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STRATEGIC RESPONSES TO STAKEHOLDER INSTITUTIONAL PRESSURES CONSIDERING COMPLEXITY IN GLOBAL PROJECTS

HEITOR ANTONIO GOMES SANTOS JUNIOR

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Dissertação apresentada ao Programa de Mestrado Profissional em Administração: Gestão de Projetos da Universidade Nove de Julho – UNINOVE, como requisito para obtenção do título de mestre.

Orientador: Prof. Dr. José Eduardo Storopoli

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“Teach me knowledge and good judgment, for I trust your commands.” (Psalm 119:66)

DEDICATÓRIA

A Deus, o que seria de mim sem a fé que tenho nele. À minha família, por sua capacidade de acreditar e investir em mim. Mãe, seu cuidado e dedicação foi que possibilitaram que eu chegasse aqui. Pai, seu apoio significou segurança e certeza que não estou sozinho nessa caminhada. À minha amada Marielle, pessoa com quem amo partilhar a vida. Com você tenho me sentido mais vivo de verdade. Seu carinho, paciência e capacidade de me trazer paz nos desafios desta jornada fizeram toda diferença.

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RESUMO

Com base na teoria institucional, esta dissertação visa analisar os efeitos das pressões institucionais das partes interessadas sobre as respostas estratégicas das organizações temporárias, usualmente denominadas projetos. A investigação procurará por associações entre as decisões dos gerentes de projetos para atender às demandas dos agentes do ambiente institucional e os processos isomórficos impulsionados pela necessidade de legitimidade. O papel da complexidade do projeto neste processo é investigado, como variável moderadora, com o interesse de identificar a influência de fatores de contingência. Os dados serão extraídos de gerentes de projeto e equipe no contexto dos projetos globais, já que muitos projetos atualmente dependem de recursos e interações em uma escala global. Além disso, esta arena geralmente exibe pressões institucionais agressivas, portanto, observa-se a relevância de examinar sua influência no gerenciamento de projetos.

Palavras-chaves: Partes interessadas, Teoria Institucional, Gestão de Projetos.

ABSTRACT

Based on institutional theory, this dissertation aims to analyze the effects of stakeholders' institutional pressures on temporary organizations', usually named projects, strategic responses. The inquiry will search for associations between the decisions of project managers to address institutional environment agents' demands, and the isomorphic processes driven by the need for legitimacy. The role of project complexity in this process is investigated, as a moderator variable, in the interest of identifying the influence of contingency factors. The data will be drawn from project managers and staff in the global project context, since many projects nowadays rely on resources and interactions in a global scale. Furthermore, this arena usually displays aggressive institutional pressures, thus the relevance to scrutinize its influence on project management.

Keywords: Stakeholders, Institutional theory, Project Management.

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SUMARY

1. INTRODUCTION

Projects are considered to be a sort of adhocracy structure, a response to when traditional or bureaucratic structures are not the answer (Scott, Levitt, & Orr, 2011). Project management should adapt to respond to the contingencies of the environment in which it is immersed in (Shenhar & Dvir, 2007). However these approaches are not always feasible (Dille & Söderlund, 2011), and the restrictions imposed by institutions often lead projects to yield to isomorphism (Miterev, Engwall, & Jerbrant, 2017).

Research in the project management field has evolved in waves (Carvalho & Rabechini Jr., 2011). The literature states that the field is passing through the third wave (Bresnen, Marshall, Morris, Pinto, & Söderlund, 2011; Geraldi & Söderlund, 2016, 2017; Morris & Geraldi, 2011; Pollack & Adler, 2015). One of the concerns of this wave is the effects of institutions on projects, especially restricting the adoption of contingency approaches (Gemünden & Aubry, 2017) and moving towards an institutional approach.

The effects of institutions on organizations are not a new subject. It has been discussed by economic and social scholars since the 19th century (Scott, 1995). One of the developments of the research in the field was the work of Oliver (1991) that challenged the view of organizations passively accepting institutional pressures to conform, and proposed a range of response strategies from acquiescence to manipulation.

The effects of institutional pressures, funneled through stakeholders (Pedersen & Gwozdz, 2014), on projects which are seen as temporary organizations (Lundin & Söderholm, 1995; Packendorff, 1995), has not been explored completely as proposed by Aaltonen and Sivonen (2009). Their article served as starting point for this research, and after scrutinizing the literature, no work was found that quantitatively measures the relation the relation between institutional pressure and response strategies in project management. This approach has been undertaken in other fields, such as in the steel industry (B. W. Clemens & Douglas, 2005), based on Oliver's (1991) approach.

Institutions are the macro-level materialization of the norms, rules and values of a social context, that should be analyzed based on their personified actors (Lee, 2011). Stakeholder theory enables the operationalization of these macro-level forces into constituents that are known to managers and classify them as internal or external to the project (Winch, 2007). Thus,

the main objective of this research is to investigate the effects of institutions embodied in stakeholders' pressures, on the project's strategic responses.

How the level of complexity is perceived by the project manager is said to influence the responses, complexity being understood as intrinsic or representational (Floricel, Michela, & Piperca, 2016). A second objective is to investigate how project complexity moderates the relationship between institutional pressures and the project strategic responses aiming to understand if the project manager's perception of complexity will lead them to confront institutional pressures, resulting in more active responses.

Consequently, the research question is as follows: What are the strategic responses of global projects to stakeholders' pressures considering project complexity in this relationship?

This was accomplished through the execution of a survey distributed to project managers and project staff, focusing on global projects, as these projects usually face an aggressive institutional environment. The measurement instrument was adapted from past research in other fields (Frezatti, Aguiar, & Rezende, 2007; Pedersen & Gwozdz, 2014). To scrutinize the collected data, the required statistical tests were performed to the data for robustness, significance and inference. The tests were done with the aid of statistical software *R*.

The thesis is structured as follows: first, a review of the literature to provide the theoretical foundations for this work; second, hypotheses are discussed and formulated; third, the methodology is presented and described; and finally, the results and discussion are stated along with the contributions to practice, concluding remarks, limitations and suggestions to further research.

2. LITERATURE REVIEW

This section will feature two main subsections. The first is structured about the institutional environment: stakeholder's pressures, and response strategies. The second presents project management: global projects, and complexity of projects.

2.1 Institutional Environment

The influence of institutions on the organizations has long attracted the attention of scholars, which can be dated to the second half of the 19th century. From economics to political and social sciences, all disciplines have contributed to the idea that neither individuals nor organizations act solely based on rationality, but also as a reflex in response to an interaction with the institutional environment in which they were inserted in (Scott, 1995). However, these ideas remained relatively marginalized until the mid-20th century. By this period organizational theories that focused on the interaction of organizations with the environment emerged; among these are contingency, resource-based view and ecological theories.

These theories, each in its particular form, defended the idea that thriving organizations were open systems that changed as a rational response to the environment to which they belong (Greenwood, Oliver, Sahlin, & Suddaby, 2008; Scott, 1995). Meyer and Rowan (1977), however, proposed a distinct view in their seminal paper on what would be called new institutionalism (Peng, Sun, Pinkham, & Chen, 2009). This paper establishes the bases for the institutional theory in social sciences by arguing that organizations not always adapt rationally to the environment to be more efficient.

Institutions are the provider of rules, constraints and incentives that drive the exchange relationships of economic actors. These institutions can be divided into formal and informal depending on whether the rules are explicit or implicit (Zenger, Lazzarini, & Poppo, 2002). Scott (1995) further classified them as regulative (laws, regulations, rules), normative (norms), cognitive (cultures, ethics). Institutions should be viewed as independent variables that interact with organizations, leading to strategic responses. Institutions reduce uncertainty by setting rules, boundaries and legitimacy, within which strategic choices are made. When the absence of formal institutions act to reduce uncertainty, informal institutions will have more influence in guiding strategic choices (Peng et al., 2009)

The effects of institutions revealed that, although organizations do respond to the external environment, this response does not always seeks the output efficiency (Meyer & Rowan, 1977), but rather legitimacy. Suchman (1995, p. 574) defines legitimacy as a "generalized perception or assumption that the actions of an entity are desirable, proper, or appropriate within some socially constructed system of norms, values, beliefs, and definitions".

The research on legitimacy has been developed in two fields: Strategy and institutional. Respectively, one deals with the active actions of the organization in manipulating institutions to gain support and the other with how institutional pressures are formed transcending any single organization purposive control (Suchman, 1995). Seeking legitimacy versus efficiency is key to understanding strategic choices, as it is the driving force of organizational isomorphism in the institutional context (Meyer & Rowan, 1977), and this affecting the firms decisions and performance (Hirsch, 1975).

Legitimacy may be discerned in pragmatic, moral, and cognitive dimensions (Suchman, 1995). Pragmatic relates to exchanges among the most immediate agents, that may lead to either exchange legitimacy (power-dependence relations) or influence legitimacy (no direct gain but an alignment relationship among constituents), or dispositional legitimacy (which may also be moral legitimacy as it is related to constituents' shared interests and values). Moral Legitimacy is not related to the benefits of the actions, but to the notion of its righteousness. Usually it takes one of four forms: evaluation of outputs and consequences, evaluation of techniques and procedures, evaluation of categories and structures, and evaluations of leaders and representatives. Cognitive legitimacy is based on acceptance rather than on interest or evaluation. This can be further divided into two variants, comprehensibility and taken-for-grantedness (Suchman, 1995).

No organization will be able to always fully please all agents in their relationships, nor allow managers to avoid the myths that frame social beliefs. Therefore, legitimacy managing, despite its importance, is not an easy task to accomplish. But all efforts towards gaining, maintaining and repairing legitimacy will always be of great value to any venture; these efforts will rest mainly upon the communication between the organization and its stakeholders (Suchman, 1995). Gaining legitimacy must be an active endeavor, and thus requires strategies that can be divided into three categories: conform (to existing context), select (among multiple contexts the most supportive one) and manipulate (creating new favorable contexts among

agents)(Suchman, 1995). This can be seen as a continuum of passive conformity to active manipulation (Oliver, 1991).

Institutions within one context apply to all firms (Peng, Wang, & Jiang, 2008). This idea paved the way to the concept of isomorphism developed by Meyer and Rowan (1977), showing that it is desirable to organizations as it will bring legitimacy, and consequently provide greater access to key resources. Advancing institutional theory, the concept of isomorphism was then explored (DiMaggio & Powell, 1983).

Isomorphism can be divided into competitive and institutional, the first being related to firms' adaptation to rivalry forces and keeping up with the innovation level of the field in which they are inserted. Institutional isomorphism, on the other hand, is associated with the non-rational aspects of firms' choices, and is further sub-categorized into three institutional isomorphic mechanisms termed coercive (norms and regulations), mimetic (benchmarking) and normative (professionalization) (DiMaggio & Powell, 1983).

Institutions play a large role in setting the context for strategic decisions (Peng et al., 2009). Investigating the impact of isomorphic forces and legitimacy pursuit, which are echoed by stakeholder institutional pressures (Lee, 2011) on global projects, will provide further understanding of the effects of context in this field. These effects have not been deeply explored (Aaltonen & Sivonen, 2009), particularly because the rules of the game abroad may be different from the ones in the home country, and international business is a field of research where the influence of institutional contexts is better seen (Peng et al., 2008).

2.1.1 Stakeholders' Pressures

The concept in strategic management of the stakeholder view of the firm was presented by Freeman (1984). Exploring the facts that the ever-evolving business environment required a more systematic view of all agents that influenced the firm either internally or externally, Freeman in his book proposes that not only customers, suppliers, owners and employees have a stake in the modern organization, but many others such as the government, environmentalists, media, competitors do as well. Freeman's basic definition of stakeholders was "any group or individual who can affect or is affected by the achievement of the organization's objectives" (Freeman, 1984, p. 46). Since then this concept has evolved into what is now known as

stakeholder theory, a broader view of how these agents influence the organization, and also how managers prioritize their claims (Achterkamp & Vos, 2008).

However defining stakeholders is not a unanimous undertaking; other definitions were created in the following years. Cleland (1985) presented a definition specifically regarding project management that stakeholders "...have a key interest in the outcome of the project". There is noticeable a difference in the focus from Freeman's "affect or is affected by" to "have interest in". A third type of stakeholders definition was also provided in the literature that is a combination of both previous approaches as Boddy and Paton (2004 p.231) define "Stakeholders are individuals, groups or institutions with an interest in the project, and who can affect the outcome". This third type of definition was the one used by the Project Management Institute (PMI) in its approach in 1996 (Littau, Jujagiri, & Adlbrecht, 2010).

The advancement of stakeholder theory, especially in the field of projects has led to a commonly used definition focusing mainly on the concern of the type "affects or is affected by"(Littau et al., 2010). This is aligned with recent research interest, in the way that practical management and application of theory is developed, looking for the effects of stakeholders and projects relations (Aaltonen & Kujala, 2016). Therefore, independent of the various ways that the literature defines stakeholders, there is a central concept in all of them that organizations and projects need to observe several stakeholders' expectations. Hence, the managerial decision is a function of stakeholder influences and understanding these relations because the effects they exert are important components of theory building (T. J. Rowley, 1997).

Looking through the lens of strategic management studies, the key aspect of stakeholders theory is that the organization's primary function is to create wealth for its stakeholders (Vazquez-Brust, Liston-Heyes, Plaza-Ubeda, & Burgos-Jimenez, 2010), wealth being defined as any benefit, satisfaction that is perceived as valuable by its interested parties (Post, Preston, & Sachs, 2002). Satisfying the stakeholders is a decisive aspect for an organization's survival and project success, this establishes that external pressures are an element that must be managed in organizations (T. J. Rowley, 1997). One of the sources of these external pressures can be linked to the necessity for legitimacy (Walker, de Vries, & Nilakant, 2017) from the agents that enforce the institutional rules and beliefs (Oliver, 1991).

Mitchell, Wood and Agle, (1997) proposed that as way of narrowing the landscape of multiple stakeholders, proper identification and prioritization is required. To do this they proposed a framework, which is one of the most well-known models. It classifies stakeholders

in an interaction of three attributes: power, legitimacy and urgency (Aragonés-Beltrán, García-Melón, & Montesinos-Valera, 2017). Building upon the legitimacy definition proposed by Suchman (1995), one of the attributes of the framework proposed by Mitchell et al. (1997) describes the classification of a group of stakeholders as those that have, on some level, desirable competence in a socially built system of norms, values or beliefs; this is related to the institutional environment.

It should be said that legitimacy by itself has a low contribution to stakeholder salience and there should be an interaction with other attributes – power, urgency – to gain higher salience; as stated by Mitchell et al. (1997 p.870) "legitimacy gains right through power and voice through urgency". Legitimacy in the field of stakeholder theory may be categorized into normative and derivative. The first affirms that a stakeholder has normative legitimacy when the organization has a moral obligation to them; in the second however there is no obligation but the stakeholders possessing derivative legitimacy may still affect the organization actions (i.e. competitors), and so should also be managed (Phillips, 2003).

The idea of moral obligation can be further developed by linking it to a legal relationship between the stakeholder and the project, this being a contract, a title or share. When searching to be more legitimate, projects will be more susceptible to the claims of the stakeholders with a higher level of prevailed institutionalized practices, to which they are morally responsible. So it is common that normative legitimacy stakeholders have a higher salience, however the derivative legitimacy stakeholders should not be left unnoticed (Aaltonen & Kujala, 2010).

Although legitimacy is not the only factor, it is an important one when seeking to measure the effects that stakeholders have on the project (Walker et al., 2017). Stakeholders may be strong influences in legitimacy giving (Walker et al., 2017). Consequently, stakeholders are channels of legitimacy for the project if it is aligned with institutional environment (Lee, 2011). Among those are customers, key suppliers, regulatory agents and other organizations with similar projects (Dille & Söderlund, 2011). This idea sheds light on the connections that exist among stakeholders, presenting the concept of industries or sectors to which the organizations belong (T. J. Rowley, 1997). The environments of organizations belonging to the same sector may lead them to adopt isomorphic practices (DiMaggio & Powell, 1983).

A common classification of stakeholder groups is internal (or primary) and external (or secondary) (Winch, 2007). Internal stakeholders are the ones that are formally involved with the project and support it. External stakeholders are not formal members of the project but are

affected and affect the project, and are actually the ones that are more challenging to manage by the project team (Aaltonen & Sivonen, 2009).

Although the research on the dyadic relations between a stakeholder and the project have contributed to the advancement of theory (Rowley, 1997), most times stakeholders and the project are part of an industry or sector network, and "establishing networks of stakeholder groups is a useful step in understanding the interaction between the intensity of pressures and corporate salience of these claims" (Vazquez-Brust et al., 2010). Thus investigating the effects of stakeholders groups, these being classified with regards to a common attribute (institutional pressure) (Pedersen & Gwozdz, 2014), despite the diverse strengths among them, is relatively unexplored (Walker et al., 2017), and is on the frontier of the stakeholder theory development (T. J. Rowley, 2017).

2.1.2 Response strategies

Within the scope of institutional theory one of its principal sources of criticism was due to the fact it assumed that organizations would accept passively the institutionalization forces to conform (Oliver, 1991). To bridge this gap, Oliver (1991) proposed a framework where the possible responses to institutional pressures where classified in five categories. These responses range from a more passive attitude called acquiesce, going to compromise, avoid, defy and finally the most active one denominated manipulate. Oliver's framework also proposes three tactics degrees for each of these responses, as show in table 3:

Table 1 - Oliver's response strategies

Strategies	**Tactics**
Acquiesce	Habit
	Imitate
	Comply
Compromise	Balance
	Imitate
	Comply
Avoid	Conceal
	Buffer
	Escape

Strategies	Tactics
Defy	Dismiss
	Challenge
	Attack
Manipulate	Co-opt
	Influence
	Control

Source: (Oliver, 1991).

Since its proposal, Oliver's framework was utilized in various fields of research in order to scrutinize the response strategies to institutional pressures, examples are found in human resources (Goodstein, 1994), accounting (Frezatti et al., 2007), corporate social responsibility (B. W. Clemens & Douglas, 2005; Pedersen & Gwozdz, 2014), sustainability (Tingey-Holyoak, 2014), international business (Peng, 2003; Peng & Chen, 2011), supply chain management (McFarland, Bloodgood, & Payan, 2008) and project management (Aaltonen & Sivonen, 2009).

Measuring the responses to institutional pressures is valuable as it shows the tendency towards which the organization or project is moving when selecting the resources that are most valuable to it at that moment (Miterev et al., 2017). Given that a response is a choice (Goodstein, 1994), it can be placed on a continuum ranging from conforming to the institutional norms, values and beliefs, to an influencing position in order to change these values searching to secure critical resources. This is related to the type of predominant rationality (economic or normative) within the organization as proposed below (Oliver, 1997):

Table 2 - Oliver's Economic vs. normative rationality: The resource selection process.

Characteristics of resource decisions	Economic Rationality	Normative Rationality
Nature of decision process	Systematic, deliberate, and oriented toward economic goals	Habitual, unreflective, and embedded in norms and traditions
Key decision constraints	Information uncertainty and cognitive biases	Historical and normative context sustainable of decisions
Resource allocation process	Value-maximizing	Value-laden

Characteristics of resource decisions	**Economic Rationality**	**Normative Rationality**
Decision objective	Optimization of resource choices	Justification of resource choices
Nature of sunk costs	Economic	Cognitive
Key resource attributes	Efficiency and inimitability	Longevity and legitimacy
Decision outcomes	Systemic assessment and choice of optimal resources	Sub-optimal resource allocations and resistance to resource changes

Source: (Oliver, 1997).

Hence strategic responses are a positioning that the organization adopts when faced with pressures towards homogeneous practices. Accepting those pressures means departing from selecting resources that are rare and inimitable and opting for a modus operandi that seeks an increased use of resources that are already commonly utilized. This can be exemplified by the relationship between buyer and supplier, where the possible alternatives could be, from the buyer's perspective, to develop a completely new supplier, having to deal with uncertainty, or go to the supplier that is widely used by the other competitors within the industry (Oliver, 1997; Rowley, 1997).

2.2 Project Management

Organizations rely on activities to achieve their objectives. These activities may be routine, which are related to day to day operations, or may be temporary with an expected unique outcome. Reaching this temporary endeavor goal will determine its conclusion or the understanding that the efforts will not lead to the expected result, will direct to its termination. These temporary activities with a defined goal are commonly denoted as projects (Kerzner, 2009; Project Management Institute, 2013; Söderlund, 2004).

Projects are widely used in all sorts of organizations as a method to better explore the firm’s resources by integrating horizontally and thus linking the many departments of the organization towards a common objective (Kerzner, 2009). Projects may also be labeled as temporary organizations, thus linking them to a possible application of general organizational theories (Lundin & Söderholm, 1995; Packendorff, 1995; Sydow & Braun, 2017).

Managing these temporary efforts is a demanding and challenging task, especially because most firms have a vertical hierarchy structure that makes horizontal cooperation unnatural. Also, when projects are launched, they face temporal, financial, human, and other resource constraints. All these unique characteristics require qualified personnel in order to manage all efforts towards meeting the desired goal, with the project manager being ultimately responsible for orchestrating everything (Kerzner, 2009).

Although the project management approach is relatively new to many organizations, projects are activities that have been a part of human society for ages. Widespread project management techniques, languages, tools and concepts, however, are more recent, dating from the beginning of the 1950's (Morris & Geraldi, 2011). Having its inception from government agencies and construction efforts, where the first and foundational techniques were developed, project management gained attention from other organizations, leading to the creation of associations that would facilitate the dispersion of this knowledge (Carvalho & Rabechini Jr., 2011).

The focus on the technical aspects of projects, known as methodologies, its establishment and professional acceptance is called the first level (or wave) in project management. As organizations became more familiar with project management methodologies that indicated how to carry out projects, a second level (or wave) begun to emerge. This new level was more strategic, looking beyond the project by itself to examine how it relates to the organization as a whole (Carvalho & Rabechini Jr., 2011; Morris & Geraldi, 2011).

From this point on, projects began to be seen not as isolated events that should be well managed using state-of-the-art methodologies, and instead a much wider view of its inter-dependencies started to be proposed. As with organizations, projects also should be seen as open systems, which are affected by the environment in which they are immersed(Engwall, 2003; Morris & Geraldi, 2011). To gain a deeper understanding of how projects are affected by external forces, Engwall (2003) mentions five external factors that influence projects: "(1) experiences from past activities; (2) politics during the pre-project phases; (3) parallel courses of events happening during project execution; (4) ideas about the post-project future; and (5) institutionalized norms, values and routines of the project's organizational context."

As Engwall's (2003) work notes, the focus of project research advanced from single projects, efficiency and success factors to a broader spectrum. This has been further demonstrated by other researchers (Geraldi & Söderlund, 2017; Pollack & Adler, 2015). This

advancement in project studies led to an interest in the effects of institutions on projects, and how these effects were managed (Bresnen et al., 2011; Gemünden & Aubry, 2017; Morris & Geraldi, 2011).

Geraldi & Söderlund (2017) classify the types of research in project management in three categories. Type 1 has its focus on the technical aspects of projects, notably on control, prediction and causal understanding. Thus type 1 is more paradigmatic, refining the project processes to contribute to the field. Type 2 builds its base mainly on criticism of type 1, arguing against its rational analyses. The second type is more interested in the dynamics of social interactions and systems. This type of research links projects as temporary organizations to the broader organizational and management theories, seeing an opportunity for theoretical development. Type 3 uses the previous two types as steps toward a higher level of understanding of the field and beyond, looking to contribute to not only management in general, but also to sociology, psychology and political sciences.

This widening of project management research's scope is considered the third wave (or level) in the field (Bresnen et al., 2011; Geraldi & Söderlund, 2016, 2017; Morris & Geraldi, 2011; Pollack & Adler, 2015). This wave has brought more attention to projects and their interaction with the institutional context (Gemünden & Aubry, 2017). Meaning that the concern is on the effects of the organizational environment in which projects or programs are inserted, in order to increase successes from a long term perspective (Morris & Geraldi, 2011).

Those aspects are situated mainly outside the management scope of projects or program management, especially when looking at informal institutions such as the effects of culture, social contracts, behaviors (North, 1990) on projects. The change of view here can be better described as "the management for or on projects as opposed to management of or in projects" (Morris & Geraldi, 2011). This understanding was translated into practical terms by categorizing project management either as "protean", a term related to the flexible and adaptable capacity of the Greek god Proteus, or institutional, that on the other hand must work under the pressures of the institutional agents commonly called stakeholders in the field (Dille & Söderlund, 2011).

Institutional project management is the outcome of any other institutionalization process, the need for legitimacy (Meyer & Rowan, 1977; Suchman, 1995). Projects are often not confined within the organizations' limits, but interact with other institutional agents, who delimit the project positioning. This is the reality in which most project managers work, and

not the protean management approach with its autonomy and flexibility freedom (Dille & Söderlund, 2011).

Once the interest in project management expanded beyond the life cycle of a single project to look for factors related to success throughout time, as the institutional context, the role of the Project Management Office (PMO) started to gain importance as a research topic. This was mainly due to its more permanent nature that outlives the life cycle of the project (Morris & Geraldi, 2011). Maturity models and contingency approaches like Shenhar and Dvir's (2007) "NCTP" (novelty, complexity, technology, and pace) model were also topics that gained attention from project management scholars. These along with PMO studies were primarily trying to answer the question of how to provide and acquire the firm's capabilities to influence and augment project success. This question remains relatively unanswered and is the aim of institutional level studies in project management (Morris & Geraldi, 2011). Especially regarding the effects of regulative, normative and cognitive institutions (Scott, 1995) and the organization's isomorphic response to coercive, normative and mimetic pressures (DiMaggio & Powell, 1983).

As recently mentioned by Geraldi and Söderlund (2016, 2017) the current attention of scholars in the field of project management, or "project studies" as authors propose, is heavily focused on in this wider sense of how projects are affected by external factors. Particularly because it is well known that project is not an island (Engwall, 2003), and stakeholders representing institutions (Pedersen & Gwozdz, 2014), such as banks, key suppliers, professional associations and regulators, have great influence on its performance (Morris & Geraldi, 2011). Thus this research aligns itself with the current trend in the research field, and its results aim to contribute to the better understanding of the interactions of global projects and the institutional environment, and contributes to the established contingency approaches in the field (Gemünden & Aubry, 2017).

2.2.1 Global Projects

Global projects, as an organizational approach, are defined by Scott, Levitt and Orr as "a temporary endeavor where multiple actors seek to optimize outcomes by combining resources from multiple sites, organizations, cultures and geographies through a combination of contractual, hierarchical and network based modes of organization" (2011 p. 17).

Technological advances have enabled teams to work on the same project while being located on different continents, and still successfully deliver the expected results (Lee-Kelley & Sankey, 2008). Global projects continue to be a constant reality in organizations. Few projects rely only on national people or resources, but most of the time global interactions are a necessity.

This was enabled by advancements that took place since the 1970s such as fast international travel, sharing of information and interpersonal connectivity. Parcels can be delivered across the globe in 24 hours, connected computers exchange large files in seconds; wireless connected devices allow uninterrupted exchange of instant information. All this has reduced the transaction costs across nations and made it less attractive to organizations to internalize noncore personnel or structures (Orr, Scott, Levitt, Artto, & Kujala, 2011).

Nevertheless, this approach came with the price of needing to deal with cross-cultural differences. These differences span across all three dimensions of institutional environment, these being regulative, normative, and cultural-cognitive. Of the three, cultural-cognitive is the most straightforward, since they relate to social shared beliefs. Yet, these beliefs usually support the specifications regarding the "appropriate" way to do things. In sum, beliefs will trigger obligations, leading to the creation of laws and regulations (Javernick-Will & Scott, 2010).

Working with a different culture will have effects on all the dimensions of the institutional environment, and a lack of knowledge from the project manager of these differences and how to manage them will affect the project's development (Orr & Scott, 2008). Ghoshal and Westney (1993) was one of the pioneers works to recognize the usefulness of seeing multinational organizations as ventures that operate with multiple cultural frameworks, norms and rules. These varied and often contradictory isomorphic pressures will lead organizations to stablish formal structures to cope with or reproduce the institutional pressure.

The investigation in the field advanced to identifying the way that organizations respond to these institutional pressures. It was argued that the more familiar the entrant is with the differences of the foreign institutional context, the more they will choose a less active response, which in Oliver's (1991) framework is denoted as acquiesce and compromise. When the entrant lacks clear understanding of the foreign institutional pressures, their response will be more active, ranging from avoidance to defiance. It is also claimed that relations with the foreign constituents, and in this research the stakeholders, will be damaged if more active responses that try to avoid, defy or manipulate the environment are chosen (Orr & Scott, 2008).

For reasons such as these, choosing this research field is appropriate for reaching the objectives of this work, which is to inquire about the effects of institutional pressures on projects. Global projects aggregate stakeholders from multiple societies, exposing participants to different cultures, norms and rules (Javernick-Will & Scott, 2010). Unassertive adaptation of “global strategy” may not be the proper answer to global projects (Peng et al., 2008). Institutional knowledge is a fundamental to managing these projects (Javernick-Will & Scott, 2010), and this investigation looks to contribute to this understanding.

2.2.2 Complexity of projects

The study of the complexity of projects started to be a focal research topic with the publication of Baccarini's (1996) article. Before it, the subject was dispersed as a part of studies in project management in general. The research on complexity in the field of project management then evolved into two distinct branches, known as “complexity in projects” and “complexity of projects”. The first focuses on linking complexity theories in general with the field, and the second is more concerned with the effects of complexity from a practitioner point of view (Geraldi, Maylor, & Williams, 2011), which is also the focus of this research.

Complexity is not a construct with a simple definition, and has yet to be commonly defined in the field of project management (Rolstadås & Schiefloe, 2017). Thus one of the ways of understanding it is by how it is perceived by project managers in practice (Floricel et al., 2016). This can be compared to the way that quality is a perception of the one that experiences it (Geraldi et al., 2011). In general complexity is felt by practitioners when the behavior of the whole project cannot be predicted from understanding its individual parts (Williams, 2005).

Since its beginning, the research on complexity has proposed dimensions that are manifested in the project. The first classification was in two dimensions, organizational and technological complexity (Baccarini, 1996). The investigation in the field evolved to suggest other dimensions of classifications over time. Geraldi, Maylor and Williams (2011), analyzing the publications in the field, proposed a systematic literature review where based on 25 relevant papers they identified five dimensions of complexity in projects: Structural, uncertainty, dynamic, pace and socio-political. A more recent in-depth study explores the issue and identifies seven dimensions of project complexity (Bakhshi, Ireland, & Gorod, 2016).

Besides understanding the dimensions that form complexity, scholars also have proposed many measurement models for quantifying the level of complexity of a project, using distinct methods (Lu, Luo, Wang, Le, & Shi, 2015; Nguyen, Nguyen, Le-Hoai, & Dang, 2015; Shenhar & Dvir, 1996, 2007; Tatikonda & Rosenthal, 2000; Vidal, Marle, & Bocquet, 2011b). Although there are many approaches to measuring complexity found in the literature, one commonality among them is practitioners' reliance in the qualitative perception, even when applying mathematical models. They count on decision making methods, such as AHP (analytic hierarchy process), that classify evaluations from experts in order to make the optimal choice (Saaty, 1980).

It is not that pure mathematical models for measuring project complexity do not exist: there are important ones as mentioned by Vidal, Marle and Bocquet (2011a), models like the Coefficient of Network Complexity (CNC), the cyclomatic number and the static entropic measurement of complexity. However, these models have limitations as stated by the authors who say that "measures have shown their limits for several reasons. First, some limits have been highlighted about the reliability of such measures. Second, these measures are often non-intuitive for the final users and thus give results which are difficult to communicate on. Finally, these measures mainly refer to a model of the project system" (p. 719).

The institutional environment is also classified as a source of inherent complexity for projects (Lessard, Sakhrani, & Miller, 2014). Floricel, Michela and Piperca (2016) recently proposed a framework based on an investigation of the fundamentals of complexity theory, where four dimensions of complexity were identified and empirically tested. The model classified the dimensions into four quadrants from a practitioner perspective. The quadrants' definitions were developed firstly from the dualistic definition that complexity is either an intrinsic aspect of the reality or a representational aspect which results from constituents' inability to properly represent reality and its dynamics, called the correspondence problem. These two concepts form the first axis (intrinsic/representational) of the framework.

The second axis identified in complexity theory research classifies complexity as structural or dynamic. The first is defined as "interactions between component entities that produce unexpected forms and properties in higher-level systems, which cannot be explained, reduced to, or deduced from the properties of component entities, including their propensities for interaction" (Floricel, Michela, & Piperca, 2016 p.2). The second classification, dynamic, "addresses temporal emergence, particularly processes that bring about sudden, radical and

unpredictable change in systems" (Floricel, Michela, & Piperca, 2016 p.3). The four dimensions of complexity of projects are represented below:

Table 3 - Types of project complexity.

	Structural	**Dynamic**
Intrinsic	Institutional complexity	Organizational complexity
Representational	Technical complexity	Market complexity

Source: Adapted from Floricel, Michela and Piperca (2016)

This research seeks to investigate the effects of institutional pressures of stakeholders on the project. From this perspective the intrinsic complexity dimensions (institutional and organizational) proposed by Floricel et al. (2016) are concomitant to the measurement of internal and external stakeholders' pressures (Lessard et al., 2014). The organizational complexity is argued to be the greatest source in projects (Vidal et al., 2011a), and its driving factors are strongly related to the institutional pressure forces proposed by Oliver (1991).

Representational complexity relates to the more tangible aspects of the project, that are manageable and can be represented in some form (but not fully), and therefore measured (Floricel et al., 2016). Mirza and Ehsan (2017) have meticulously developed a Project Complex Index (PECI), with which it is possible to access several complexity factors within the scope, cost and time aspects. This approach was used with the intention of narrowing the complexity assessment to a more technical or representational sphere.

3. HYPOTHESES

This research adopts two principles to analyze the institutional pressures and its effects on projects: (1) stakeholders are a main channel driving macro-level institutional forces; and (2) noncompliance with the norms, rules and habits will be either rewarded or sanctioned by these constituents (Lee, 2011; Pedersen & Gwozdz, 2014). As this dyad is established, managers have to deal with the following questions "Will stakeholders contribute to the project as needed?" and "Will they refrain from taking any actions against the project?"(Eskerod & Larsen, 2017).

The behavior of stakeholders is not only guided by the rational thinking of "What is in for me?" but is also influenced by the context in which they belong, this being the identity-based perspective (Rowley & Moldoveanu, 2003). Therefore, the rules, norms and beliefs of the context, sedimented as macro-level institutions and perceived as legitimate, will likely be funneled into the project by the stakeholders (Pedersen & Gwozdz, 2014).

To better understand stakeholders' pressures, this research adopted the approach of classifying the stakeholders as internal and external, internal being the ones with contractual ties to the project (customers, owners, sponsors, superiors, suppliers, employees and their unions) and external being the ones that does not have those ties (public authorities, local community, media and competitors or industry associations) (Winch, 2007). This approach also enabled us to compare the results of the present quantitative approach to the past qualitative approach adopted by Aaltonen and Sivonen (2009), one of the sources of motivation of this study.

In order to make it possible to instrumentalize this research and in accordance with past research (Clemens & Douglas, 2005; Frezatti et al., 2007) a more streamlined approach to the relation between stakeholders' institutional pressures and strategic responses was adopted. That is, the greater the pressures perceived, the lower the resistance; thus, responses will fall into a more passive strategy. The responses classification framework proposed by Oliver (1991) range from a continuum of acceptance to resistance response strategies, being labeled: acquiesce, compromise, avoid, defy and manipulate as illustrated in figure 1. Consequently, H1 can be stated as:

H1a – Internal stakeholders' pressure relates negatively to resistance strategic responses.

H1b – External stakeholders' pressure relates negatively to resistance strategic responses.

H1c – Internal stakeholders' pressure relates positively to acceptance strategic responses.

H1d – External stakeholders' pressure relates positively to acceptance strategic responses.

Stakeholders that have a high level of agreement among their requirements will pose greater institutional pressure, but conflicting stakeholder requirements will diminish the pressure and a greater resistance to pressures is expected (Oliver, 1991). In projects, the expected outcome is similar, leading to the H2:

H2a – Internal stakeholders conflict relates positively to resistance strategic responses.

H2b – External stakeholders conflict relates positively to resistance strategic responses.

H2c – Internal stakeholders conflict relates negatively to acceptance strategic responses.

H2d – External stakeholders conflict relates negatively to acceptance strategic responses.

All projects are complex in some form, due to that fact that they are temporary efforts destined to produce on some level a novel outcome, with limited resources and within a wider organizational environment (Padalkar & Gopinath, 2016). Thus, as an inherent attribute, the level of complexity will affect management decisions somehow, especially in identifying ways to reduce these effects (Lessard et al., 2014).

The relation between complexity perception and adaptation strategies relates to managers' ability to properly assess the intricacy level embedded within the project. Without it, managers will probably adopt models by imitating others, especially when these models are socially legitimized by regulatory and professional bodies. The choice or development of a new and more adequate model to match the complexity is a consequence of understanding about the degree of the project's complexity (Floricel et al., 2016).

Therefore, the project's complexity degree will affect managers' responses to stakeholders' institutional pressures. An understanding of the project as a highly complex entity, will result in a search for higher level of adaptability and flexibility within the project, leading to active responses. Drawing from the perspectives above this research proposes H3:

H3a - Complexity will positively moderate the relationship between internal stakeholder pressure and resistance strategic responses.

H3b - Complexity will positively moderate the relationship between external stakeholder pressure and resistance strategic responses.

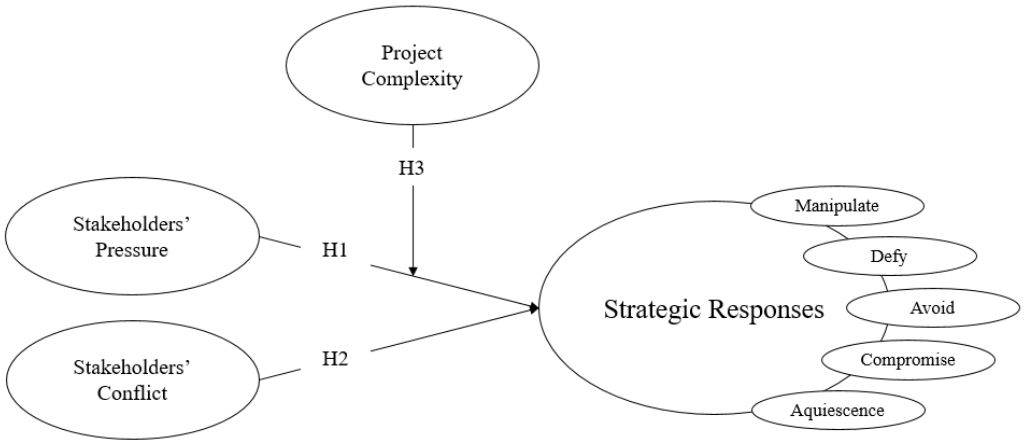

Figure 1 - Research framework. Source: Author

4. METHOD

This section is comprised of the following: first, given the parameters specified by our statistical analysis, the sample size is calculated and described with descriptive statistics. Then, the variables are presented, and a detailed measurement description is provided, followed by the detailed information about the analysis procedures.

4.1 Sample

The number of project management professional has increased during the last decades (Carvalho & Rabechini Jr., 2011). The Project Management Institute (PMI) states, on their website, that they have already certified over 370,000 professionals (Project Management Institute, 2017a). Also, a closed online group of practitioners (ProjectManagers.net, 2017) within a social network has approximately 865,000 participants, all ensured to have experience within the field.

This research has exploited the broad online presence of project management professionals, not only within the groups mentioned, but also from others such as IPMA (International Project Management Association) associates. The sample was surveyed through a questionnaire. Sue and Ritter (2007) state that online surveys may be administered by sending the questionnaire by e-mail or using a web-based service. It is also recommended to first send an e-mail to the target participants inviting them to participate in the survey; nevertheless, advertising the survey within the groups is also a viable alternative.

As the objective of the survey was to understand the general behavior of project managers regarding the decisions they take when pressured by institutional context, the greater the number of respondents the better (Sue & Ritter, 2007). To arrive at a more specific number to better guide the data collection, the software *G*Power* was used (Buchner, Erdfelder, Faul, & Lang, 2017). Following the procedures indicated for calculating the sample size for a multiple regression, assuming that both dependent and independent variables are random (Erdfelder, Faul, Buchner, & Lang, 2009), the following result was given (see figure 2).

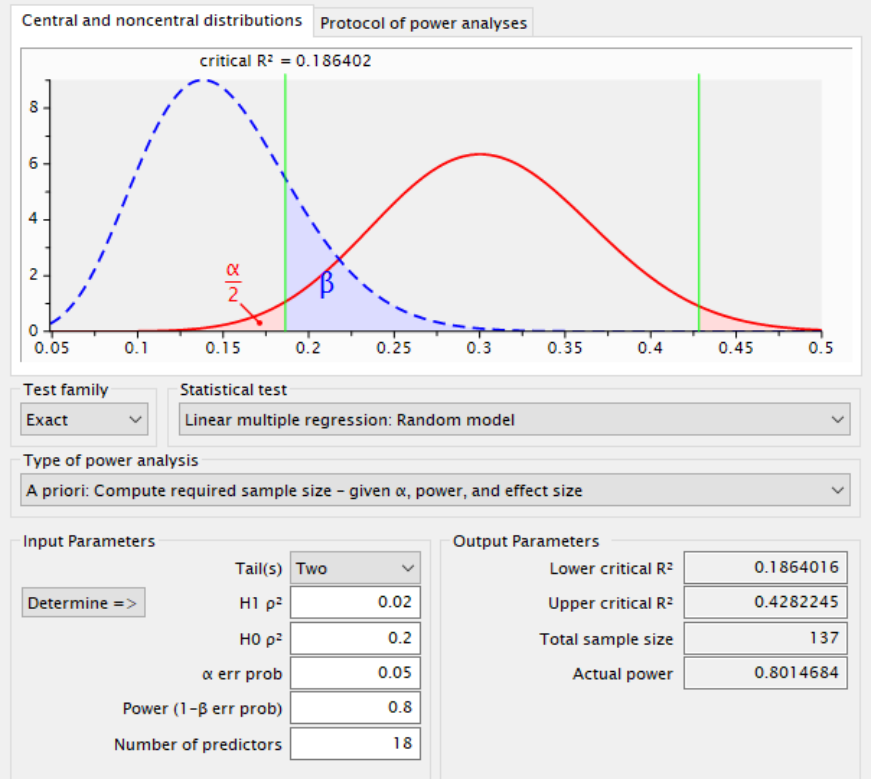

Figure 2 - Sample calculation results. Source: Author using *G*Power* software

The questionnaire was posted on *LinkedIn* and *Facebook* groups, project management forums, and online practitioners' communities. Another approach was sending e-mails inviting project managers to collaborate on the research (Sue & Ritter, 2007). The eligibility criterion was management experience in global projects. If the respondent expressed not having experience in this type of project, he was not allowed to continue the survey. The survey was viewed 1,355 times. Of those, 405 started answering, but some left or did not qualify the criteria of participation on global project.

As a result, 171 partially completed the survey and 113 finished the whole survey. Due to time limitations the model was run with the completed answers obtained as this met the 5:1 minimum requirement to run a multiple regression (Hair, Black, Babin, & Anderson, 1998). *G*Power* was used to verify the minimum effect size that could be perceived given the sample size of 113 (see Figure 3).

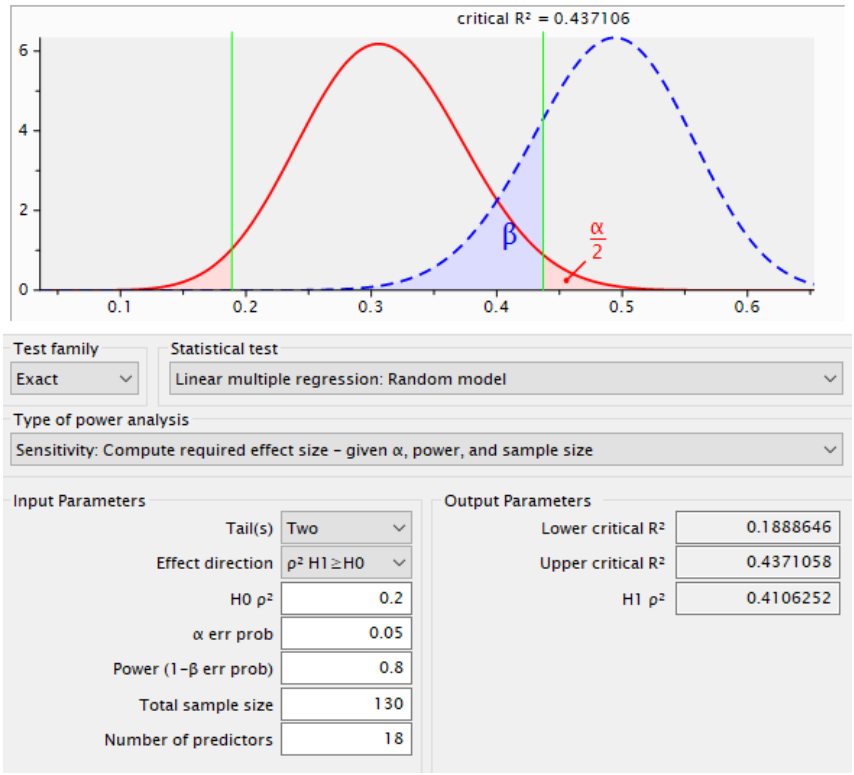

Figure 3 - Statistical power calculation results. Source: Author using *G*Power* software

PMI publishes every year a survey showing the current state of the field. In 2017, the survey had 3,234 participants, and can be used as a representation of the demographics of project managers' population (Project Management Institute, 2017b). These demographics motivated this thesis' control variables and below are the comparisons of PMI's sample and the one attained with this research.

Table 4 compares the region of the owner of the project. It shows a divergence related to the region: the study's sample has more respondents from Latin America than other regions, due to this being the region were the researcher had more contacts, especially for sending the survey via e-mail, what was the most effective way to obtain replies.

Table 4 - Regions of PMI survey respondents' organizations vs. sample.

Regions					
	PMI	Sample		PMI	Sample
North America	50%	22%	Asia Pacific	20%	4%
Europe, Middle-east, Africa	23%	21%	Latin America	7%	53%

Source: Author based on research data and Project Management Institute (2017)

Table 5 compares the industries of the project of the research's sample and PMI's. In this category, both samples are very similar. The overall participation matched PMI's sample, with exceptions to government and consulting that can be highlighted as having noticeable difference.

Table 5 - Industries of PMI survey respondents' organizations vs. sample.

Industries					
	PMI	Sample		PMI	Sample
Information Technology	18%	18%	Automotive	3%	5%
Financial Services	10%	7%	Aerospace	3%	5%
Energy	8%	9%	Training / Education	2%	1%
Government	7%	2%	Transportation / Logistics	2%	6%
Healthcare	7%	5%	Food & Beverage	2%	2%
Manufacturing	7%	6%	Retail	2%	4%
Telecom	6%	4%	Pharmaceutical	2%	1%
Construction	6%	10%	Mining	1%	1%
Consulting	4%	0%	Others	10%	13%

Source: Author based on research data and Project Management Institute (2017)

Table 6 presents the comparison regarding the revenue of the parent organization, or the project owner. The respondents of the research's sample and PMI's were basically the inverse, having more small firms and less large firms.

Table 6 - Revenue of PMI survey respondents' organizations vs. sample.

Revenue (USD/year)					
	PMI	Sample		PMI	Sample
5 Billion or more	38%	7%	250 - 499 Million	7%	12%
1 - 4.99 Billion	16%	12%	50 - 249 Million	13%	21%
500 - 999 Million	8%	11%	Less than 50 Million	18%	37%

Source: Author based on research data and Project Management Institute (2017)

4.2. Variables

The main variables that were essential in order to test the hypotheses proposed in this work are shown in the framewok (figure 1) and consists of the independent variables pressure and conflict that were further sub-divided into internal/external stakeholders' pressure and internal/external stakeholders' conflict. Subsequently, the dependent variables portrayed as a step-wise continuum from resistance to acceptance response strategies, named: manipulate, defy, avoid, compromise and acquiescence. Lastly, the moderator variable: project complexity.

To test the hypotheses proposed it is necessary to measure the extant of institutional pressure and the responses, this was undertaken already by other scholars in fields as steel industry (B. W. Clemens & Douglas, 2005), fashion industry (Pedersen & Gwozdz, 2014), water management (Tingey-Holyoak, 2014) and budget achievement (Frezatti et al., 2007). Still this has not been done in the field of project management; hence the measurement instruments utilized by past research required minor adaptation. The survey instruments used were adapted based on past researches (Frezatti et al., 2007; Pedersen & Gwozdz, 2014) and are found in the appendix section. Each variable and the measurement instrument is further detailed in the folowing sub-sections, and also the control variables are presented.

4.2.1 Independent Variables

Institutional pressure is not a construct of simple translation into a few numbers of measurable items, thus relying on past researches is the best option to avoid consistency issues. In the case of this work, it followed the approach of Pedersen & Gwozdz (2014) to measure the institutional pressures, funneled by stakeholders. The measurement instrument draws from this

previous research in the fashion segment that measured the same construct and makes minor adaptation to direct the items to the project management context.

The research interest in this variable is to identify the magnitude of the contribution to the institution's reinforcement by stakeholders. For that reason, stakeholders included in this research are Customers; Owners/Sponsors and superiors; Employees and Unions; Suppliers; Public Authorities; Local Community and media; Competitors and Industry groups/associations. For better understanding on how these stakeholders' pressures together would affect the project, the approach of classifying into internal (Customers; Owners/Sponsors and superiors; Employees and Unions; Suppliers) and external (Public Authorities; Local Community and media; Competitors and Industry groups/associations) was adopted (Winch, 2007).

The first item of the scale, 'To what extent do the groups below set project management requirements to the project?' (on an 11-point scale from 0 = no demands and 1 = few demands to 10 = very high demands), allows measuring the intensity of pressures from stakeholders, in conjunction with the second item of the scale, 'To what extent are the groups below able to affect the project?' (on an 11-point scale of 0 = no influence and 1 = little influence to 10 = very significant influence) that assess the influence of stakeholders. Both questions were repeated for each stakeholder group and a total average was calculated by not including 'no demands' stakeholders and adjusting for the number of stakeholders included.

The third item measures the consistency of stakeholders with the project scope by evaluating how their requirements related to the scope. Using the question 'To what extent are [stakeholder requirements] consistent with the project scope?' (on a 10-point scale from 1 = no/very little consistency to 10 = complete consistency). The mean of the answers to the all three items (intensity, influence and consistency) was used to measure the internal and external stakeholders' pressures.

Also, the third item of the scale allowed to evaluate the conflict among stakeholders within the group. The value reflecting the range from minimum to maximum stakeholder consistency for the project was calculated by deducting the minimum perceived stakeholder consistency value from the maximum perceived stakeholder consistency across both stakeholder groups. A low value is associated to more consistency and a high value to more conflict.

4.2.2 Dependent Variable

There are five strategic responses that are classified as a continuum of high to low resistance to institutional pressures (Oliver, 1991). The framework reflects this continuum, as well as the hypotheses, in which it is stated the relation between the pressures with resistance and acceptance following the same approach of previous researches (B. Clemens, Bamford, & Douglas, 2008; Oliver, 1991; Tingey-Holyoak, 2014). It is required to clarify that, although the framework shows a continuum, the scale used to measure the responses inquired about each one individually. Leading to testing the set of independent variables to each response type (dependent variable), however in favor of simplicity of design the responses were portrayed as an array following the approach in previous research (Tingey-Holyoak, 2014).

The model (see appendix section 7.1.2) was designed to assess each one of the five responses individually. For each response there is a set of 3 or 4 items that the respondent must indicate their agreement in a 6 point Likert scale, allowing to scrutinize the degree of the response, but with a clear position whether regarding acceptance or not of the item, as done by previous research (Frezatti et al., 2007). Minor adaptations for this scale items were also required, but not changing the overall meaning of the items, but only the object of the research (budget goals to project management). For the objective of running the statistical analysis the mean of the answers for all the items referring to each strategic response was calculated and then applied as the dependent variable score.

4.2.3 Moderating Variable

Project complexity was treated as an index grounded on Mirza and Ehsan (2017) paper. Respondents were requested to fill the Project Execution Complexity Index (PECI) questionnaire. The calculations followed the procedures as they were proposed by the authors in order to compute a complexity index value in a range from 0 (extremely low) to 10 (extremely high). This index was then included in the model to assess the complexity's influence on the relationship between stakeholders' institutional pressures and strategic responses.

In Mirza and Ehsan (2017) paper, PECI is calculated using the answer to the scale items regarding to schedule, scope and cost/resource complexity. Also, respondents were requested to attribute weights to each of the categories. These inputs are used to calculate the variables of Equation (1) defined next:

T = Mean of Schedule complexity = ∑ (Schedule complexity items)/Total number of Schedule complexity items;

S = Mean of Scope complexity = ∑ (Scope complexity items)/Total number of Scope complexity items;

C = Mean of Cost/Resource complexity = ∑ (Cost/Resource complexity items)/Total number of Cost/Resource complexity items;

Weight of Schedule complexity = Wt;

Weight of Scope complexity = Ws;

Weight of Cost/Resource complexity = Wc.

The PECI calculation includes multiplication by 10 to create PECI values ranging from 0 (extremely low) to 10 (extremely high).

Equation (1) PECI = [{(T*Wt)+(S*Ws)+(C*Wc)}/100]*10

4.2.4 Control Variables

The purpose of a control variable is to account for correlations that are not pertinent to the proposed theory underlying a model. A set of control variables was used to identify the type of project that the responses were associated to. As this research banks on PMI's recent data (Project Management Institute, 2017b) about the population of project managers, the control variables followed its fashion requesting respondents to classify the project as follows.

- Stakeholders' Region: North America; Europe, Middle-east & Africa; Asia Pacific; or Latin America.
- Project's Industry: Information Technology; Financial Services; Energy; Government; Healthcare; Manufacturing; Telecom; Construction; Consulting; Automotive; Aerospace; Training/Education; Transportation / Logistics / Distribution; Food & Beverage; Retail; Pharmaceutical; Mining; or Others.
- Project owner/sponsor organization revenue (USD/year): 5 billion or more; 1-4.99 billion; 500-999 million; 250-499 million; 50-249 million; less than 50 million.

These organization-related control variables were treated as categorical variables for the statistical analysis to further assist on assessing influences of characteristics that also impact on the strategic responses such as the cultural differences of owner and manager (Orr & Scott, 2008) and the size of the organization reflecting its visibility to the public or external stakeholders (B. W. Clemens & Douglas, 2005). The types of industry were further classified into three categories: manufacturing, service and others in order to reduce the number of control variables and model's parameters (Table 7).

Table 7 - Classification of Industries.

Industries				
	Classification			Classification
Information Technology	Services		Automotive	Manufacturing
Financial Services	Services		Aerospace	Manufacturing
Energy	Services		Training / Education	Services
Government	Services		Transportation / Logistics	Services
Healthcare	Services		Food & Beverage	Manufacturing
Manufacturing	Manufacturing		Retail	Services
Telecom	Services		Pharmaceutical	Manufacturing
Construction	Manufacturing		Mining	Manufacturing
Consulting	Services		Others	Others

Source: Author

4.3 Analysis Procedures

This research relies on multivariate analysis to address the research question. As this work is based on multiple variables, multivariate technics are the most appropriate. Based on Hair et al., (1998) framework for selecting the appropriated statistical method (see figure 4), multiple regression was the most appropriate one. For each strategic response type, the dependent variable is continuous in a scale of 1 to 6. And the objective is to assess the relationship between several covariates (independent, moderating and control) and a single continuous dependent variable.

Also following the approach indicated by Hair et al., (1998), the six-stage model-building process was used to properly obtain the best results from the collected data (see figure 4). This process starts from looking the research problem, selection of variables, design of the

regression analysis, bearing in mind aspects as sample size and the requirement for variable transformations. A regression model was formulated, all the assumptions fundamental to regression analysis were tested for each variable. With the results obtained, diagnostic analyses were completed to certify that the model meets the regression assumptions and that no observations have excessive impact on the results. The succeeding stage was the interpretation of the results and how each independent variable may explain the dependent. In conclusion, the results were validated to search for generalizability to the population.

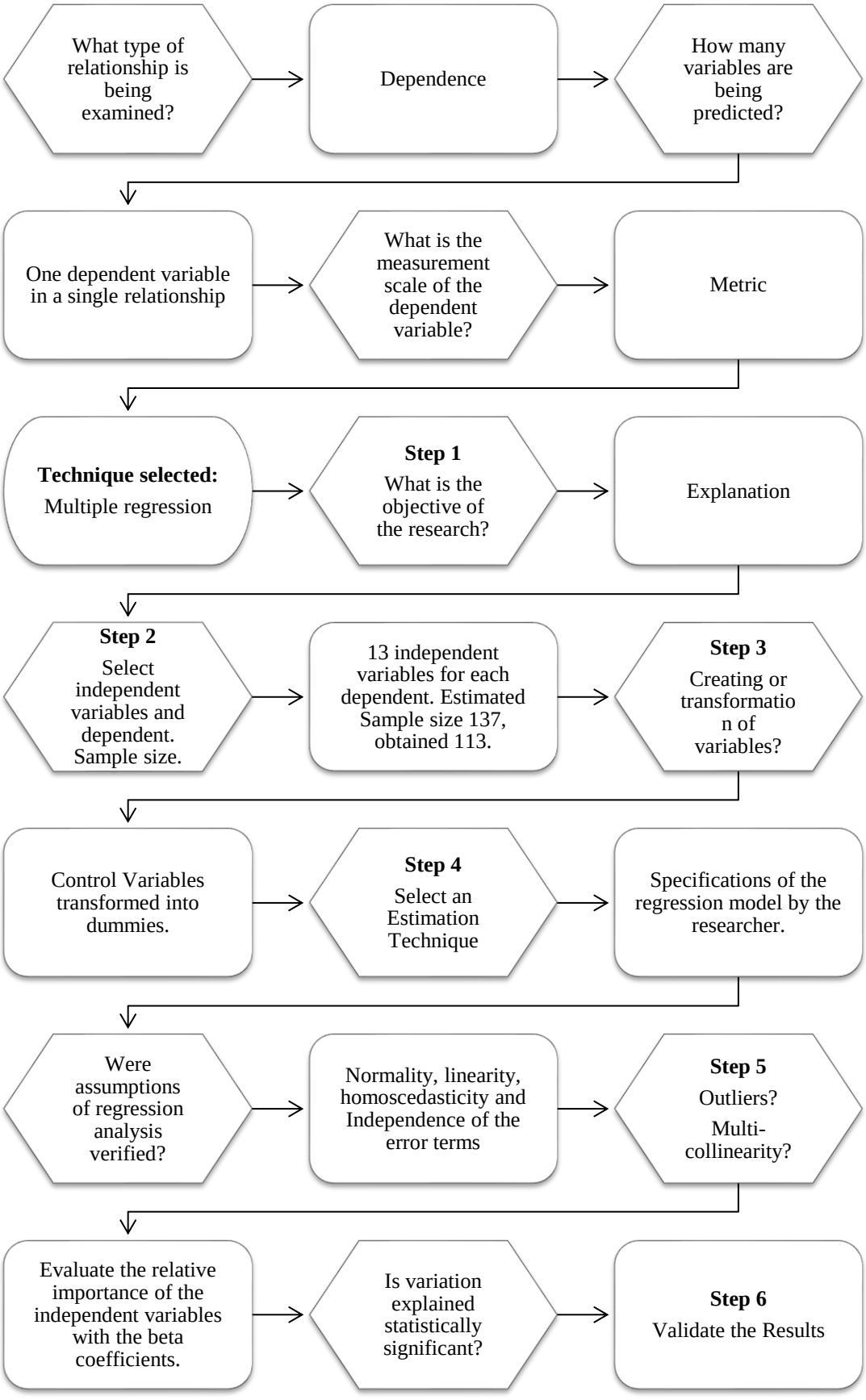

Figure 4 - Analysis procedure framework based on Hair's et al. (1998).

5. RESULTS

In this section the results found will be presented regarding the theorical background and the methodology procedures adopted. First the general statistics along with the correlations are presented in Table 8. Second regression assumptions were verified with plots (figures 5 to 11) for the models containing all independent variables, tested for each response strategy (dependent variable). Third, the variance inflation factors (VIF) for multicollinearity verification are presented (table 9), and to conclude table 10 displays the regression results.

Analyzing the correlation matrix, no high correlation value was found. The highest significant correlations are between internal and external stakeholders' pressures (0.467) and external stakeholders' pressures and internal conflict (0.427). It is also noticeable the significant positive correlations between response strategies acquiesce and compromise with internal pressure (0.301; 0.314) and avoid with external pressure (0.234).

The regression was tested using 3 models. Models 1 and 2 were tested for all five response strategies. Model 1 has only the controls variables. Model 2 with all the independent variables along with the control. Subsequently, the moderation effect of project complexity was tested in relation to the resistance responses, defy and manipulate, in model 3.

Figure 5 shows the plots to verify the regression assumptions for model 2 of response strategy acquiesce. As seen in the plots, the assumptions regarding linearity of the phenomenon measured (residuals vs. fitted), normality of the error term distribution (normal Q-Q), constant variance of the error terms or homoscedasticity (Scale-Location) and influential cases (residuals vs. leverage).

Table 8 - Descriptive statistics and correlations.

		Mean	Std. Dev	1	2	3	4	5	6	7	8	9	10	11	12
1	**Internal Conflict**	3.890	2.550												
2	**External Conflict**	2.400	2.550	0.349											
3	**Internal Pressure**	7.600	1.310	-0.320**	0.032										
4	**External Pressure**	5.260	2.490	-0.427**	0.196*	0.467**									
5	**Acquiesce**	4.590	0.610	-0.050	0.071	0.301**	0.105								
6	**Compromise**	5.030	0.726	-0.006	0.198*	0.314**	0.166	0.242*							
7	**Avoid**	3.200	0.912	-0.162	-0.1724	-0.023	0.234*	0.132	0.093						
8	**Defy**	3.720	0.728	0.046	-0.011	0.136	0.204*	0.291*	0.106	0.368**					
9	**Manipulate**	4.370	0.771	0.064	0.007	0.180	0.077	0.335*	0.094	0.294**	0.377				
10	**PECI**	5.750	0.914	-0.136	0.065	0.274**	0.349**	0.045	0.044**	0.228*	0.248**	0.103			
11	**Industry**	1.841	0.635	-0.016	0.039	-0.059	0.004	-0.291**	-0.086	-0.073	-0.156	-0.087	-0.031		
12	**Revenue**	3.062	1.644	-0.016	0.152	0.161	0.077	-0.044	-0.037	0.062	0.075	0.097	0.174	-0.103	
13	**Region**	2.611	1.197	-0.045	-0.090	0.097	-0.032	0.044	0.032	0.002	-0.115	-0.051	-0.003	0.013	0.049

Note: N = 113 * = p<0.05; ** = p<0.01; Source: authors' calculations with research data

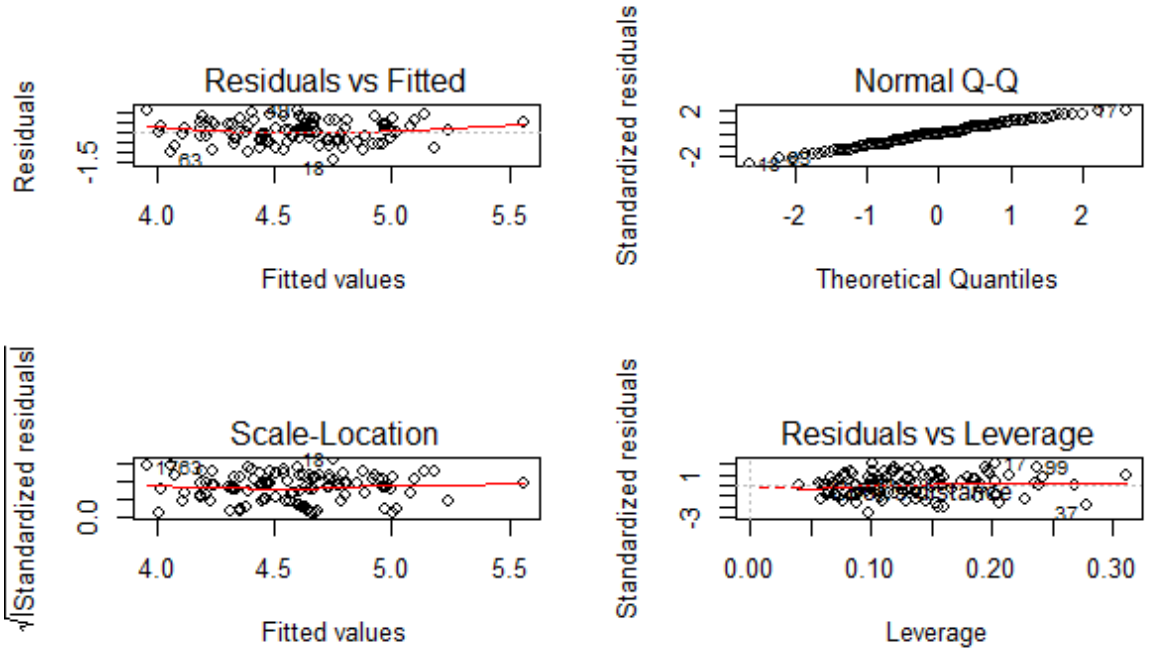

Figure 5 - Acquiesce model 2 response strategy assumptions plots

Figure 6 displays for model 2 of response strategy compromise. It can be observed a non-horizontal pattern in the scale-location plot, this could be a sign of non-constant variances in the residuals errors (or heteroscedasticity), so the global test on 4 degrees-of-freedom ("gvlma" function in R software) with level of significance of 0.05 was performed and the null-hypothesis test results (p value < 0.776) showed no concerns to heteroscedasticity. No issues with linearity, normality, and influential cases were identified.

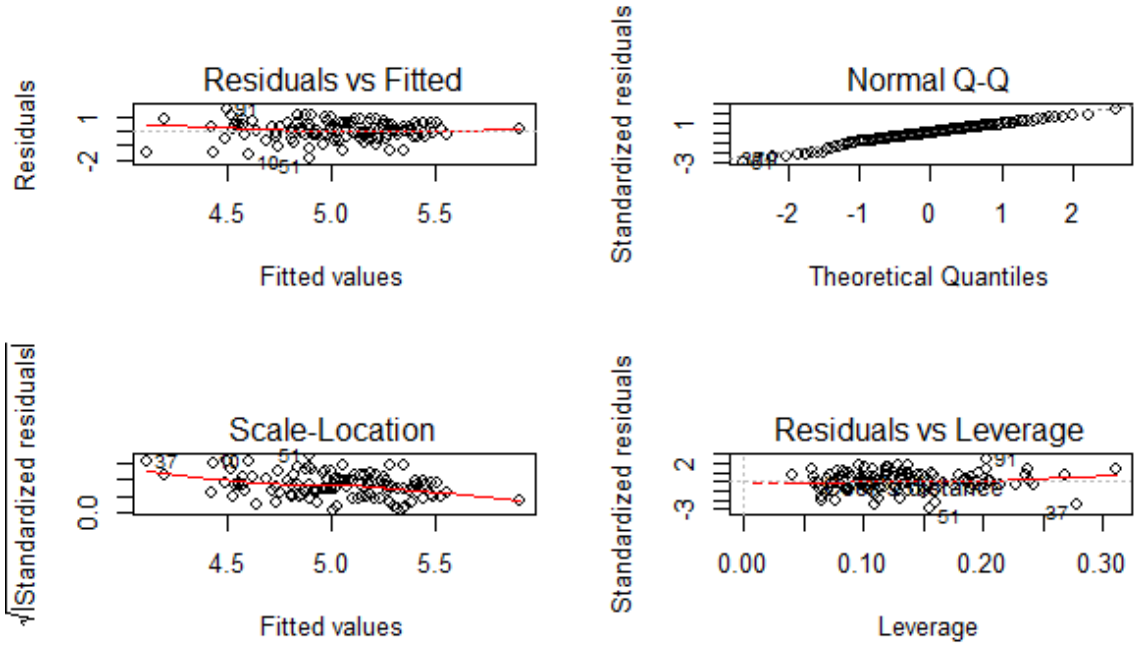

Figure 6 - Compromise model 2 response strategy assumptions plots.

The plots regarding linearity, normality, homoscedasticity and influential cases assumptions of model 2 for response strategy avoid are demonstrated in figure 7 and could be considered satisfied.

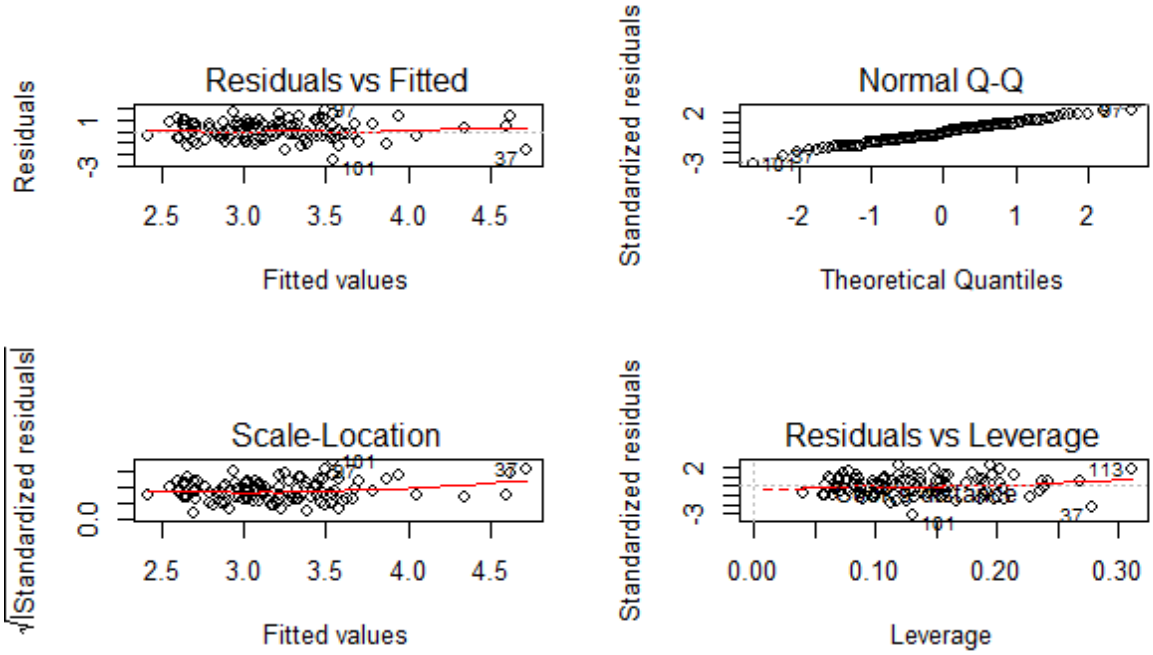

Figure 7 - Avoid model 2 response strategy assumptions plots.

Figure 8 presents the plots concerning linearity, normality, homoscedasticity and influential cases assumptions of model 2 for response strategy defy. They may well be considered fulfilled.

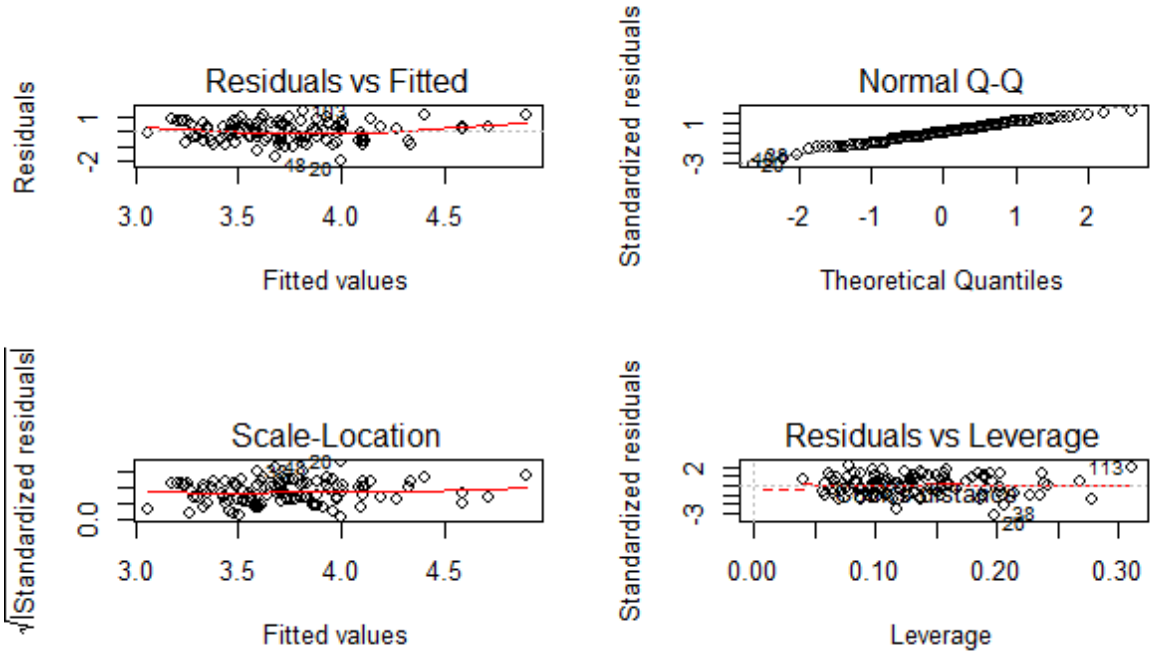

Figure 8 - Defy model 2 response strategy assumptions plots

The last model 2 assumptions tested was for response strategy manipulate. Again all 4 plots show results with no issues vis-à-vis linearity, normality, homoscedasticity and influential cases of the data.

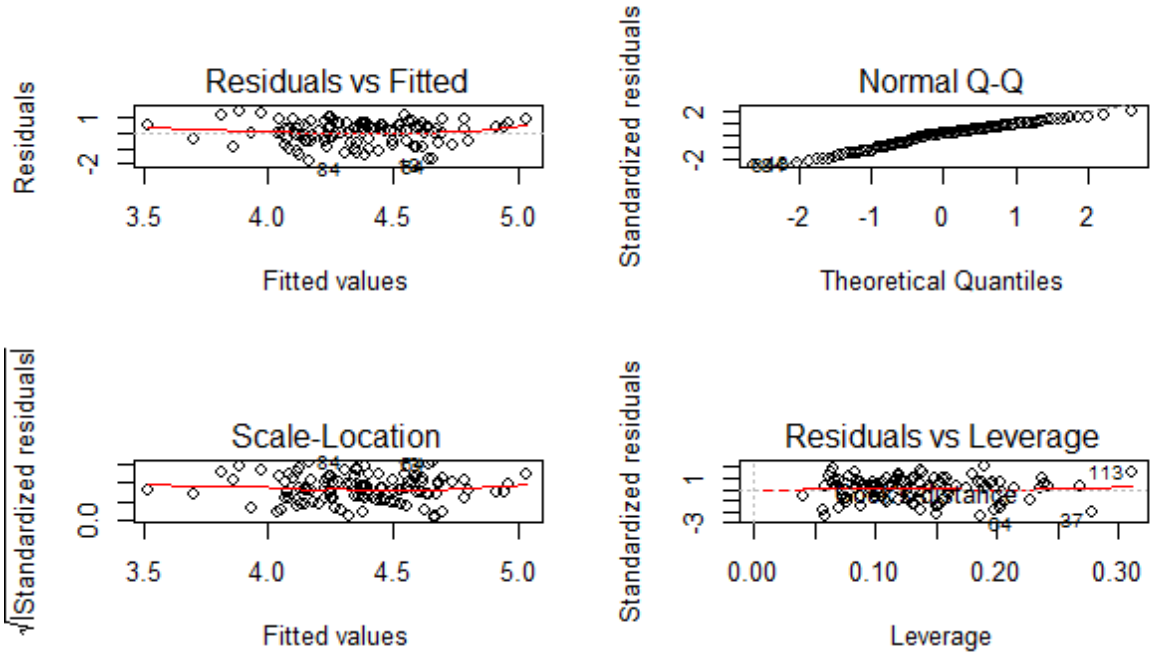

Figure 9 - Manipulate model 2 response strategy assumptions plots.

The last two models to be presented are the ones that includes the moderation interaction. Figure 10 displays model 3 for response strategy defy. Although the noticeable presence of an isolate observation, assumptions can still be considered satisfied.

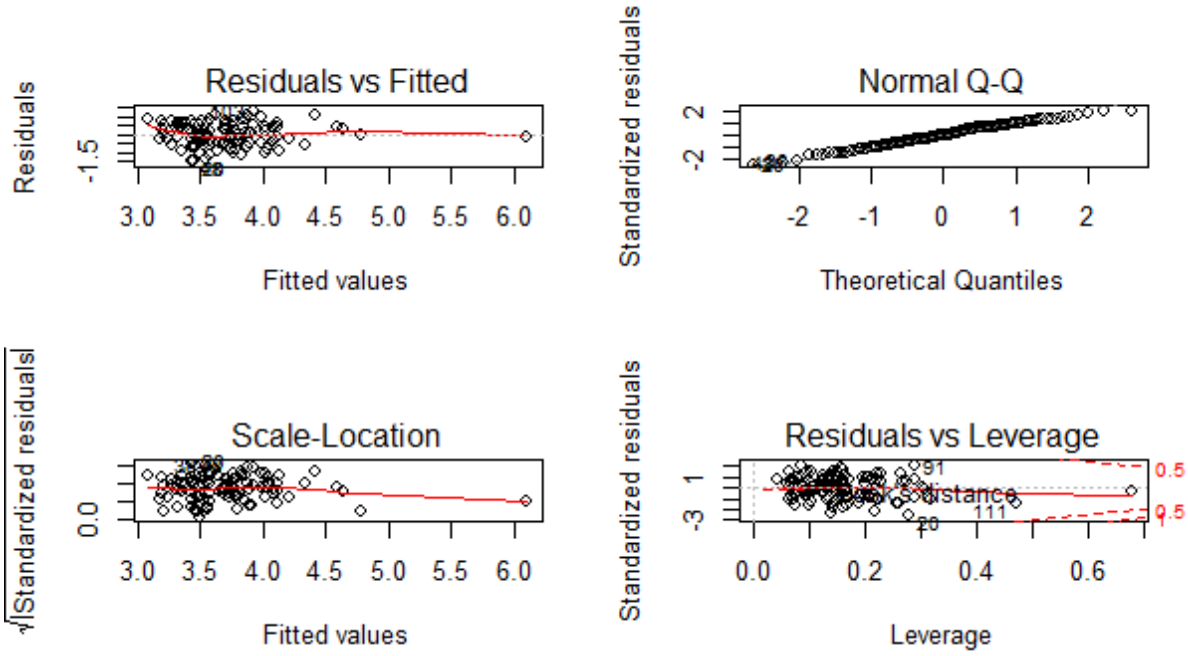

Figure 10 - Defy response strategy with PECI moderation assumptions plots.

Lastly, assumptions for model 3 for response strategy manipulate also shows an isolate case (113), however it is still within Cook's distance limits (Cook, 1977), thus not considered influential. Linearity, normality and homoscedasticity were also satisfied.

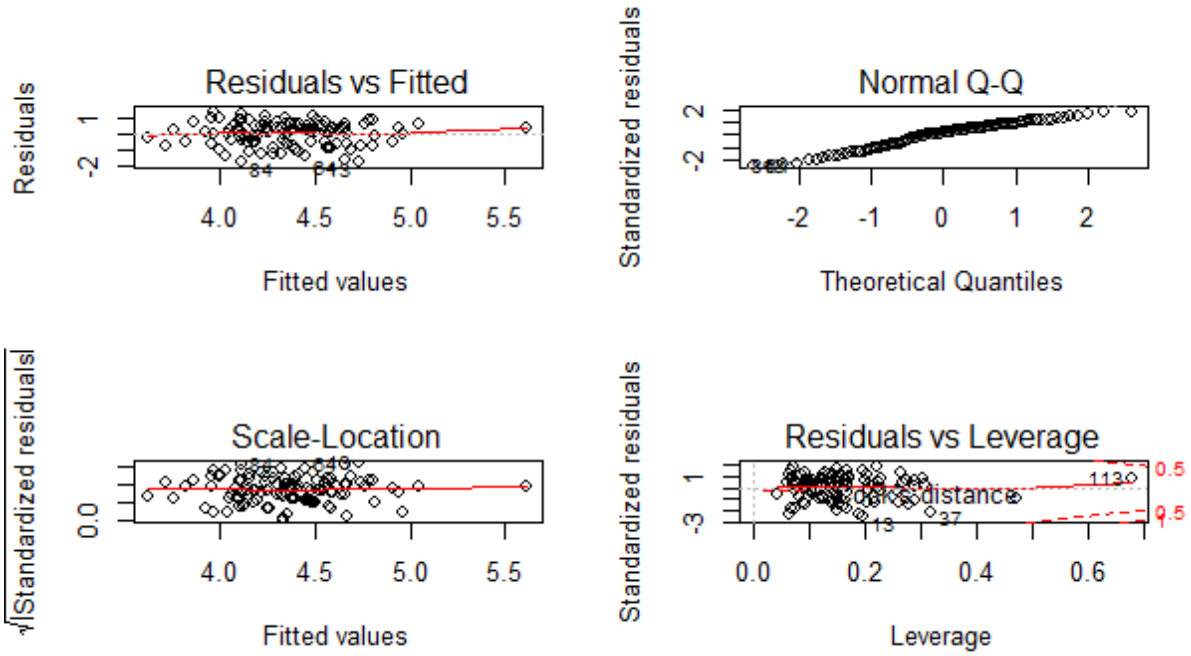

Figure 11 - Manipulate response strategy with PECI moderation assumptions plots.

Independence of the error terms was tested in *R* using Durbin-Watson statistic. All models shown in the previous plots were tested. Only model 2 for response strategy acquiesce presented a result of p-value inferior to 0.05 what could be a sign of autocorrelation. However, the global test on 4 degrees-of-freedom ("gvlma" function in *R* software) with level of significance of 0.05 was performed and all assumptions were considered satisfied.

Another the main concern while designing this research was the multicollinearity among variables. In order to address this issue, the VIF were checked to emphasize that there were no multicollinearity problems with the variables. Results are shown in the table 9 below:

Table 9 - VIF values for models with and without moderation.

	No Moderation	With Moderation
Internal Pressure	1.494	59.662
External Pressure	2.017	74.726
Internal Conflict	1.934	1.935
External Conflict	1.593	1.630
Industry	1.178	1.202
Revenue	1.546	1.774
Region	1.561	1.871
PECI		33.266
PECI*Internal Pressure		155.036
PECI*External Pressure		112.625

Source: authors' calculations with research data

The VIF values are in the great majority well below the threshold of 30, or even 10 to 5 when going for a stricter approach, in exception to the ones that have the moderation effect, for these it was found VIF values above 30 and even 100, that could be considered a problem if there was no interaction. However due to the interaction they are expected to be highly correlated with their product, nonetheless the p-value for this model is not affected by the multicollinearity. Consequently, the multicollinearity has no adverse significances (Belsley, Kuh, & Welsch, 1985).

Table 10 presents the results of the statistical tests of the hypotheses. Model 1 has the controls variables results. Model 2 includes independent along with control variables aiming to verify hypotheses H1 and H2. Subsequently, the moderation effect of project complexity was tested in relation to resistance response strategies in model 3 to verify hypothesis H3.

The results show that there is a positive significant effect of internal pressure for the response acquiescence (0.151, $p < 0.001$) and compromise (0.183, $p < 0.001$). It confirms the hypothesis H1c, showing that as internal stakeholder pressure on the project management increases the non-resistance responses are also the most likely to be predicted. Hypothesis H1a could not be confirmed as no significant effect was found on internal pressure and resistance response strategies (defy and manipulate).

External stakeholder pressure was found to have a positive significant effect for the avoid response strategy (0.111 $p < 0.05$). Avoid is the transition response from acceptance to

resistance, thus it is not possible to affirm that hypothesis H1b and H1d are confirmed without any significant results on the resistance response strategies. The expected result for external pressure on the response strategy avoid was the opposite from the one found.

Finally, the stakeholder conflict variable, either internal and external, did not show any significant effects on the responses. Hence it was not possible to confirm any of the hypotheses H2. Also, the moderation effects of complexity were not significant to confirm hypotheses H3.

Table 10 - Regression Results.

	Acquiesce		Compromise		Avoid		Defy			Manipulate		
	Model 1	**Model 2**	**Model 1**	**Model 2**	**Model 1**	**Model 2**	**Model 1**	**Model 2**	**Model 3**	**Model 1**	**Model 2**	**Model 3**
Internal Pressure		0.151**		0.183**		-0.144		0.050	-0.643		0.095	-0.684
External Pressure		-0.021		0.011		0.111*		0.065	0.100		0.011	0.220
Internal Conflict		0.003		0.014		0.001		0.064	0.065		0.043	0.042
External Conflict		0.028		0.044		0.068		-0.037	-0.034		-0.012	-0.011
PECI									-0.773			-0.878
PECI*Internal Pressure									0.118			0.136
PECI*External Pressure									-0.008			-0.037
Industry (Manufacturing)	-0.367**	0.013*	-0.188	0.431	-0.156	0.406	-0.320*	0.121	0.162	-0.304	0.175	0.186
Industry (Others)	-0.546**	0.003**	-0.158	0.504	-0.134	0.555	-0.323	0.162	0.158	-0.101	0.752	0.742
Region (Asia)	0.628*	0.029*	-0.303	0.356	1.398**	0.013 *	0.453	0.276	0.824	0.394	0.310	0.570
Region (EMEA)	0.183	0.458	0.046	0.847	-0.200	0.876	-0.305	0.432	0.499	-0.167	0.601	0.556
Region (South America)	0.106	0.475	0.003	0.934	0.094	0.714	-0.167	0.401	0.293	-0.184	0.373	0.271
Revenue ($50 - 249 Million)	-0.146	0.220	-0.108	0.372	0.293	0.225	-0.108	0.380	0.202	0.346	0.133	0.161
Revenue ($250 - 499 Million)	-0.273	0.261	-0.271	0.363	0.206	0.710	0.175	0.346	0.632	-0.155	0.725	0.598
Revenue ($500 - 999 Million)	-0.068	0.333	-0.171	0.132	0.175	0.462	0.604**	0.035*	0.033*	0.209	0.675	0.598
Revenue ($1 - 4.99 Billion)	-0.235	0.089	-0.294	0.069	0.454	0.083	0.020	0.845	0.804	0.402	0.174	0.142
Revenue ($5 Billion or more)	-0.081	0.470	0.221	0.859	-0.014	0.875	-0.102	0.781	0.905	0.097	0.779	0.557
Adjusted R^2	0.154	0.244	0.062	0.197	0.140	0.217	0.170	0.215	0.287	0.094	0.119	0.154
F	1.858	2.257	0.679	1.719	1.657	1.942	2.095	1.922	2.248	1.057	0.951	1.016
Regression *p*-value	0.05989	0.010	0.742	0.064	0.101	0.031	0.031	0.103	0.007	0.402	0.509	0.449
N	113	113	113	113	113	113	113	113	113	113	113	113

* = p<0.05; ** = p<0.01; Source: authors' calculations with research data

Note: The dummies were coded in a $c = k - 1$, so that *c* variables can be used to code *k* distinct classes. The reference categories for control variables were: Industry (Services); Region (North America); Revenue (Less than $50 million).

6. DISCUSSION AND CONTRIBUTION TO PRACTICE

The idea that organizations undergo institutional pressures to conform, causing fields to become homogeneous, has been widely tested using quantitative methods in business, project management and operations literature (Cao, Li, & Wang, 2014; Daddi, Testa, Frey, & Iraldo, 2016; Dubey, Gunasekaran, & Samar Ali, 2015; He et al., 2016; Liu, Ke, Wei, Gu, & Chen, 2010; Teo, Wei, & Benbasat, 2003; Wang, He, Locatelli, Yan, & Yu, 2017; Ye, Zhao, Prahinski, & Li, 2013; Zhao & Wood, 2016; Zhu, Sarkis, & Lai, 2013).

A common find in these studies is that institutional pressures contribute to isomorphism in a field. This has been investigated through surveys, thus confirming the predicted effects of institutional theory. Building upon this knowledge, this study also aimed to investigate the effects of institutional pressures, while also following Oliver's (1991) approach which argues that the response to institutional pressures will not always be conformity; defiance is also a possible outcome. Other studies have utilized this approach (B. W. Clemens & Douglas, 2005; Goodstein, 1994; Pedersen & Gwozdz, 2014; Tingey-Holyoak, 2014) but not within the field of project management.

With the goal of answering the research question "What are the strategic responses of global projects to stakeholders' pressures considering project complexity in this relationship?". Also, to advance the research of the effects of institutions on project management, the results of this study show signs that the effects are present and relevant. Three of the five response strategies were found to be significantly predicted by one of the institutional pressures' independent variable. These findings will sum with previous research in the subject (Aaltonen & Sivonen, 2009; Miterev et al., 2017) to aid in the understanding of this particular phenomena.

The first main finding from the data is the positive significant relationship of internal stakeholders' pressures with both response strategies that represent non-resistance (acquiescence and compromise). This is aligned with the previous theory that the higher the influence and the intensity of the institutional pressures, the lower the resistance to them (Oliver, 1991). The significant predicator variable for these responses being only internal stakeholders enlightens the importance these actors have on the management of projects.

The main reason that may be discussed for this finding is the importance that project organizations give to legitimacy. Internal stakeholders are those that the project has a moral

obligation to and are the ones able to provide immediately legitimacy to the project as their demands are satisfied. This gives an insight on how internal stakeholders have a higher salience to the project (Aaltonen, 2013) and that their institutional values, norms and beliefs are mostly accepted by project management.

Also the fact that the project often rely on one source of financing (sponsor organization), high level of professionalization and habitual high level of stress and time pressure inherent of a temporary venture were shown as a source of imitation (Miterev et al., 2017) leading to acceptance responses. This calls for a need to further understand how high internal stakeholders pressures may hinder the innovative capacity of a project, that is actually one of its main reason of being, by contributing to the institutionalization process (Tolbert & Zucker, 1996).

Shifting the discussion to the positive significant relationship between external stakeholders' pressure and the avoid response strategy, it can give us some relevant insights. The first source of inspiration for this research was the paper from Aaltonen and Sivonen (2009) that used a multiple case study to identify the five response strategies to external stakeholders' pressures. This work findings suggest that the avoidance strategy is the one that project managers go to when dealing with this type of pressure.

Contrary of internal stakeholders, external ones do not have a high salience to the project (Aaltonen & Kujala, 2016), and thus are not seen by project managers as an important source of legitimacy for the project. As external stakeholders demand increases in influence and intensity, the option to adopt the avoidance strategy increases. Therefore, the values, rules and beliefs that external stakeholders represent are sought to be disregarded by project managers as much as possible, not going to a conflicting position of adopting a defying or manipulating strategy.

The constraints that every project face, mainly of time, budget and scope may be a source of explanation to this behavior. With limited time to deliver the results expected by the internal stakeholders, it seems reasonable that project organizations will most likely search ways to loosen its attachments to external stakeholders' claims. Avoid response strategy will buffer the project from the claims or seek to transfer them to higher level within the parent organization (Aaltonen & Sivonen, 2009).

Resistance responses (defy and manipulate) were found to have no significant relationships with the predictor variables. One of the reasons for this result may be explained by the revenue of the sponsor organizations of the sample, that consisted in mostly in the lower revenue spectrum. Limitations of the size of the organization will decrease the ability of the company to actively defy or shape the institutions, as its visibility and economical power is not great enough for such ventures (B. W. Clemens & Douglas, 2005).

Another point to be explored when discussing the lack of significant relationship between pressures and more active response strategies is the fact that this study opted to focus on global projects. Dealing with unknown institutional environment may be one of the reason for not choosing resistance strategies, as these may damage the relations with stakeholders (Orr & Scott, 2008). The strategy chosen could be coping with the pressures and opting not to pose any resistance to them.

It was also found no significant predicting effect of conflict on the responses. Looking at the mean of both variables, it is noticeable that the conflict level in the scale from 0 to 10 was found to be below 4, thus showing that conflict was not high in the sample. Theory states that high conflict would likely be related to resistance strategies (Oliver, 1991), with the collected data it was not possible to identify this be outcome.

Complexity was also found to have no significant effects on the responses, and no moderation effect. With the results obtained it is believed that possibly a larger sample of maybe 20 responses per predicting variable could lead to different results. With a larger sample it the statistical power of the analysis would increase and more complex interactions as the one between stakeholders' pressures and execution complexity could be better accessed.

6.1 Contribution to practice

Venturing to link the use of organizational theories to the project management practice, the results lead to conclusions that mainly internal stakeholders' pressures will directly affect the ability of project managers to question the norms, values and beliefs institutionalized. High pressures will lead to a passive approach from the management, accepting the requirements without questioning, or making little compromises, resulting in a "let's give them what they want" approach.

This can be understood as a two-way path, as internal stakeholders' pressures may contribute to a more standardized project, it will also decrease the ability for project managers to "think outside de box". The awareness of these interactions can be very beneficial to both managers and owners or sponsors. The knowledge that internal stakeholders' pressures may hinder the project management ability to overcome the stablished rules, values and beliefs allow this subject to be brought into discussion when noticing that the outcome of the project may be affected by these same institutionalized arrangements.

The results of this research confirm that projects are not islands and do not have the protean abilities of being flexible and adaptable as the general belief. This can be also seen by the result demonstrating that when faced by external stakeholders' pressures, projects tend to avoid them, and the tools for this would be either escalating the demands to a higher level within the organization they are part or finding ways to detach the projects from the claims of the external stakeholders regarding their values, rules and beliefs. This behavior may indicate some level of inability of project management to proper negotiate with external stakeholders.

In general, this research may aid project management practitioners to enhance their knowledge of how institutional forces behave and not take-for-grant their effects on the project outcome. Identifying the institutional forces that are behind stakeholders' claims may be helpful to understand if these "rules of the game" will in some way affect the project goals. Using Oliver's (1991), Aaltonen & Sivonen (2009) and Miterev et al. (2017) the following table 11 presents some topics that the project manager can evaluate to identify the institutional pressures sources

Table 11- Institutional pressures sources.

Institutional Factor	Assessment Question	External Stakeholders' Pressures	Internal Stakeholders' Pressures
Context Environmental uncertainty and interconnectedness	What is the environmental context within which institutional pressures are being exerted?	Position of the focal company in the project network and experience of the focal company	Similarity of the managers "as a response to uncertainty" (due to HRM practices) Influence of professional associations
Control Legal coercion or enforcement and voluntary diffusion of norms	How or by what means are the institutional pressures being exerted?	The means stakeholders use to advance their claims	Project management assurance system and internal audits Informal networking within unofficial groups/coalitions of managers
Content Consistency with organizational goals and discretionary constraints imposed on the organization	To what norms or requirements is the project being pressured to conform?	Power of the stakeholder	Post-closure and lessons learned reports Prescriptive guidelines and frameworks
Constituents Multiplicity of constituent demands and dependence on institutional constituents	Who is exerting institutional pressures on the project?	Availability of other actors in the project network	Influence of industry-specific norms Expectations of steering group members
Cause Efficiency or economic fitness and legitimacy or social fitness	Why is the project being pressured to conform to institutional rules or expectations?	Legitimacy of the presented claims by stakeholders	Sharing of approaches within formal communities of practice Influence of popular management models and wider societal norms

Source: Author based on Aaltonen (2011), Miterev et al. (2017) and Oliver (1991).

6.2 Limitations and future research venues

The first limitation of this study was the sample obtained. Although the efforts to divulgate the survey, focused in obtaining respondents from as many regions as possible, the final sample was in its majority from small Latin American project owners, what limits the generalization of the results. Also the sample size obtained of 113 final valid responses, although it is over the threshold of 5 responses per variable (Hair et al., 1998), a sample of over 10:1 would be more appropriate, this being in line with the *G*Power* result of 137 responses.

Following, the inexistence of adequate scales that could measure the desired phenomena directly. The scales used were adapted from other fields to the best of its possibility so that the items were kept to its original sense as much as possible. The development of a scale to measure the effects of institutional pressures following the model proposed by Oliver (1991) as undertaken by Tingey-Holyoak (2014) in the contest of sustainable water management can greatly contribute to a better measurement of the same interaction in the field of project management, or even strategic management in general. It can be considered as a future research opportunity.

6.2 Concluding remarks

This research takes the current interest on the effects of non-rational mechanisms into project management a step further. The findings here described on how internal stakeholders' pressures affect the project management confirms the current theory and contributes to understand the responses to it. Likewise, it joins the current research interest in the field of project management on how the broader social and organizational theories relate to the context of this field. Projects in the past decades are gaining a greater importance within organizations in general, especially due to the need of constant innovation, to which projects are the recommended strategy to achieve. Nonetheless, the thus far belief that projects were rational structures focused on obtaining the maximum efficiency for the resources at its disposal is no longer a valid affirmation.

This research demonstrates that the interest in the non-rational mechanisms, such as legitimacy, must continue. A better understanding of the impacts of institutions on projects will enable the managers to be aware of them and possibly increase efficiency and innovative outcomes. That is the main reason why this scientific knowledge was developed.

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APPENDIX

The respondents were requested to answer the questionnaire based on current or recent experience related to participation in global project.

Institutional Stakeholders' Pressures		
Stakeholder pressure	**Item**	**Theoretical foundation**
	To what extent do the groups below set project management requirements to the project? (On an 11-point scale from 0 = no demands and 1 = few demands to 10 = very high demands). To what extent are the groups below able to affect the project? (On an 11-point scale of 0 = no influence and 1 = little influence to 10 = very significant influence). To what extent are [stakeholder requirements] consistent with the project scope? (On a 10-point scale from 1 = no/very little consistency to 10 = complete consistency).	Adapted from measurement of institutional pressure based on Pedersen & Gwozdz (2014)
Internal	Customers Owners/Sponsors, superiors Employees, Unions Suppliers	
External	Public Authorities Local Community, media Competitors, Industry groups and associations	

Strategic Responses		
Strategy	**Item** Indicate your agreement to the statements below on a 6-point scale from 1= strongly disagree to 6= strongly agree	**Theoretical foundation** Adapted From (Frezatti et al., 2007) in accordance to the findings of (Aaltonen & Sivonen, 2009)
Acquiescence	The requirements stipulated by internal and external stakeholders are accepted without questioning	
	I seek to implement, in the project, best practices from other projects in my industry.	
	I seek to implement, in the project, best practices from other projects in my company.	
Compromise	I verify the need to comply with the stakeholders' expectations before making decisions related to the project.	
	I attempt to adjust the scope of the project in the planning process as much as possible in relation to the stakeholders' requirements.	
	I negotiate the requirements with the internal and external stakeholders.	
Avoidance	I keep my disagreement with the adoption of the stakeholders' requirements to myself.	
	I attempt to identify and interact with people who disagree with the stakeholders' requirements in the same way as me.	
	I prefer following my own ideas, which are more adequate for the project reality, to achieve the expected result.	
Defiance	The stakeholders' requirements that do not make sense in the project reality are substituted by others that make more sense.	
	The rules and norms used by other projects to set and accompany internal stakeholders' requirements are adapted to my project.	
	The consequences of not achieving the stakeholders' requirements are manageable and exert little influence in the management of the project.	
	Contesting stakeholders' requirements are part of daily reality and project routine.	
Manipulation	The criteria related to the stakeholders' requirements are questioned in important project meetings.	
	I seek to influence key people in the organization to adjust the stakeholders' requirements to the needs of the project.	
	I seek to exert control on leaders to modify the proposed stakeholders' requirements.	