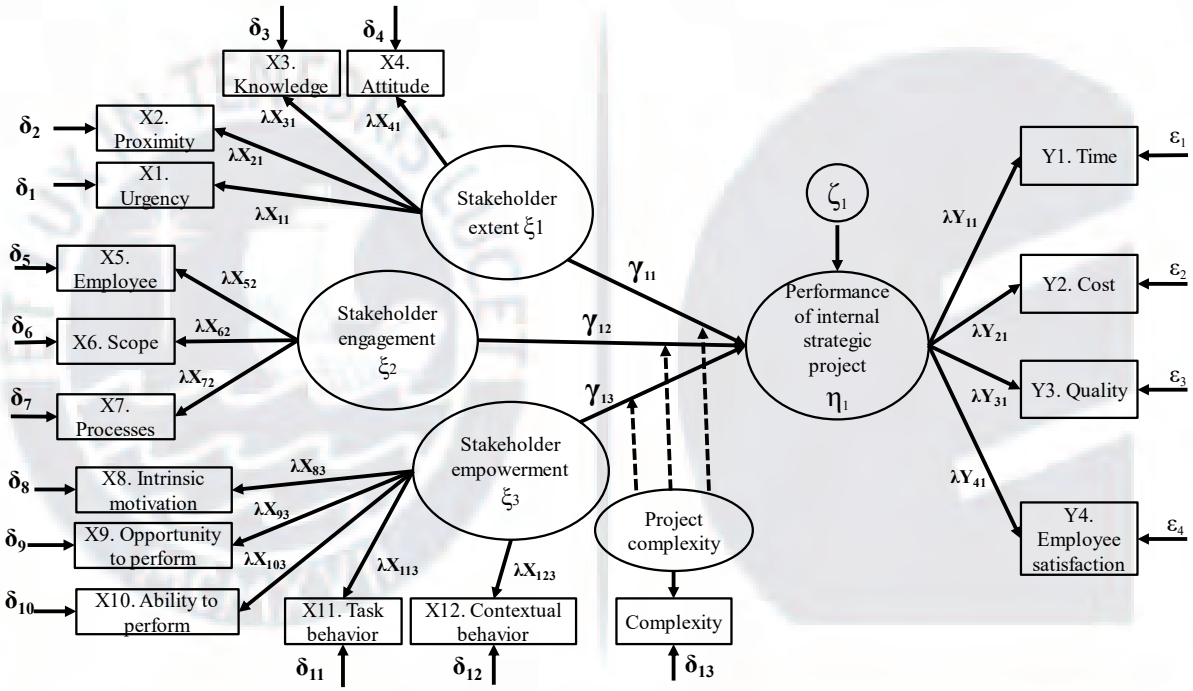


Figure 11. Structural equation model proposed. Elaborated by the author.

Indicator variables:

$$\text{X1: Urgency.}\ \lambda X_{11}\ \xi_1 + \delta_1 \qquad (1)$$

$$\text{X2: Proximity.}\ \lambda X_{21}\ \xi_1 + \delta_2 \qquad (2)$$

$$\text{X3: Knowledge.}\ \lambda X_{31}\ \xi_1 + \delta_3 \qquad (3)$$

$$\text{X4: Attitude.}\ \lambda X_{41}\ \xi_1 + \delta_4 \qquad (4)$$

$$\text{X5: Employee.}\ \lambda X_{52}\ \xi_2 + \delta_5 \qquad (5)$$

X6: Scope. $\lambda X_{62}\ \xi_2 + \delta_6$ (6)

X7: Processes. $\lambda X_{72}\ \xi_2 + \delta_7$ (7)

X8: Intrinsic motivation. $\lambda X_{83}\ \xi_3 + \delta_8$ (8)

X9: Opportunity to perform. $\lambda X_{93}\ \xi_3 + \delta_9$ (9)

X10: Ability to perform. $\lambda X_{10-3}\ \xi_3 + \delta_{10}$ (10)

X11: Task behavior. $\lambda X_{11-3}\ \xi_3 + \delta_{11}$ (11)

X12: Contextual behavior. $\lambda X_{12-3}\ \xi_3 + \delta_{12}$ (12)

Y1: Time. $\lambda Y_{11}\ \eta_1 + \varepsilon_1$ (13)

Y2: Cost. $\lambda Y_{21}\ \eta_1 + \varepsilon_2$ (14)

Y3: Quality. $\lambda Y_{31}\ \eta_1 + \varepsilon_3$ (15)

Y4: Employee satisfaction. $\lambda Y_{41}\ \eta_1 + \varepsilon_4$ (16)

Moderator Variable: Project Complexity.

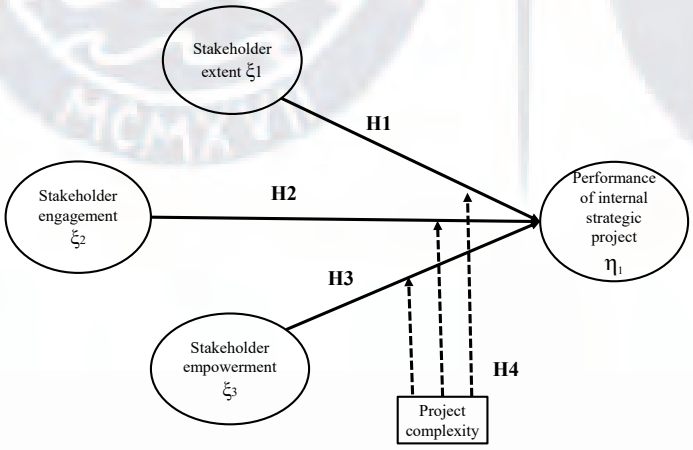


Figure 12. *Structural equation model proposed with hypotheses*

Figure 12 illustrates the proposed structural model, in which 4 latent variables were established, and a moderating variable. Likewise, the hypotheses to be tested are illustrated.

The definitions of these aspects of stakeholder units are based on the aforementioned literature as follows:

Performance of internal strategic projects was adapted from (Pintardi, Artama, & Kaming, 2014). Stakeholder extent was adapted from (Nguyen, Skitmore, & Wai, 2009). Stakeholder engagement was adapted from (Ayuso, Rodríguez, García, & Ariño, 2014). Stakeholder empowerment was adapted from (Rowlinson & Cheung, 2008), and Project Complexity was adapted from (Monteiro de Carvalho & Rabechini, 2015). Project complexity was evaluated through documented analysis, according to (Monteiro de Carvalho & Rabechini, 2015).This led to four categories, A (low) through D (super high).

Validity and Reliability

In this investigation, it has been defined that the instrument of information collection, will receive a previous treatment that will consist of Panel of Experts. The panel of experts is a methodology that allows establishing the validity of the instrument by means of experts in the area that establishes the evaluation instrument (Urrutia, Barrios, Gutiérrez , & Mayorga, 2014).

Validity has been defined by Gregory (1992) as:

> "the extent to which [a test] measures what it claims to measure. A measure is valid if it measures what it is supposed to measure, and does so cleanly without accidentally including other factors. In order to be valid, the inferences made from scores need to be "appropriate, meaningful, and useful" (Gregory, 1992, p. 118).

Effective validity studies not only demand the integration of multiple sources of evidence, but must also continually take place over time (Thanasegaran, 2005).

There are three major types of validity: content, construct and criterion validity. As described in the following table:

Table 8. *Types of Validity*

Type of validity	Description
Content validity	The extent to which a research instrument accurately measures all aspects of a construct
Construct validity	The extent to which a research instrument (or tool) measures the intended construct
Criterion validity	The extent to which a research instrument is related to other instruments that measure the same variables

Heale & Twycross (2015)

According to (Hair, Black, Babin , & Anderson, 2014, pág. 618) construct validity is "the extent to which a set of measured items actually reflects the theoretical latent construct those items are designed to measure". Construct validity is made up of four components:

1. Convergent validity.
    a. Factor loadings: For a high convergent validity, high loadings on a factor would indicate that they converge on a common point, the latent construct.
    b. Variance extracted (AVE): The AVE is the mean variance extracted for the items loading in a construct and is a summary indicator of convergence. This value is calculated as follows:

$$\mathrm{AVE} = \frac{\sum_{i=1}^{n} L_i^2}{n}$$

Li represents the standardized factor loading.

    c. Reliability: The construct reliability (CR) value is often used in conjunction with SEM models. The rule for either reliability estimate is that 0.7 or higher suggest good reliability (Hair, Black, Babin , & Anderson, 2014). The construct for CR is as follows:

$$\mathrm{CR} = \frac{(\sum_{i=1}^{n} L_i)^2}{(\sum_{i=1}^{n} L_i)^2 + (\sum_{i=1}^{n} e_i)}$$

2. Discriminant validity (DV): is the extent to which a construct is truly distinct from other constructs. A high DV provides evidence that a construct is exclusive.
3. Nomological validity: "Nomological validity is then tested by examining whether the correlations among the constructs in a measurement theory make sense. The matrix of construct correlations can be useful in this assessment"
4. Face validity: "Extent to which the content of the items is consistent with the construct definition, based solely on the researcher's judgment"

According to (Hair, Black, Babin , & Anderson, 2014, pág. 621) the standard output produced by SEM models include the Standardized Residuals; the better the fit, the smaller are the residuals. "The standardized residuals are simply the raw residuals divided by the standard error of the residual."

SEM models output provides modification indices (MI), a MI "is calculated for every possible relationship that is not estimated in a model" (Hair, Black, Babin , & Anderson, 2014, pág. 621), MI of 4.0 or greater suggest that the fit could be improve. However, making model changes based solely on modification indices is not recommended; "doing so would be inconsistent with the theoretical basis of CFA and SEM in general".

According to (Hair , Sarstedt, Ringle , & Mena, 2012) when applying models of structural equations (SEM), the validity of the model is checked through:

a. Convergent validity (CV): It is a subcategory of construct validity. CV tests that constructs that are expected to be related are, in fact, related. This type of validity is measured by the Average Variance Extracted (AVE) $\geq 0{,}5$.
b. Discriminant validity (DV): Tests that constructs that should have no relationship do, in fact, not have any relationship. This type of validity is

measured by the Fornell-Larcker criterion; the recommendation is that "Each construct's AVE should be higher than its squared correlation with any other construct".

Reliability is the degree to which measures are free from error and therefore yield consistent results (Lakshmi & Akbar Mohideen, 2013, p. 2753). If a measurement device or procedure consistently assigns the same score to individuals or objects with equal values, the instrument is considered reliable (Lakshmi & Akbar Mohideen, 2013). Reliability involves the consistency, or reproducibility, of test scores (Thanasegaran, 2005). More important to understand is that reliability estimates are a function of the test scores yielded from an instrument, not the test itself (Thompson, 1999). Two dimensions underlie the concept of reliability: repeatability (or stability over time) and internal consistency (or homogeneity of the measure) (Zikmund, 2003). Internal consistency, or homogeneity, may be measured by using either the split-half method, alternate-form method, or Cronbach's alpha method. The most common method of assessing internal consistency reliability estimates is with coefficient alpha. Although there are three different measures of coefficient alpha, the most widely used measure is Cronbach's coefficient alpha.

For SEM models, the reliability can be measured through:

a. Indicator reliability: Standardized indicator loadings ≥0.70.
b. Internal consistency reliability: Way to gauge how well a test or survey is actually measuring what you want it to measure. Composite reliability ≥0.70.
c. Score reliability: "degree to which scores in a particular sample are free from random measurement error" (Kline, 2011, pág. 69). The way to estimate this indicator is one minus the proportion of the total variance observed due to random error. If this indicator approaches to zero it indicates that the data is

increasingly approaching random numbers, and a random number does not measure anything.

d. Cronbach´s Alpha (CA): This statistic measures internal consistency reliability the degree to which responses are consistent across the items within a measure. "Cronbach's alpha is the most common measure of internal consistency reliability" (Hair , Sarstedt, Ringle , & Mena, 2012). CA ≥ 0,7.

Summary

This chapter summarizes the main methodological criteria to ensure proper development and data analysis in this research. This research follows a positivist paradigm; the advisability of conducting a quantitative study was identified. A research strategy in a cross-sectional is proposed. The statistical technique to be used to test the model will be Structural Equation Modeling (SEM), which explains the relationship between indirect stakeholder and the performance of strategic projects in clothing companies.

The population consists of professionals, technologists or workers of clothing companies with low level of influence in projects, but with different levels of interest.

To end, the research will apply a survey to 244 firms in Bogotá. Finally, the chapter addresses the main components of validity and reliability that must be taken into consideration.

Chapter 4: Results

This chapter contains the presentation of the results of the analysis of the data gathered for the study whose purpose was to test the influence of indirect internal stakeholders in strategic internal projects performance in universities public and private located in the city of Bogotá. The main objective was understanding the influence of indirect internal stakeholders in the performance of internal strategic projects in universities. This chapter is structured in the following order: (a) data collection, (b) Measures, (c) analytical techniques, (d) measure development, (e) hypothesis testing.

Data collection

The target population of this research consists of Higher Education Universities located in the city of Bogotá. The types of organizations to be studied are Universities located in Bogotá publics and privates. This research is confined to Higher Education Universities because it is a strategic sector of the Colombian society, for the government and for the economy. In Bogotá, there are 52 Universities registered and actives, these universities are divided into two large groups, public and privates' universities. The selection of the population to study was based on the statistics provided by the Ministerio de Educación Nacional.

Probabilistic stratified sampling was used to select respondents in 38 universities. The target population of this research consists of Higher Education Universities located in the city of Bogotá. This research is confined to Higher Education Universities because it is a strategic sector of the Colombian society, for the government and for the economy. In Bogotá, there are 52 Universities registered and actives, these universities are divided into two large groups, public and private universities.

The unit of analysis is the worker (indirect stakeholder) such as internal managers, support staff, accounts department, secretariat, senior management, and

recognized scholars. The types of organizations to be studied are public and private universities located in Bogotá. An initial 850 surveys were sent out electronically and after continuous follow-ups and courteous reminders, a total number of 356 responses were obtained, the ratio of valid versus collected questionnaires was 41.8%. This response rate was deemed acceptable considering that there is evidence in the literature establishing that a sample between 100 and 150 respondents is the minimum for performing a Structural Equation Modelling study (Anderson & Gerbing, 1988) (Ding, Velicer, & Harlow, 1995) (Tabachnick & Fidell, 2001).

Institutional information related to projects and employees was collected in the questionnaires: type of institution, the institution has a project office, and the positions of the employees.

Table 8 shows that 60.4% of the questionnaires were carried out in private universities, and 39.3% in public universities.

Table 9. *Type of Institution*

Type of institution					
		Frequency	Percentage	Valid percentage	Accumulated percentage
VALID	Private	215	60,4	60,4	60,7
	Public	140	39,3	39,3	100,0
	TOTAL	356	100,0	100,0	

Table 9 shows that in total 80.3% of the employees surveyed do not know or report that the university does not have a project office.

Table 10. *Project Office in the Universities*

Does the University have a project office?					
		Frequency	Percentage	Valid percentage	Accumulated percentage
VALID	YES	70	19,7	19,7	19,7
	NO	146	41,0	41,0	60,7
	DOES NOT KNOW	140	39,3	39,3	100,0
	TOTAL	356	100,0	100,0	

Figure 12 shows the percentage of employees with their corresponding positions that answered the questionnaires, in this figure it can be shown that professors and assistants answered 90% of the questionnaires.

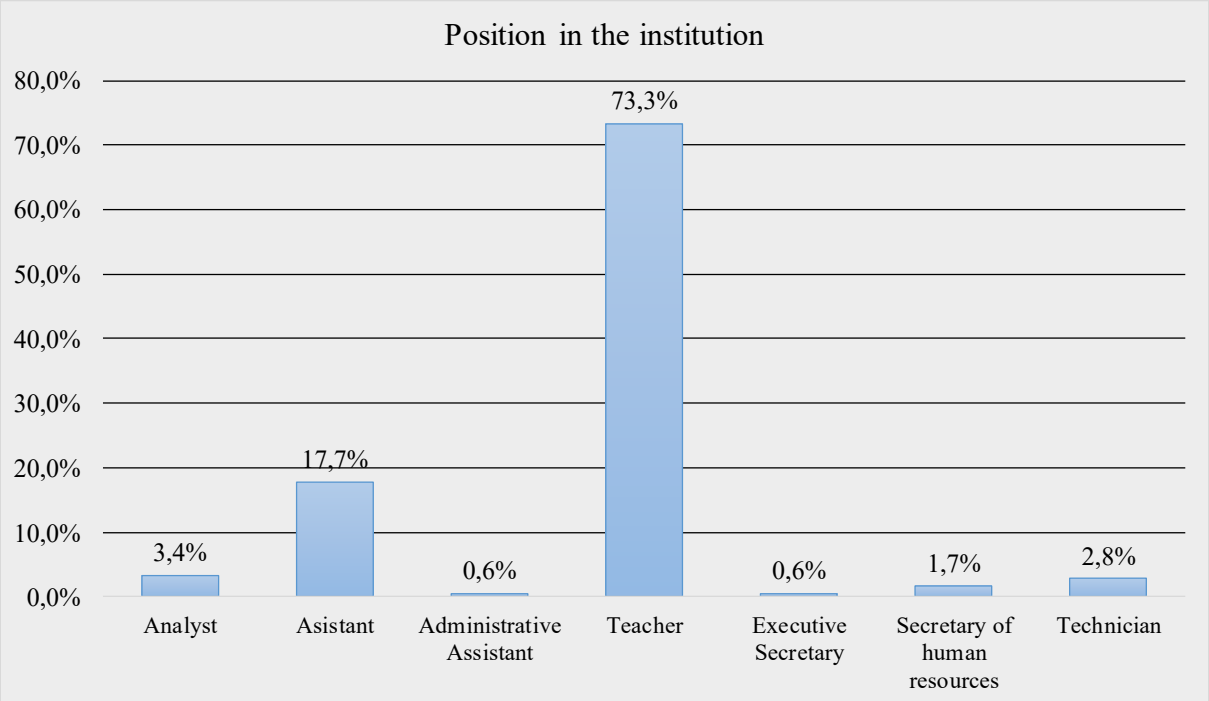


Figure 13. Position of the employees surveyed

Missing data

As stated by Hair et al. (2010) is a primary concern of the researcher to "identify the patterns and relationships underlying the missing 101 data in order to maintain as close as possible the original distribution of values when a remedy is applied" (p.42).

Although the questionnaire is expected to be accurate and complete, missing values are presented on several occasions, so the set of data collected was evaluated to identify missing data that could impact the proposed model. According to (Byrne, 2016) the analysis of missing data is one of the assumptions to perform SEM.

Measures

The survey instrument developed had four parts: the first was designed to collect general information of the person surveyed, the second comprised 15 items about the variables stakeholder engagement, extent and empowerment, the third contained a question related to complexity in projects, and finally the fourth part consisted of four elements related to project performance. The validation of the questionnaire was carried out through an expert panel; this methodology allows establishing the validity of the instrument by means of experts in the area that establishes the evaluation instrument (Urrutia, Barrios, Gutiérrez , & Mayorga, 2014). In a complementary manner, the Cronbach's Alpha coefficients were determined obtaining the following results: $\boldsymbol{\eta_1 = 0.81, \xi_1 = 0.79, \xi_2 = 0.82, \xi_3 = 0.83}$

Based on previous research, suitable measures were identified where theoretical and empirical support was evident for each construct as discussed in the literature review section. The questionnaire was adapted from past research by (Pintardi, Artama, & Kaming, 2014) (Nguyen, Skitmore, & Wai, 2009) (Ayuso, Rodríguez, García, & Ariño, 2014) (Rowlinson & Cheung, 2008) (Monteiro de Carvalho & Rabechini, 2015). All items were measured along a five-point Likert-type scale, ranging from “mostly disagree” = (1) to “mostly agree” = (5), where respondents were required to indicate the extent of their agreement with each statement.

Analytical techniques

Data were analysed using the primary path modelling tool SEM (Structural Equation Modelling) with the SPSS AMOS application, as these models are focused on the estimation and validation of statistical relationships between latent variables or constructs (Chión & Charles, 2016). In this research paper, the model consists of three exogenous variables, one endogenous variables, and one moderator variable. The assumptions required to perform SEM were validated through the SPSS, and establishing a sufficiently large sample (Byrne, 2016).

Measure development

Performance of internal strategic project (η_1) is the dependent variable in the model that measures the influence between Stakeholder extent (ξ_1), Stakeholder engagement (ξ_2), and Stakeholder empowerment (ξ_3).

The observable variables associated with Stakeholder extent are Urgency (X1), Proximity (X2), Knowledge (X3), and Attitude (X4). The observable variables associated with Stakeholder engagement are Employee (X5), Scope (X6), and Processes (X7). The observable variables associated with Stakeholder empowerment are Intrinsic motivation (X8), Opportunity to perform (X9), Ability to perform (X10), Task behaviour (X11), and Contextual behaviour (X12).

Finally, Performance of internal strategic project (η_1) has the following associated variables: Time (Y1), Cost (Y2), Quality (Y3), and Employee Satisfaction (Y4).

Hypothesis testing

The examination of the Conceptual Framework was conducted with the use of the "SEM Technique" (Hair, Andreson, Tatham, & Black, 1995). The estimation of the structural model was conducted with the maximum likelihood estimation method, which is the most widespread method of estimation (Kelloway, 1998). The tested hypothesized

model consisted of 4 latent variables, 17 indicators, 17 measurement errors associated with variables and indicators, and a residual variable linked to the dependent (Fig. 4). The model was evaluated by statistical means to determine the adequacy of its goodness-of-fit.

In the first run of the measurement, the structural model was chosen to test the hypothesized model accordingly to theory; oriented from previous studies by (Pintardi, Artama, & Kaming, 2014) (Nguyen, Skitmore, & Wai, 2009) (Ayuso, Rodríguez, García, & Ariño, 2014) (Rowlinson & Cheung, 2008) (Monteiro de Carvalho & Rabechini, 2015). Table five shows the indicators that establish the goodness of fit of the hypothesized model indicated a poor fit; however, in this model the moderating variable had not yet been included. The results of this first run indicated that the Root Mean Square Residual (RMSEA = 0.178) was greater than 0.08, indicates a poor fit for the model (Byrne, 2016). In the Tucker-Lewis Index (TLI = 0.57), this indicator should be close to one (Jöreskog & Sörbom, 1998); in the Comparative Fit Index (CFI = 0.631), this indicator ranges from zero to one, with higher values indicating a better fit (Hu & Bentler, 1999); in the χ^2/Degrees of Freedom Index (CMIN/DF = 12.21), this indicator must be ≤ 5. In the Normed Fit Index (NFI = 0.61), a value > .90 is typically considered representative of a well-fitting model (Bentler, 1992).

Table 11. *Parameter Estimates of the Initial Model*

Relationship			Estimate	S.E.	C.R.	P
Performance of internal strategic project (η1)	←	Stakeholder extent (ξ1)	0,597	0,178	3,354	***
Performance of internal strategic project (η1)	←	Stakeholder engagement (ξ2)	0,04	0,057	0,7018	0,487
Performance of internal strategic project (η1)	←	Stakeholder empowerment (ξ3)	0,528	0,047	11,234	***

Note: *** Significant level

Table 12. *Goodness-of-fit statistics model in the first run*

Fit Index	Recommended Value (Hair et al. 2012)	Results of the model
RMSEA	≤ 0,08	0,178
TLI	≥0,8	0,57
CFI	≥0,9	0,631
CMIN/DF	≤ 5	12,21
NFI	≥0,9	0,613

Second run of the model with moderator variable

In the second run of the model the moderator variable was included. The parameter estimates are shown in Table 7, and the goodness-of-fit is shown in Table 8, by means of the parameters established in the previous section. In this model in which the moderator variable is included, a poor adjustment can be seen in the following results: RMSEA = 0.142; TLI = 0.537; CFI = 0.595; CMIN/DF = 8.11; NFI = 0.566.

Table 13. *Parameter Estimates with Moderator Variable*

Relationship			Estimate	S.E.	C.R.	P
Performance of internal strategic project (η1)	←	Stakeholder extent (ξ1)	0,166	0,038	40,325	***
Performance of internal strategic project (η1)	←	Stakeholder engagement (ξ2)	0,066	0,039	1,662	0,097
Performance of internal strategic project (η1)	←	Stakeholder empowerment (ξ3)	0,595	0,07	8,503	***
Project complexity	→	Stakeholder empowerment (ξ3)	0,222	0,06	3,701	***
Project complexity	→	Stakeholder extent (ξ1)	0,115	0,058	1,980	0,048
Project complexity	→	Stakeholder engagement (ξ2)	0,098	0,064	1,536	0,124

Table 14. *Goodness-of-fit Statistics Model in the Second Run*

Fit Index	Recommended Value (Hair et al. 2012)	Results of the model
RMSEA	≤ 0,08	0,142
TLI	≥0,8	0,537
CFI	≥0,9	0,595
CMIN/DF	≤ 5	8,11
NFI	≥0,9	0,566

Modification indices

Structural equation modelling provides a unique approach to variance and measurement error interdependence, following methodological guidelines of structural equation modelling from (Byrne, 2016). It uses goodness-of-fit statistics and the modification indices for each parameter, which were computed by SEM. The covariance

within measurement errors was estimated in the model; Table 9 shows the modification indices.

Table 15. *Modification Indices*

COVARIANCES			M.I.	Par Change
Stakeholder extent	<-->	Stakeholder Empowerment	59,017	0,515
e14	<-->	e15	30,803	0,287
e13	<-->	e14	13,199	0,205
e6	<-->	e8	13,483	0,174
e6	<-->	e7	15,122	0,203
e5	<-->	e8	29,887	-0,275
e4	<-->	e5	22,944	-0,135
e1	<-->	e3	17,086	-0,105
e1	<-->	e2	67,959	0,239

The model with eight additional parameters was included in the originally designed model. The incorporation of the error covariance between the elements produced an improvement in the adjusted model that is reflected in the goodness and adjustment statistics (Table 10). Accordingly, the RMSEA decreased from 0.142 to 0.068. RMSEA is recognized as one of the most informative criteria in the evaluation of model fit, and the RMSEA value of 0.068 indicates a good fit (Schreiber, Nora, Stage, Barlow, & King, 2010). The other goodness-of-fit indices also improved. Based on all these indicators as well as on goodness-of-fit statistics, the theoretical model was considered valid.

Table 16. *Adjusted Model: Parameter Estimates*

Relationship			Estimate	S.E.	C.R.	P
Performance of internal strategic project (η1)	←	Stakeholder extent (ξ1)	0,203	0,071	2,875	0,004
Performance of internal strategic project (η1)	←	Stakeholder engagement (ξ2)	0,065	0,042	1,535	0,125
Performance of internal strategic project (η1)	←	Stakeholder empowerment (ξ3)	0,596	0,083	7,217	***
Project complexity	→	Stakeholder empowerment (ξ3)	0,147	0,096	1,532	0,126
Project complexity	→	Stakeholder extent (ξ1)	0,358	0,088	4,055	***
Project complexity	→	Stakeholder engagement (ξ2)	0,145	0,072	2,007	0,045

Note: *** Significant level

Table 17. *Goodness-of-fit Indices in the Adjusted Model*

Fit Index	Recommended Value (Hair et al. 2012)	Results of the model
$\chi 2/df$	<3	2,07
RMSEA	≤ 0,08	0,068
TLI	≥0,8	0,893
CFI	≥0,9	0,928
CMIN/DF	≤ 5	2,63
NFI	≥0,9	0,891

Based on the results, Stakeholder empowerment (ξ_3) is the strongest predictor of Performance of internal strategic project (η_1) with $\beta = 0.596$, p = *** (significant). Performance of internal strategic project (η_1) is positively influenced by Stakeholder extent (ξ_1) $\beta = 0.203$, $p = 0.004$ (significant). Although Performance of internal strategic project (η_1) is positively influenced by Stakeholder engagement (ξ_2) $\beta = 0.065$, $p = 0.125$ (not significant), this influence is low and is not significant for the model. The standardized root men square residual (SRMR) was 0,065; according to (Byrne, 2016) this value should be < 0.10. Chi-square/df value of our test was 2,07, according to (Hair, Sarstedt, Pieper, & Ringle, 2012) the recommended value for this index is ≤3.The Omega coefficient was used as internal consistency index (Dunn, Baguley, & Brunsden, 2014) (Green & Yang, 2009) (Zhang & Yuan, 2015), the result of this index for the model was 0.81.

Furthermore, testing moderation was derived from the interaction effect of the moderating variable on latent variables. The following test results presented moderation. SEM analysis resulted in interaction coefficient of $\beta = 0.358$ and p-value of *** (significant), which indicates that Project Complexity is a moderator between Stakeholder extent ($\xi 1$) and Performance of internal strategic project ($\eta 1$). Because the direct and interaction effects are significant on the Performance of internal strategic project ($\eta 1$), the variable of Complexity is a quasi-moderator.

SEM analysis results obtained an interaction coefficient of $\beta = 0.145$ and p-value of 0.045 (significant). This indicates that Project Complexity is a moderator between Stakeholder engagement and Performance of internal strategic project. Because the direct effect of Stakeholder engagement (ξ_2) on the Performance of internal strategic project (η_1) is not significant, the complexity variable is a pure moderator.

SEM analysis results obtained an interaction coefficient of $\beta = 0.147$ and p-value of 0.126 (not significant), which indicates that Project Complexity is not a moderator

between Stakeholder empowerment and Performance of internal strategic project. Because the direct effect of Stakeholder empowerment (ξ_3) on the Performance of internal strategic project (η_1) is / is not significant, the complexity variable is a pure/quasi-moderator

Chapter 5: Conclusions and recommendations

Conclusions

Each relation was analyzed by both, theoretical construction and empirical research findings. The results of this research have theoretical implications that contribute to the existing literature on indirect stakeholders' influence on the performance of strategic projects in some components:

First, the results contribute to explicating and highlighting the role of indirect stakeholders in the performance of internal strategic projects. The literature review established that organizational strategy must be fulfilled through projects, and that at the same time the projects constitute the means of sustainability for the organization. Therefore, understanding the factors that have an effect on the performance of the projects is essential. Second, it was established in this research that stakeholder extent and empowerment have a significant relationship to the performance of internal strategic projects, while Stakeholder engagement does not. Finally, stakeholder empowerment also has a significant relationship to the performance of internal strategic projects. The last conclusion involves the moderating effect of complexity; accordingly, complexity has no significant moderating effect between stakeholder empowerment and performance of the internal strategic project, but does have a significant moderating effect between both stakeholder extent and stakeholder engagement, and performance of the internal strategic project.

Third, the results allow inferring that the degree of influence of indirect stakeholders in the performance of projects in the universities analyzed is significant, therefore, the top management of universities and project managers must properly manage this type of stakeholders. Stakeholder engagement processes do not significantly influence the performance of strategic projects in the universities, therefore, it is not necessary to ensure a constant participation of the indirect stakeholders in the projects in order to guarantee their success. The results of the research also allow us to infer that indirect stakeholders who feel that their work and opinions are taken into account have a high, positive, and significant influence on the performance of internal strategic projects.

Fourth, cultural factors typical of universities in Bogotá such as high turnover of workers can affect the processes directed towards the variable Stakeholder Engagement, since this type of variable requires long-term processes. Similarly, this variable implies having a consolidated group of projects, the lack or low number of project management offices (PMOs) in the universities analyzed may negatively infer the result. Similarly, and in accordance with the theory, the complexity in projects moderates the relationship between project performance and the variables Extent and Engagement, which leads to infer that the level of complexity of internal strategic projects in universities It affects both the internal stakeholders and the performance of projects. A final aspect that may influence the results is the lack of knowledge that some indirect stakeholders may have of the field of project management, therefore, the understanding of the importance of projects in the sustainability of universities may be limited.

These findings offer several insights into Project Performance and Stakeholder Theory by identifying new factors that must be addressed in order to ensure proper performance. The performance of the projects carried out by the universities was related to some aspects of those projects' indirect stakeholders, and the level of complexity of

the project influenced this relationship. Accordingly, it is necessary for the project manager to carry out an analysis of this type of stakeholder in order to ensure the future performance of the project. Hence, project managers should bear in mind that focusing on direct stakeholders is not the only critical success factor for the formulation and implementation of a project; they need to take indirect stakeholders into account as well. Additionally, empirical results highlight the significance of stakeholder management in project implementation. The present study has, therefore, shown the value of using Structural Equation Modelling to determine the effects of indirect stakeholders on the performance of internal strategic projects in complex environments. Future studies could consider other economic sectors with high impact in the country, so that project managers in different organizations can analyse indirect stakeholders in strategic projects being implemented.

Implications

From an academic perspective, the study of the stakeholders is a critical success factor in the implementation of projects, in the same way, there is a wide range of stakeholders associated with the projects, and each of them has a different level of influence (Ward & Chapman, 2008).

Within the previously mentioned range, there are indirect stakeholders, these form a field of knowledge with little research development, therefore, it is necessary to establish if they are a critical success factor, and the degree of influence they have within the projects. The generation of new knowledge will help project managers when carrying out planning and project execution processes in order to ensure their success.

From an institutional perspective, it is necessary for Universities to keep all their employees informed about the progress made in the area of projects, such as if the

organization has a project office, since lack of knowledge in these aspects can cause a false perception of employees.

From a business management perspective, projects form the basis of implementation of the business strategy, which at the same time ensures the sustainability of the companies, therefore, the study of influence of the indirect stakeholders is essential in order to guarantee that the objectives of the projects are satisfactorily achieved.

Recommendations

This research had the purpose of providing empirical evidence of the influence of internal stakeholders in the performance of internal strategic projects, but as argued Ogbonna and Harris (2000), in most social sciences the results of a study arises additional questions, sometimes because of the limitations of the research. This research was performed in Bogotá - Colombia focused on Universities, and therefore, is not possible to generalize its results for large organizations as well. Future research could include Universities in other regions to continue seeking strong empirical evidence of the influence. It is necessary, in future studies to further evaluate cultural factors specific to the regions, and factors of organizational culture in order to establish their influence on possible models.

It is possible to infer that there are many other factors that affects performance in internal strategic projects in Universities as training, legal regulations, level of studies of the employees, and status of the university, among other else.

This research provided empirical evidence that highlight the moderator role of complexity in the performance in strategic projects. As Lee & Y-H (2011) stated, there are multiple stakeholders with complex interrelationships in complex and uncertain project environments, which can lead to conflicts that affect its success. Similarly, Zhu &

Mostafavi (2017) and Kardes, ozturk, and Cavusgil (2013) stated that performance of a project is related to the environment of complexity in which it develops.

References

Betts , M., & Lansley, P. (1995). International Journal of Project Management: a review of the first ten years. *International Journal of Project Management*, 207-217.

Menches, C., & Hanna, A. (2006). Quantitative Measurement of Successful Performance from the Project Manager's Perspective. *JOURNAL OF CONSTRUCTION ENGINEERING AND MANAGEMENT*, 1284-1293.

Aaltoen, K. (2010). Project stakeholder analysis as an environmental interpretation process. *International Journal of Project Management*, 1-19.

Aaltoen, K. (2011). Project stakeholder analysis as an environmental interpretation process. *International Journal of Project Management*, 165-183.

Aaltonen, K., & Kujala, K. (2016). Towards an improved understanding of project stakeholder landscapes. *International Journal of Project Management*, 1537-1552.

Aaltonen, K., Jaakko, K., & Tuomas, O. (2008). Stakeholder salience in global projects. *International journal of project management*, 509-516.

Alsudiri, T., Al-Karaghouli, W., & Eldabi, T. (2013). Alignment of large project management process to business strategy. *Journal of Enterprise Information*, 596-615.

Anderson , J., & Gerbing, D. (1988). Structural equation modeling in practice: A review and recommended two step approach. *Psychological Bulletin*, 411-423.

Ansari, R., Shakeri, E., & Raddadi, A. (2015). Framework for Aligning Project Management with Organizational Strategies. *Journal Management Engineering*, 501-508.

Apostol, L. (2013). LIMITS ON THE EVALUATION METHODS OF INVESTMENT PROJECTS. *LUCRĂRI ŞTIINŢIFICE*, 131-136.

Archer, N., & Ghasemzadeh, F. (1999). An integrated framework for project portfolio selection. *International Journal of Project Management*, 207-216.

Archibald, R. (2008). *Project management. La gestione di progetti e programmi complessi.* Italia: FrandoAngeli.

Artto, K. (2001). Management of project-oriented organization—conceptual analysis. En K. Artto, *Project portfolio management: strategic management through projects* (págs. 5-22). Project management Association.

Artto, K., & Dietrich, P. (2004). Strategic business management through multiple projects. En K. Artto, & P. Dietrich, *Strategic business management through multiple projects* (págs. 144-176). USA: Wiley.

Artto, K., Dietrich, P., & Nurminen, M. (2004). Strategy implementation by projects. En D. Slevin, D. Cleland, & J. Pinto, *Innovations: Project Management Research* (págs. 103-122). Pennsylvania: PMI.

Assudani, R., & Kloppenborg, T. (2010). Managing stakeholders for project management success: an emergent model of stakeholders. . *Journal of General Management*, 67-80.

Atkin, B., & Skitmore, M. (2008). Stakeholder management in construction. *Construction Management and Economics* , 549-552.

Ayuso, S., Rodríguez, M., García, R., & Ariño, M. (2014). Maximizing Stakeholders' Interests: An Empirical Analysis of the Stakeholder Approach to Corporate Governance. *Business & Society*, 414-439.

Baccarini, D. (1996). The concept of project complexity a review. *International Journal of Project Management*, 201-204.

Bakker, R. (2010). Taking stock of temporary organizational forms: a systematic review and research agenda. *International Journal of Management Reviews*, 466-486.

Bannerman, P. (2008). Defining project success: a multilevel framework. *Proceedings of the PMI research conference*, 1-14.

Beringer, C., Jonas , D., & Kock, A. (2013). Behavior of internal stakeholders in project portfolio management and its impact on success. *International Journal of Project Management*, 830-846.

Berman, S., Wicks, A., Kotha, S., & Jones, T. (1999). Does stakeholder orientation matter? The relationship between stakeholder management models and firm financial performance. *Academy of Management Journal*, 488-506.

Blichfeldt, B., & Eskerod, P. (2008). Project portfolio management: There's more to it than what management enacts. *International Journal of Project Management*, 357-365.

Bordens, k., & Abbott, B. (2011). *Research design and methods.* New York: McGrawHill.

Bosse, D., Phillips, R., & Harrison, J. (2009). Stakeholders, reciprocity and firm performance. *Strategic Management Journal*, 447-456.

Bourne, L. (2006). Project relationship and the stakeholder circle. *PMI research conference*, (pág. 17). Australia.

Bourne, L. (2009). *Stakeholder Relationship management. A maturity model for organisational implementation.* England: GOWER.

Bourne, L., & Walker, D. (2005). Visualising and mapping stakeholder influence. *Managing decisions*, 649-660.

Bower, D., & Finegan, A. (2009). New approaches in project performance evaluation techniques . *International Journal of Managing Projects in Business*, 435-444.

Bowman, C., & Ambrosini, V. (2007). Firm value creation and levels of strategy. *Management decision*, 360-371.

British Standard. (2000). *British Standard Project management Part 2: Vocabulary.* BS.

Business dictionary. (s.f.). Recuperado el 17 de 6 de 2015, de http://www.businessdictionary.com/definition/corporate-values.html

Buttrick, R. (2000). *Project Workout: Reap Rewards from All Your Business Projects.* London: Pearsons Education.

Cao, Q., & Hoffman, J. (2011). A case study approach for developing a project performance evaluation system. *International Journal of Project Management*, 155-164.

Cavalieri, G. (2000). *British Standard.* BSI.

Center for business practices. (2005). *Measures of project management performance and value.* CBP.

Chan, A., & Chan, A. (2004). Key performance indicators for measuring construction success. *Benchmarking: An International Journal*, 203-221.

Chión , S., & Charles, V. (2016). *Analítica de datos para la modelación estructural.* Lima: Pearson.

Choi, J., & Wang , H. (2009). Stakeholder relations and the persistence of corporate financial performance. *Strategic Management Journal*, 895-907.

Cicmil, S., & Hodgson, D. (2006). New possibilities for project management theory: a critical engagement. *Project management journal*, 111-122.

Cicmil, S., Williams, T., Thomas, J., & Hodgson, D. (2006). Rethinking project management: researching the actuality of projects. *Journal of project management*, 675-686.

Cleland, D., & Ireland, L. (2002). *Project Management, strategic design and implementation.* New York: McGraw Hill.

Cooke-Davies, T., & Arzymanowc, A. (2003). The maturity of project management in different industries: An investigation into variations between project management models. *International Journal of Project Management*, 50-58.

Cooke-Davies, T., Crawford, L., & Lechler, T. (2009). Project Management Systems:Moving Project Management From an Operational to a Strategic Discipline. *Project Management Journal*, 14.

Cooke-Davis , T. (2009). Project management systems: Moving project management from an operational to a strategic discipline. *Project Management Journal*, 110-123.

Cooper, R., Edgett, S., & Kleinschmidt, E. (1997). Portfolio management in new product development: lessons from the leaders I. *Research Technology management*, 16-28.

Cranfield University. (s.f.). *Understanding corporate value: managing and reporting intellectual capital.* Chartered Institute of Management Accountants.

Creswell, J. (2009). *Research Design.* Los Angeles: SAGE.

Dainty, A., Cheng, M.-i., & Moore, D. (2003). Redefining performance measures for construction project managers: an empirical evaluation. *Construction Management and Economics*, 209-218.

Dalcher, D., & Drevin , L. (2003). Learning from information systems failures by using narrative and antenarrative methods. *The Proceedings of the 2003 Annual Research Conference of the South African Institute of Computer Scientists and Information Technologists on Enablement Through Technology.* South Africa.

Departamento Nacional de Planeación. (2015). *Plan Nacional de Desarrollo 2014 - 2018.* Bogotá: DNP.

Ding, L., Velicer, W., & Harlow, L. (1995). Effects of estimation methods, number of indicators per factor, and improper solutions on structural equation modeling fit indices. *Structural Equation Modeling*, 119-144.

Donaldson, T., & Preston, L. (1995). The stakeholder theory of the corporation: concepts, evidence, and implications. *Academy of management review*, 65-91.

Dvir, D., Lipovetsky, S., Shenhar, A., & Tishler, A. (1998). In search of project classification: a non-universal approach to project success factors. *Research Policy*, 915-935.

Dvir, D., Sadeh, A., & Malach-Pines, A. (2006). Projects and project managers: the relationship between project manager's personality, project, project types, and project success. *Project Management Journal*, 36-48.

Elton, E., Brown, S., Gruber, M., & Goetzmann, W. (2014). *Modern portfolio theory and investment analysis.* USA: Wiley.

Englund, R., & Graham, R. (1999). From experience: Linking projects to strategy. *Journal of Product Innovation Management*, 52-64.

Engwall, M., & Jerbran, A. (2003). The resource allocation syndrome: the prime challenge of multi-project management? *International Journal of Project Management*, 403-409.

Felix, P., Quelhas, O., Shimoda , E., & Franca, S. (2014). Critical Success Factors in Project Management: An Exploratory Study of an Energy Company in Brazil . *Global Journal of Management and Business Research: A Administration and Management*, 38-50.

Floricel, S., Michela, J., & Piperca, S. (2016). Complexity, uncertainty-reduction strategies, and project performance. *International Journal of Project Management*, 1360-1383.

Freeman, R., Harrison, J., Wicks, A., Parmar, B., & De Colle, S. (2010). *Stakeholder theory: The state of the art.* Cambridge: University Press.

Geraldi, J., & Adlbrecht, G. (2007). On faith, fact and interaction in projects. *Project management journal*, 32-43.

Geraldi, J., & Adlbrecht, G. (2007). On faith, fact and interaction in projects. *Project Managemento Journal*, 32-43.

Ghofar, A., & Islam, S. (2015). *Corporate Governance and Contingency Theory.* New York: Springer.

Gray, D. (2004). *Doing research in the real world.* London: SAGE.

Gregory, R. (1992). *Psychological Testing: History, Principles and Applications.* Boson: Allyn and Bacon.

H.Th. , I., & M.M. , S. (2014). Mapping the Future for Project Management as a Discipline - for more focused Research Efforts.

Hair , J., Sarstedt, M., Ringle , C., & Mena, J. (2012). An assessment of the use of partial least squares structural equation modeling in marketing research. *Journal of academic marketing*, 414-433.

Hair, J., Black, W., Babin , B., & Anderson, R. (2014). *Multivariate data analysis.* London: Pearson.

Harrison , J., & Wicks, A. (2013). Stakeholder Theory, Value, and Firm Performance. *Business Ethics Quarterly*, 97-124.

Hass, K. (2009). *Managing complex projects a new model.* United states of america: Management Concepts.

Hillman, A., & Keim, G. (2001). Shareholder value, stakeholder management, and social issues: What's the bottom line? *Strategic Management Journal*, 125-139.

Hillson, D. (2002). *What is risk? Towards a common definition.* UK: Institute Risk Management.

Hu, W., Li, D., & Hu, R. (2012). Three-dimensional Complex Construction Project Management Maturity Model: Case Study of 2010 Shanghai Expo. *Applied Mechanics and Materials*, 1363-1369.

Humphrey, W., & Sweet, W. (1989). *A method for assessing the software engineering capability of contractors.* USA: SEI Technical Report (SEI-87-TR-23).

Ibbs, C., Kwak, W., & Hoon, Y. (2000). Assessing project management maturity. *Project Management Journal*, 31-43.

Ika, L. (2009). Project success as a topic in project management journals. *Project Management Journal*, 6-19.

Inganson, H., & Jónasson, H. (2009). Contemporary Knowledge and Skill Requirements in Project Management. *Project Management Journal*, 11.

Jamali, D. (2008). A stakeholder approach to corporate social responsibility: a fresh perspective into theory and practice. *Journal of Business Ethics*, 213-231.

Jebrin, A. (2013). Integration between Project Management and Strategic Approach Theoretical. *International Journal of Advances in Management and Economics*, 145-153.

Johnson, G., Scholes, K., & Whittington, R. (2009). *Fundamentals of strategy.* New York: Prentice Hall.

Johnson, N., Creasy, T., & Fan, Y. (2015). Ffiteen years of theory in project management: a review. *International Journal of Construction Project Management* , 153-166.

Jugdev, K., & Müller, R. (2005). A retrospective look at our evolving understanding of project success. *Project Management Journal*, 19-31.

Jugdev, K., & Thomas, J. (2002). Project management maturity models: the silver bullets of competitive advantage? *Project Management Journal*, 4-14.

Jugdev, K., Thomas, J., & Delisle, C. (2001). Rethinking project management: old truths and new insights. *Project management journal*, 36-43.

Kaiser, M., Arbi, F., & Ahlemann, F. (2015). Successful project portfolio management beyond project selection techniques: Understanding the role of structural alignment. *International Journal of Project Management*, 126-139.

Kapsali, M. (2013). Equifinality in project management exploring causal complexity in projects. *Systems Research and Behavioral Science*, 2-14.

Karadal, H., Celik, C., & Saygin, M. (2013). Corporate Values on Strategic Planning Process: A Research about the Universities in Turkey. *Elsevier*, 9.

Kardes, I., Ozturk, A., Cavusgil, T., & Cavusgil , E. (2013). Managing globalmegaprojects: Complexity and risk management. *International business review*, 905-917.

Karten, B. (2016). *Project management simplified.* New York: CRC press.

Kerzner, H. (2001). *Strategic planning for project management using a project management maturity model.* New York: Wiley Book.

Kerzner, H., & Belack, C. (2010). *Managing com plex projects.* New Jersey: Wiley.

Kline, R. (2011). *Pronciples and practice of Structural Equation Modeling.* New York: Guildford Press.

Kloppenborg, T., & Opfer, W. (2000). Forty years of project management research: Trends, interpretations, and predictions. *PMI Research conference* (págs. 41-59). PMI.

Koskela, L., & Howell, G. (2002). The theory of project management: explanation to novel methods. *Proceedings IGLC*, 1-11.

Kostalova, J., & Tetrevova, L. (2014). Project Management and Its Tools in Practice in the Czech Republic. *10 th International Strategic Management Conference*, 678-689.

Lee, C., & Y-H, Y. (2011). Service Delivery Comparisons on Household Connections in Taiwan ' s Sewer Public – Private-Partnership Projects. *International Journal of Project Management*, 1033-1043.

Lefley, F. (2004). An assessment of various approaches for evaluating project strategic benefits.

León, O. (2003). *Valoración de empresas, gerencia de valor y EVA.* Cali: Prensa Moderna Impresores.

Lester, A. (2006). *Project Management, Planning and Control: Managing Engineering, Construction and Manufacturing Projects to PMI, APM and BSI Standards.* New York: BH.

Li, S., Bai, S., Feng, R., & Guo, Y. (2010). Application of organizational project management maturity model based on BP neural network. *International conference on E-business and e-goverment*, 2656-2660.

Liden, R., Wayne, S., & Sparrowe, R. (2000). An examination of the mediating role of psychological empowerment on the relations between the job, interpersonal relationships, and work outcomes. *Journal of Applied Psychology*, 407-416.

Ling, F., Low, S., Wang, S., & Lim, H. (2009). Key Project Management Practices Affecting Singaporean Firms' Project Performance in China. *International Journal of Project Management*, 59-71.

Linzalone, R., & Schuima, G. (2015). A review of program and project evaluation models. *Measuring Business Excellence*, 90-99.

Littau, P., Jyothi, N., & Adlbrecht, G. (2010). 25 Years of Stakeholder Theory in Project Management Literature. *Project Management Journal*, 17-29.

Liu, A., & Fang, Z. (2006). A power-based leadership approach to project management. *Construction Management Economy*, 497-507.

Lu, Y., Luo, L., Wang, H., Le , Y., & Shi, Q. (2015). Measurement model of project complexity for large-scale projects from task and organization perspective. *International Journal of Project management*, 610-622.

Makarova, E., & Sokolova, A. (2014). Foresight evaluation: lessons from project management. *Foresight*, 75-91.

Marcelino-Sadaba, S., Gonzalez-Jaen, L., & Perez-Ezcurdia, A. (2015). Using project management as a way to sustainability. From a comprehensive review to a framework definition. *Journal of cleaner production*, 1-16.

Marr, B., Schiuma, G., & Neely, A. (2004). The dynamics of value creation: mapping your intellectual performance drivers. *Journal of Intellectual Capital*, 312-325.

Martinsuo, M., & Poskela, J. (2011). Use of evaluation criteria and innovation performance in the front end of innovation. *Journal of Product Innovation management*, 896-914.

Milosevic, D. (2003). *Project management toolbox: tools and techniques for the practicing project management.* New Jersey: Wiley.

MINHACIENDA. (2016). *Congreso aprueba Presupuesto General de la Nación 2017 por $224,4 billones.* Bogotá: MINHACIENDA.

Ministerio de Educación. (2016). *Educación superior en cifras.* Bogotá: MINEDUCACIÓN.

Ministerio de Educación Nacional. (2017). *Información Nacional 2010 - 2016.* Bogotá: MINEDUCACIÓN.

Misas, G. (2004). *La educación superior en Colombia. Análisis y estrategias para su desarrollo.* Bogotá: Universidad Nacional de Colombia.

Mitchell, R., Agle, B., & Wood, D. (1997). Towar a theory of stakeholder identification and salience. Defining the principle of who and what reaaly counts. *Academy of Management Review*, 853-886.

Monteiro de Carvalho, M., & Rabechini, R. (2015). Impact of risk management on project performance: the importance of soft skills. *International Journal of Production Research*, 321-340.

Morgan, M., & Rowlinson, S. (2009). Performance Consequences of Psychological Empowerment. *Journal of construction engineering and management*, 1334-1347.

Morris, P. (1994). *The management of projects.* London: Thomas Telford.

Morris, P. (2000). *Researching the unanswered questions of project.* Recuperado el 1 de 9 de 2005, de http://www.indeco.co.uk/filestore/ResearchingtheUnansweredQuestionsofProjectManagement.pdf

Morris, P., & Jamieson, A. (2005). Moving from corporate strategy to project strategy. *Project Management Journal*, 5-18.

Morris, P., Patel, M., & Wearne, S. (2000). Research into revising the APM project management body of knowledge. *Internartional Journal of Project Management*, 155-164.

Müller, R., Martinsuo, M., & Blomquist, T. (2008). Project Portfolio Control and Portfolio Management Performance in Different Contexts. *Project Management Journal*, 28-42.

Murillo, J. (29 de 8 de 2016). *Universidad Nacional de educación.* Obtenido de http://www.postgradoune.edu.pe/documentos/Experimental.pdf

National Research (US) Committee for Oversight and Assessment of US Department of Energy Project Management. (2005). *Measuring Performance and Benchmarking Project Management at the Department of Energy.* Washington, DC: National Academies Press.

Nguyen, N., Skitmore, M., & Wai, J. (2009). Stakeholder impact analysis of infrastructure project management in developing countries: a study of perception of project managers in state-owned engineering firms in Vietnam. *Construction Management and Economics*, 1129-1140.

Noriega, J. (1984). *Trayectoria Crítica. C.P.M. - P.E.R.T.* Bogotá: Escala.

Observatorio Laboral. (5 de 12 de 2017). *Observatorio Laboral para la educación*. Obtenido de http://bi.mineducacion.gov.co:8380/eportal/web/men-observatorio-laboral/ubicacion-geografica

Oppong, G., Chan, A., & Dansoh, A. (2017). A review of stakeholder management performance attributes in construction projects. *International Journal of Project Management*, 1037-1051.

Papke-Shields, K., & Boyer-Wrigh, K. (2017). Strategic planning characteristics applied to project management. *International Journal of Project Management*, 169-179.

Patah, L., & Carvalho, M. (2007). Measuring the value of project. *Management of Engineering and Technology*, 2038-2042.

Patanakul, P. (2015). Key attributes of effectiveness in managing project portfolio. *International Journal of Project Management*, 1084-1097.

Pavard, B., & Dugdale, J. (2000). The contribution of complexity theory to the study of socio-technical cooperative systems.

Philips, J., Bothell, T., & Snead, L. (2002). *The Project Management Scorecard.* United States of America: BH.

Phillips, J. (2010). *Project Management, professional study Guide.* New York: McGraw – Hill.

Phillips, R. (2003). *Stakeholder theory and organizational ethics.* San Francisco: Berrett-Koehler Publishers.

Pintardi, H., Artama, P., & Kaming, P. (2014). Model of Stakeholder Influence on Project Success: Finding from Construction Project in East Java. *International Journal of Academic Research*, 41-45.

PMI. (2003). *organizational Project Management Maturity Model.* Pennsylvania: PMI.

PMI. (2008). *Guía de los fundamentos para la dirección de proyectos.* Atlanta: PMI.

PMI. (2013). *A guide to the project management body of knowledge.* Pennsylvania: PMI.

Project Management Institute. (2003). *Organizational Project Management Maturity Model (OPM3).* Pennsylvania: PMI.

Project Management Institute. (2008). *Construction Extension to the PMBOK® Guide Third Edition.* Pennsylvania: PMI.

Ramasesh, R., & Browning, T. (2014). A conceptual framework for tackling knowable unknown unknowns in project management. *Journal of Operations Management*, 190-204.

Ramashala, P., Pretorius, M., & Steyn, H. (2016). The use of project portfolios in effective strategy execution. *International Association for Management of Technology* , 377-392.

Remington, K., & Pollack, J. (2007). *Tools for Complex Projects.* Burlington: Gower.

Ribbers, P., & Schoo, K. (2002). Program management and complexity of ERP implementations. *Engineering Management Journal*, 45.

Richardson, G. (2015). *Project Management theory and practice.* CRC Press.

Rowlinson, S., & Cheung, Y. (2008). Stakeholder management through empowerment: modelling project success. *Construction Management and Economics*, 611-623.

Samee, K., & Pongpeng, J. (2015). Structural Equation Model for Construction Equipment Management Affecting Project and Corporate Performance. *Journal of Civil Engineering*, 1-15.

Scheaffer, R., & Mendenhall, W. (1986). *Elementos de muestreo.* California: Iberoamérica.

Sebaux, A., Clothier, J., & Parker, D. (2011). Anticipatory planning: mitigating project risks. *Progressing Business*, 19-26.

Shenhar, A. (1998). From Theory to Practice: Toward a Typology of Project Management Styles. *Transactions on Engineering Management*, 33-48.

Shenhar, A. (1999). Strategic Project management: The new framework. *Management of Engineering and Technology*, 382-386.

Shenhar, A., & Dvir, D. (1996). Toward a typological theory of project management . *Research Policy*, 607-632.

Shenhar, A., & Dvir, D. (2007). *Reinventing Project Management: The Diamond Approach to Successful Growth and Innovation.* Boston: HBS press.

Shenhar, A., Levy, O., & Dvir, D. (1997). Mapping the Dimensions of Project Success. *Project management Journal*, 5-13.

Snowden, D., & Boone, M. (2007). A Leader´s framework for decision making. *Harvard business review*, 1-9.

Solarte, L., & Sánchez, L. (2013). Gerencia de proyectos y estrategia organizacional: el modelo de madurez en gestión de proyectos. *Innovar Journal*, 14.

Srivannaboon, S. (2006). Linking Project Management with Business. *Project management journal*, 88-96.

Srivannaboon, S., & Milosevic, D. (2006). A two-way influence between business strategy and project management. *International Journal of Project Management*, 493-505.

Suchman, M. (1995). Managing legitimacy: strategic and institutional approaches. *Academy of Management Review*, 571-610.

Svejvig, P., & Andersen , P. (2013). Rethinking project management: A structured literature review with a critical look at the brave new world.

Tabachnick, B., & Fidell, L. (2001). *Using Multivariate Statistics.* Boston: Allyn & Bacon.

Teller, J., Unger, B., Kock, A., & Gemünden, H. (2012). Formalization of project portfolio management: the moderating role of project portfolio complexity. *International Journal of Project Management*, 596-607.

Thanasegaran, G. (2005). *Reliability and Validity Issues in Research.* Malaysia: Faculty Of Economics & Management.

Themistocleous , G., & Wearne , S. (2000). Project management topic coverage. *International Journal of Project Management*, 7-11.

Thomas, G., & Fernández , W. (2008). Success in IT projects: A matter of definition? *International Journal of Project*, 733-742.

Thomas, J., & Mullaly, M. (2008). *Researching the Value of Project Management.* PMI.

Thomas, S., Wong, Y., & Wong, J. (2010). A Structural Equation Model of feasibility Evaluation and Project Success for Public–Private Partnerships in Hong Kong. *Transactions on engineering management*, 310-322.

Thompson, B. (1999). Understanding Coefficient Alpha, Really. *Annual Meeting of the* .

Turner, J. (1999). *The handbook of project-based management: improving the processes for achieving strategic objectives.* London: McGraw-Hill.

Turner, J. (2009). *The Handbook of Project-Based Management.* New York: Mc Graw Hill.

Turner, R., Anbari, F., & Bredillet, C. (2013). Perspectives on research in project management: the nine schools. *International network of business and management*, 26.

Urli, B., & Urli, D. (2000). Project management in North America, stability of the concepts. *Project Management Journal*, 33-43.

Urrutia, M., Barrios, S., Gutiérrez , M., & Mayorga, M. (2014). Métodos óptimos para determinar validez de contenido. *Educación Médica Superior*, 547-558.

Ursulescu, C., & Popa, V. (2013). Supply Chains Integration for Corporative Strategic Planning. Using Portfolio, Programs and Project Management. *Journal of Economic Studies* , 7-14.

Walker, D., Bourne, L., & Shelley, A. (2008). Influence, stakeholder mapping and visualization. . *Construction Management and Economics*, 645-658.

Wang, X., & Huang, J. (2006). The relationships between key stakeholders' project performance and project success: perceptions of Chinese construction supervising engineers. *International Journal of Project Management*, 253-260.

Ward, S., & Chapman, C. (2008). Stakeholders and uncertainty management in projects. *Construction Management and Economics*, 563-577.

Williams, T. (1999). The need for new paradigms for complex projects. *International Journal of Project Management*, 269-273.

Williams, T. (2005). Assessing and moving from the dominant project management discourse in the light of project overruns. *IEEE Transactions an engineering management*, 497-508.

Winter, M., Smith, C., Morris, P., & Cicmil, S. (2006). Directions for future research in project management: The main findings of a UK government-funded research network. *International Journal of Project Management* , 12.

Xia, B., & Chan , A. (2012). Measuring complexity for building projects: a Delphi study. *Engineering, Construction and Architectural Management*, 7-24.

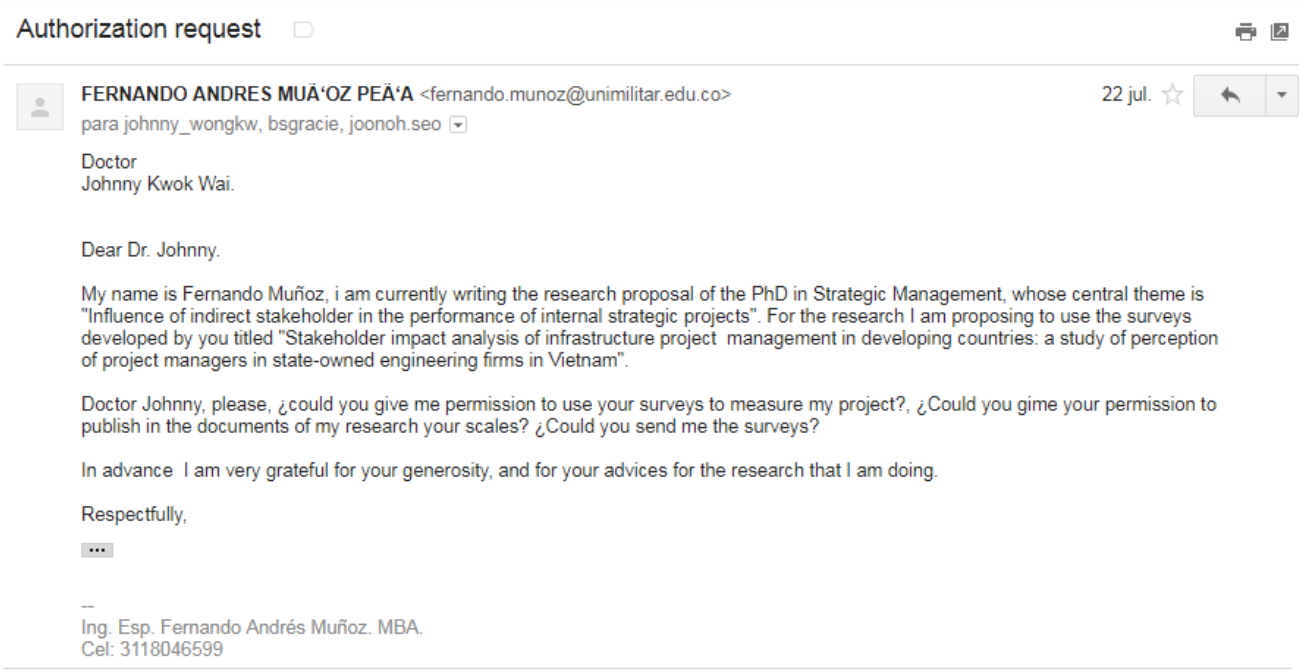
Xia, W., & Lee, G. (2005). Complexity of information systems development projects: conceptualization and measurement development. *Journal of management information systems*, 45-83.

Zikmund, W. (2003). *Business Research Methods.* South-Western: Ohio: Thompson.

Zobel, A., & Wearne, S. (2000). Project management topic coverage in recent. *Project management Journal*, 7-32.

Appendix A: Authorizations for the use of questionnaires

Authorization request to Dr. Johnny Kwok Wai



Authorization request

FERNANDO ANDRES MUÃ'OZ PEÄ'A <fernando.munoz@unimilitar.edu.co> 22 jul.

para johnny_wongkw, bsgracie, joonoh.seo

Doctor
Johnny Kwok Wai.

Dear Dr. Johnny.

My name is Fernando Muñoz, i am currently writing the research proposal of the PhD in Strategic Management, whose central theme is "Influence of indirect stakeholder in the performance of internal strategic projects". For the research I am proposing to use the surveys developed by you titled "Stakeholder impact analysis of infrastructure project management in developing countries: a study of perception of project managers in state-owned engineering firms in Vietnam".

Doctor Johnny, please, ¿could you give me permission to use your surveys to measure my project?, ¿Could you gime your permission to publish in the documents of my research your scales? ¿Could you send me the surveys?

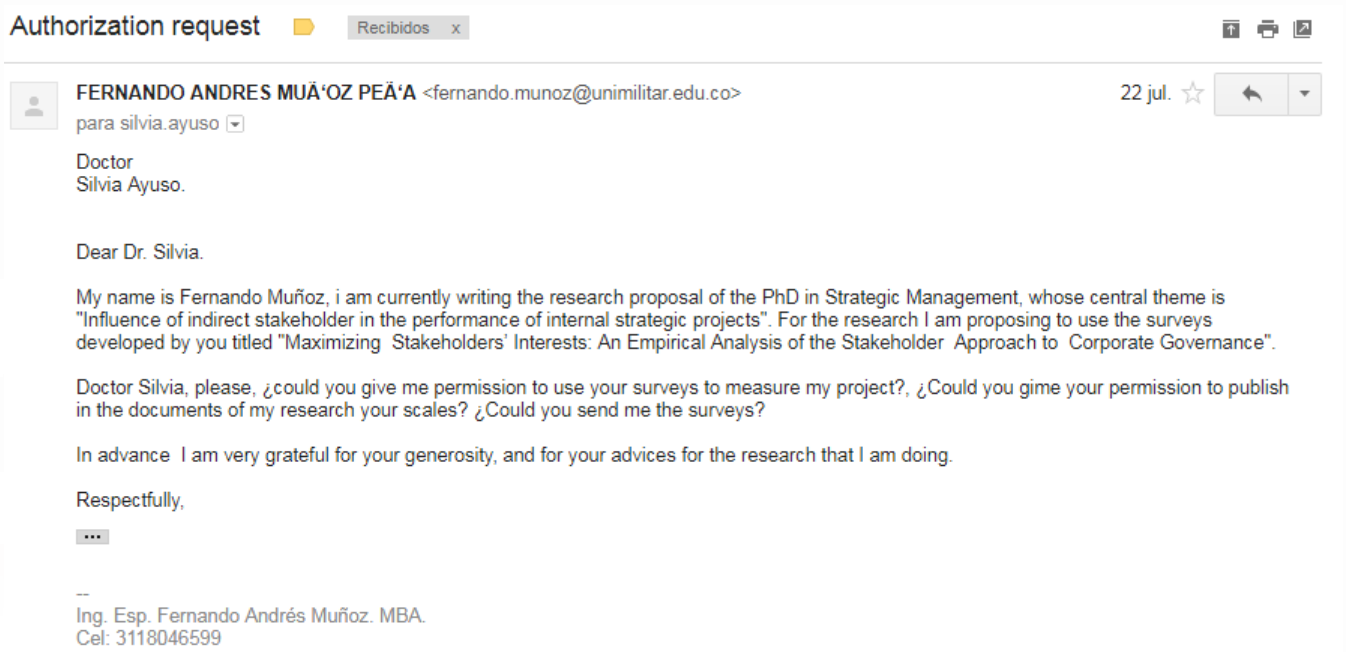
In advance I am very grateful for your generosity, and for your advices for the research that I am doing.

Respectfully,

...

--
Ing. Esp. Fernando Andrés Muñoz. MBA.
Cel: 3118046599

Authorization request to Dr. Silvia Ayuso



Authorization request Recibidos x

FERNANDO ANDRES MUÄ'OZ PEÄ'A <fernando.munoz@unimilitar.edu.co> 22 jul.
para silvia.ayuso

Doctor
Silvia Ayuso.

Dear Dr. Silvia.

My name is Fernando Muñoz, i am currently writing the research proposal of the PhD in Strategic Management, whose central theme is "Influence of indirect stakeholder in the performance of internal strategic projects". For the research I am proposing to use the surveys developed by you titled "Maximizing Stakeholders' Interests: An Empirical Analysis of the Stakeholder Approach to Corporate Governance".

Doctor Silvia, please, ¿could you give me permission to use your surveys to measure my project?, ¿Could you gime your permission to publish in the documents of my research your scales? ¿Could you send me the surveys?

In advance I am very grateful for your generosity, and for your advices for the research that I am doing.

Respectfully,

...

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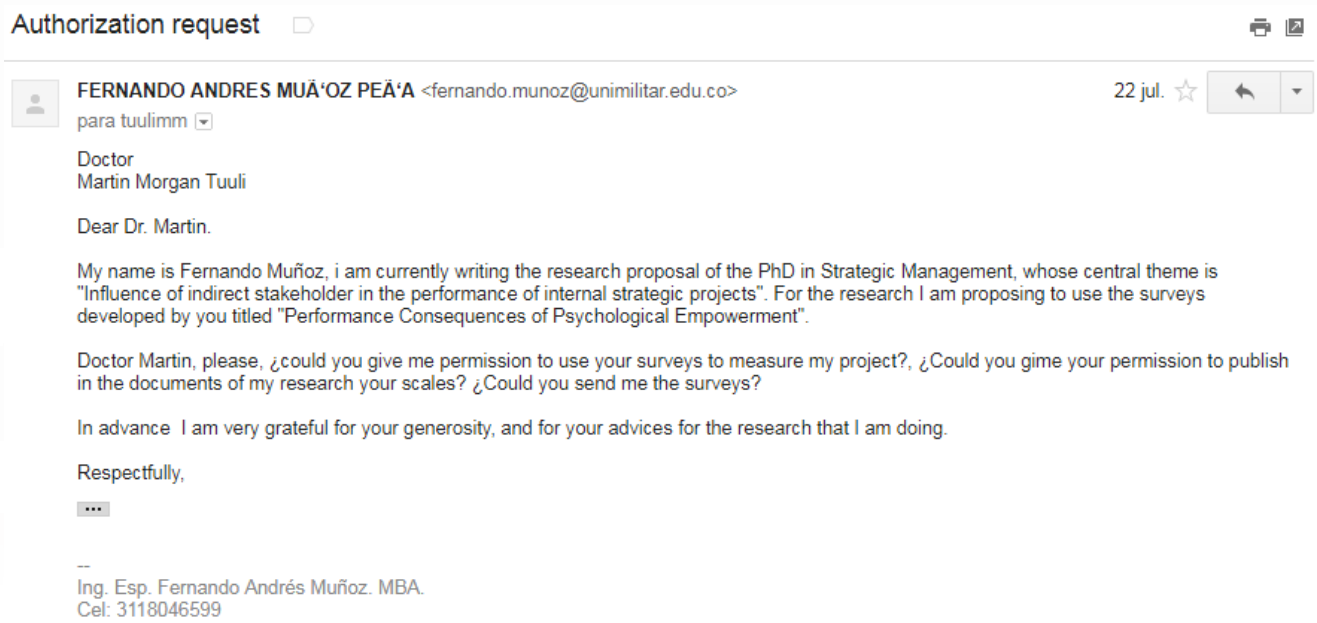
Ing. Esp. Fernando Andrés Muñoz. MBA.
Cel: 3118046599

Authorization request to Dr. Martin Morgan Tuuli



Authorization request

FERNANDO ANDRES MUÄ'OZ PEÄ'A <fernando.munoz@unimilitar.edu.co> 22 jul.

para tuulimm

Doctor
Martin Morgan Tuuli

Dear Dr. Martin.

My name is Fernando Muñoz, i am currently writing the research proposal of the PhD in Strategic Management, whose central theme is "Influence of indirect stakeholder in the performance of internal strategic projects". For the research I am proposing to use the surveys developed by you titled "Performance Consequences of Psychological Empowerment".

Doctor Martin, please, ¿could you give me permission to use your surveys to measure my project?, ¿Could you gime your permission to publish in the documents of my research your scales? ¿Could you send me the surveys?

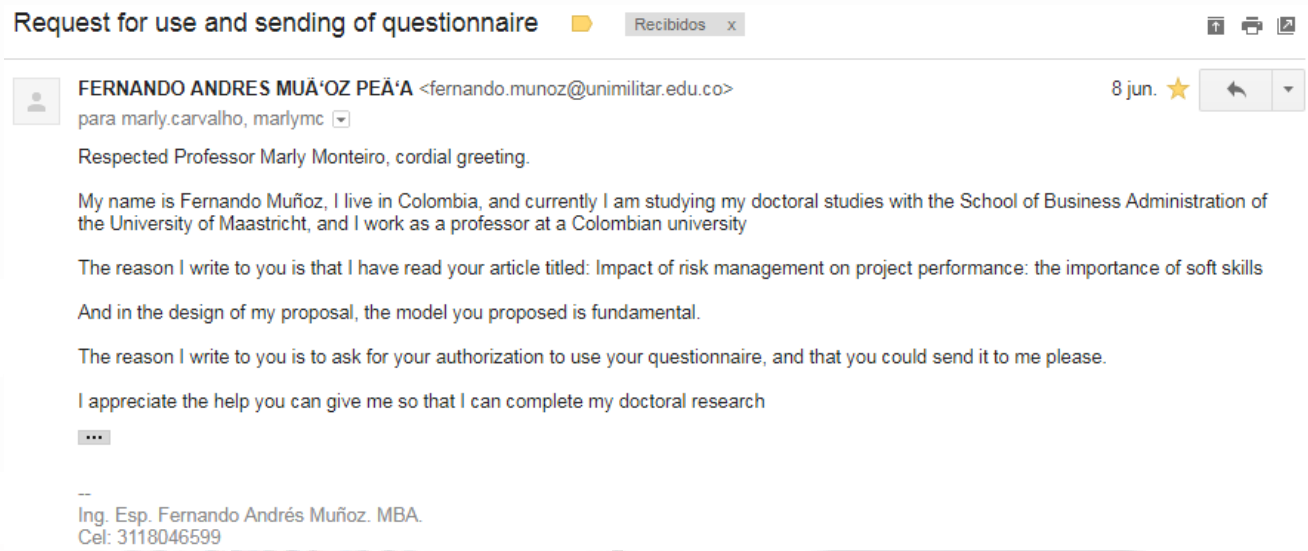
In advance I am very grateful for your generosity, and for your advices for the research that I am doing.

Respectfully,

...

--
Ing. Esp. Fernando Andrés Muñoz. MBA.
Cel: 3118046599

Authorization request to Dr. Marly Monteiro de Carvalho



Request for use and sending of questionnaire Recibidos x

FERNANDO ANDRES MUÄ‘OZ PEÄ‘A <fernando.munoz@unimilitar.edu.co> 8 jun.

para marly.carvalho, marlymc

Respected Professor Marly Monteiro, cordial greeting.

My name is Fernando Muñoz, I live in Colombia, and currently I am studying my doctoral studies with the School of Business Administration of the University of Maastricht, and I work as a professor at a Colombian university

The reason I write to you is that I have read your article titled: Impact of risk management on project performance: the importance of soft skills

And in the design of my proposal, the model you proposed is fundamental.

The reason I write to you is to ask for your authorization to use your questionnaire, and that you could send it to me please.

I appreciate the help you can give me so that I can complete my doctoral research

...

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Ing. Esp. Fernando Andrés Muñoz. MBA.
Cel: 3118046599

SAM Research Corporate Sustainability Assessment Questionnaire

Items used for independent variable of stakeholder engagement

Question no. 29. What approaches does your company use for integrating customer feedback?

- ■ Harmonized CRM database at business unit level
  - ■ Companywide customer database, including marketing, order, fulfillment, and customer service history
  - ■ Web-based, harmonized feedback channels
  - ■ Integration of feedback into product/services development
  - ■ Dedicated helpdesks for complaints
  - ■ Customers' complaints feedback to compliance officers and/or risk managers and/or communication officers
  - ■ Corporate ombudsman for complaints, please indicate name: ____

Question no. 41. Please indicate which systems are in place to collect and handle employee grievances and complaints to ensure that workers can raise their concerns in confidentiality.

- ■ Help line
  - ■ Whistleblowing policy
  - ■ Company own ombudsman, please indicate name: _____
  - ■ Counselling
  - ■ Strict confidentiality ensured. Please specify: _____
  - ■ Policies and related information widely circulated in appropriate languages
- No such stakeholder engagement
- Not applicable. Please provide explanations in the comment box below.
- Not known
- No systems available
- Not applicable. Please provide explanations in the comment box below.
- Not known

Question no. 64. Please indicate how your company engages with external stakeholders. Please attach/provide supporting documents or indicate website.

- ■ Identification, prioritization, and mapping of key stakeholders for input into corporate strategy
  - ■ Regular briefings/meetings in form of stakeholder dialogue workshops
  - ■ Feedback from stakeholders to board/supervisory board and/or senior directors and/or compliance and/or communication department
  - ■ Ongoing long-term project teams/partnerships. Examples: _____
  - ■ Other, please describe: _____
- No such stakeholder engagement
- Not applicable. Please provide explanations in the comment box below.
- Not known

Question no. 65. Does your company regularly conduct satisfaction surveys or perception studies of the following stakeholders? Please provide supporting documents or indicate website.

- ■ Governments, authorities
  - ■ Interest groups, such as consumer organizations
  - ■ Local communities
  - ■ Media
  - ■ Nongovernmental organizations (NGOs)
  - ■ Suppliers/Service providers
  - ■ Minority groups, such as disabled customers
  - ■ Trade unions
- No stakeholder perception study
- Not applicable. Please provide explanations in the comment box below.
- Not known

Questionnaire for Stakeholder empowerment

Psychological Empowerment (Spreitzer 1995a)

Think about your job on the project. To what extent do you agree or disagree (1 = strongly disagree, 3 = neutral, 5 = strongly agree) with each of the following:

Competence

1. I am confident about my ability to do my job
2. I am self-assured about my capabilities to perform my work activities
3. I have mastered the skills necessary for my job

Self-determination

4. I have significant autonomy in determining how I do my job
5. I have considerable opportunity for independence and freedom in how I do my job
6. I can decide on my own how to go about doing my work

Impact

7. I have a great deal of control over what happens in my department
8. I have significant influence over what happens in my department
9. My impact on what happens in my department is large

Meaning

10. The work I do is very important to me
11. The work I do is meaningful to me
12. My job activities are personally meaningful to me

Task Performance Behaviours (Williams and Anderson, 1991)

How much do you agree or disagree (1 = strongly disagree, 3 = neutral, 5 = strongly agree) with each of the following statements about how you do your job:

1. I adequately complete assigned duties
2. I fulfil responsibilities specified in my job description
3. I perform tasks that are expected of me
4. I meet the formal performance requirements of my job
5. I do things that will directly affect my performance appraisal
6. I neglect aspects of the job I am obliged to perform (R)

Contextual Performance Behaviours (Van Scotter and Motowidlo, 1996)

Now, think about your job, on a scale of 1-5, 1 being "not at all likely" and 5 being "extremely likely", how likely or unlikely is it that while performing your job, you will exhibit the following behaviours:

Interpersonal facilitation behaviours

1. Praise team members when they are successful
2. Support or encourage a team member with a personal problem
3. Talk to other team members before taking actions that might affect them
4. Say things to make team members feel good about themselves & the team
5. Encourage team members to overcome their differences and get along
6. Treat team members fairly
7. Help a team member without being asked

Job dedication behaviours

1. Put in extra hours to get work done on time
2. Pay close attention to important details
3. Work harder than necessary
4. Ask for challenging work assignment
5. Exercise personal discipline and self-control
6. Take the initiative to solve a work problem
7. Persist in overcoming obstacles to complete a task
8. Tackle a difficult work assignment enthusiastically

Intrinsic Motivation (Hackman and Oldham, 1976)

We will also like to know how you feel about yourself and your job. To what extent do you agree or disagree (1 = strongly disagree, 3 = neutral, 5 = strongly agree) with each of the following statements:

1. My opinion of myself goes up when I do my job well
2. I feel a great sense of personal satisfaction when I do my job well
3. I feel bad and unhappy when I discover that I have performed poorly on my job
4. My own feelings generally are not affected much by how well I do on my job
5. Most of my team members on this project feel a great sense of personal satisfaction when they do their job well
6. Most of my team members on this project feel bad and unhappy when they find they have performed their job poorly

Opportunity to Perform-Organisational Constraints (Spector and Jex, 1998)

On a scale of 1-5, 1 being "less than once per month or never" and 5 being "several times per day", please indicate how often it is difficult or impossible for you to perform your job due to each of the following situations:

1. Unavailability of job-related information
2. Unavailability of tools
3. Unavailability of equipment
4. Unavailability of materials
5. Unavailability of supplies
6. Unavailability of budgetary support
7. Unavailability of required services
8. Unavailability of help from other team members
9. Inadequate training
10. Unavailability of time
11. Absence of a facilitative work environment
12. Safety requirements/regulations
13. Statutory requirements/regulations

Ability to Perform (Poksakoff *et al*. 1993)

Think about your ability, experience, training and job knowledge. To what extent do you agree or disagree (1=strongly disagree, 3=neutral, 5=strongly agree) with each of the following statements:

1. I have the ability, experience, training or job knowledge to act independent of my immediate supervisor in performing my duties
2. I have enough training and job knowledge to handle most situations that I face in my job
3. I have all the required ability and experience to be my own boss
4. Few people in my organisation have more experience or job knowledge than I do
5. My job knowledge is sufficient enough that I do not have to depend on my supervisor to get my work accomplished
6. My performance could be much better if I just had more work experience
7. Due to my lack of experience in this job, I depend upon my superior to give me advice about how to do my job

Social Desirability (Strahan and Gerbesi, 1972)

Listed below are a number of statements concerning personal attitudes and traits. Read each item and respond whether the statement is "True" or "False" as it pertains to you:

1. I am always willing to admit it when I make a mistake
2. I always try to practice what I preach
3. I never resent being asked a favour
4. I have never deliberately said something that hurt someone's feelings
5. I like to gossip at times
6. There have been occasions when I took advantage of someone
7. I sometimes try to get even, rather than forgive and forget
8. At times I have really insisted on having things my own way
9. There have been occasions when I felt like smashing things
10. I have never been annoyed when people express ideas very different from my own

Factors for Project Performance

Code	PM practice	Measurement scale
Scope management (Scop)		
Scop11	Quality of contract document	Scale 1–7; 1 = low; 7 = high
Scop12	Quality of response to perceived variations	Scale 1–7; 1 = low; 7 = high
Scop13	Extent of changes to contract	Scale 1–7; 1 = low; 7 = high
Scop14	Extent of claims or disputes	Scale 1–7; 1 = low; 7 = high
[b]Scop15	Frequency of scope monitoring to identify changes	Scale 1–7; 1 = always; 7 = rarely
Scop16	Extent of subdividing the contract to smaller components	Scale 1–7; 1 = one large integrated contract; 7 = many smaller contracts
Time management (Time)		
Time21	Timing of acceptance, approval and commitment of schedule	Scale 1–7; 1 = very late; 7 = very early
Time22	Quality of schedule and frequency of updates	Scale 1–7; 1 = low; 7 = high
Time23	Quality of schedule control	Scale 1–7; 1 = low; 7 = high
Time24	Adequacy of equipment	Scale 1–7; 1 = low; 7 = high
Time25	Speed in responding to client's changes	Scale 1–7; 1 = low; 7 = high
Time26	Number of persons monitoring project schedule	Scale 1–7; 1 = one person; 4 = four persons; 7 = seven or more persons
Cost management (Cost)		
Cost31	Quality of cost data in China	Scale 1–7; 1 = low; 7 = high
Cost32	Quality of financial management	Scale 1–7; 1 = low; 7 = high
Cost33	Quality of resource planning	Scale 1–7; 1 = low; 7 = high
Cost34	Ability to control cost of resources	Scale 1–7; 1 = low; 7 = high
Cost35	Extent of monitoring to detect cost over runs	Scale 1–7; 1 = low; 7 = high
[b]Cost36	Quality of cost control	Scale 1–7; 1 = low; 7 = high
Cost37	Firm's financial strength	Scale 1–7; 1 = low; 7 = high
Cost38	Availability of extra funding from HQ	Scale 1–7; 1 = not available; 7 = readily available
[a,b]Cost39	Necessity to pay hidden costs	Scale 1–7; 1 = no need; 7 = high need
Quality management (Qlty)		
[b]Qlty41	Standard of quality control and management plans	Scale 1–7; 1 = low; 7 = high
[a,b]Qlty42	Extent of practising health and safety management	Scale 1–7; 1 = low; 7 = high
Qlty43	Quality of managerial staff	Scale 1–7; 1 = low; 7 = high
Qlty44	Quality of professionals	Scale 1–7; 1 = low; 7 = high
Qlty45	Quality of technical staff/workmen	Scale 1–7; 1 = low; 7 = high
Qlty46	Extent of client's demand for quality	Scale 1–7; 1 = low; 7 = high
Qlty47	Extent of conforming to contract requirements	Scale 1–7; 1 = low; 7 = high
Qlty48	Extent of reviewing output compliance with contract	Scale 1–7; 1 = low; 7 = high
Qlty49	Extent of considering environmental issues	Scale 1–7; 1 = low; 7 = high

Client satisfaction

6. The project will be/is used by its intended clients	1	2	3	4	5	6	7
7. Important clients, directly affected by this project, will make use of it	1	2	3	4	5	6	7
8. We are confident that non-technical start-up problems will be minimal, because the project will be readily accepted by its intended users	1	2	3	4	5	6	7
9. I am/was satisfied with the process by which this project is being/was completed	1	2	3	4	5	6	7
10. This project has/will directly benefit the intended users: either through increasing efficiency or employee effectiveness	1	2	3	4	5	6	7
11. Use of this project has/will directly lead to improved or more effective decision making or performance for the clients	1	2	3	4	5	6	7
12. This project will have a positive impact on those who make use of it	1	2	3	4	5	6	7
CLIENT SCORE (Total items 6-12 above)							

Appendix B: Informed Consent

Bogotá, Septiembre de 2017

Doctor _____.

Ciudad

Asunto: Influencia de los interesados indirectos en proyectos estratégicos internos para tesis doctoral.

Respetado Dr. _____, reciba un atento y respetuoso saludo.

Por medio de la presente expreso mi saludo y agradecimiento por su participación en el diligenciamiento del cuestionario que pretende establecer la influencia de los interesados indirectos en el desempeño de proyectos estratégicos internos.

Los resultados de los cuestionarios harán parte de la investigación que en este momento llevo a cabo para optar por el título de Doctor in Strategic Business Administration – DBA por Centrum Graduate Business School de la Pontificia Universidad Católica del Perú en doble titulación con Maastricht School of Management, y el proyecto a elaborar se titula: "Influence of indirect internal stakeholders in the performance of strategic projects: understanding the behavior of projects in clothing companies in Bogotá".

El tiempo aproximado requerido para la realización de este cuestionario es aproximadamente de 40 minutos. Los datos generales de este cuestionario serán publicados, junto con su nombre, y al momento de diligenciarlo manifestará su consentimiento de participar en la investigación.

Estaré atento a su respuesta para coordinar fecha y hora para realizar el diligenciamiento vía presencial o virtual (correo electrónico). Si tiene alguna inquietud con gusto la atenderé vía telefónica o por e-mail, datos que aparecen junto a mi firma de correo electrónico. De antemano agradezco su colaboración.

Atentamente,

Ing. Fernando Andrés Muñoz