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The Institutionalization of Project Management in the Portfolio of Science, Technology and Innovation of the Command of the Navy of Brazil

A Institucionalização da Gestão de Projetos no Portfólio de Ciência, Tecnologia e Inovação do Comando da Marinha do Brasil

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ABSTRACT

This study analyzes the gap in information about the capacity of the Scientific and Technological Institutions (STI) to meet the demand of Brazilian society for the efficient use of the public treasury, destined to projects of the sector of Science, Technology and Innovation (ST&I). The research involved the eight STIs of the Brazilian Navy Command (BNC), which are part of the Science, Technology and Innovation System of Defense interest (STIS), in support of the National Defense Industry Policy (NDIP), with data collected by means of a survey, based on the Prado-MMGP framework. The Institutional Theory, in contrast to the concepts of Project Governance and Maturity in Project Management, made it possible to identify the influence of isomorphic mechanisms related to the legitimation process of these activities. It was found that the sector is in transition from the "Pre-Institutional" stage to the "Semi-Institutional" stage, with data indicating the consolidation of the "habitude" process and the promotion of "objectification" of organizational legitimation. However, there is a need to raise awareness among stakeholders, standardize procedures (own methodology) and foster knowledge management, proposing the investment in specific training and reinforcement of the normative pillar, preponderant in the current stage of institutionalization of the portfolio of ST&I of the BNC.

KEYWORDS: Scientific and Technological Institutions; Legitimation; Maturity in Project Management; Project Governance; Institutional Theory.

RESUMO

Este estudo analisa o *gap* de informações sobre a capacidade das Instituições Científicas e Tecnológicas (ICT) em atender a demanda da sociedade brasileira pela eficiente utilização do erário público, destinado a empreendimentos do setor de Ciência, Tecnologia e Inovação (CT&I). A pesquisa envolveu as oito ICT do Comando da Marinha do Brasil (MB), que compõem o Sistema de Ciência, Tecnologia e Inovação de interesse da Defesa (SisCTID), em apoio à Política Nacional da Indústria de Defesa (PNID), com dados recolhidos por meio de *survey*, baseado no *framework* Prado-MMGP. A Teoria Institucional, em contraponto aos conceitos de Project Governance e Maturidade em Gestão de Projetos, possibilitou a identificação da influência de mecanismos isomórficos relacionados ao processo de legitimação dessas atividades. Verificou-se que o setor está em processo de transição do estágio "Pré-Institucional" para o "Semi-Institucional", com dados indiciando a consolidação do processo de "habitualização" e o fomento à "objetivação" da legitimação organizacional. Todavia, pondera-se a necessidade de maior sensibilização dos *stakeholders*, de padronização de procedimentos (metodologia própria) e de fomento à gestão do conhecimento, propondo o investimento em capacitação específica e o reforço do pilar normativo, preponderantes no atual estágio de institucionalização do portfólio de CT&I da MB.

PALAVRAS-CHAVE: Instituições Científicas e Tecnológicas; Legitimação; Maturidade em Gestão de Projetos; *Project Governance*; Teoria Institucional.

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1 INTRODUCTION

The Principle of Efficiency was inserted in the Constitution of the Federative Republic of Brazil through Constitutional Amendment nº 19 of June 4, 1998. However, practically two decades after its promulgation and under the strong influence of New Public Management [NPM], its largest objective is still the search for the adaptation and transfer of managerial knowledge developed in the private sector to the public sector (Matias-Pereira, 2010).

Studies indicate a critical tendency to NPM model especially: (i) its concentration in intraorganizational processes, at a time when the reality of the public service rendering is interorganizational and, (ii) because it is based on the experience of the manufacturing sector, disregarding them as intangible benefits activities and processes and where the property is not transferred (Normann, 1991; Osborne, Radnor, & Nasi, 2013).

A modern and globalized society is observed, based on the constant exchange of knowledge and where experience and perception are essential for the determination of the value of the public service. They impel public organizations the mission of defining and pursuing their strategic objectives to, simultaneously, achieve (i) operational efficiency and effectiveness, (ii) increasing citizens confidence, and (iii) the tangible creation of public value for their essential services (Crawford & Helm, 2009; Moore & Benington, 2010).

In this context, it was intended to provide a better understanding of the contemporary context of project management practices and their similarity to organizational maturity by comparing them to the institutional stage of the process of legitimizing management activities, according to which, it is argued, in Project Governance of the Brazilian public sector.

2 THEORETICAL FRAMEWORK

2.1 Fundamentals of Project Management

Corporate culture in project management is based on organizational behavior and processes, reflecting the goals, convictions and aspirations of its stakeholders. The daily life of an organization consists of conflicts, that is, power games where individuals do not accept to be simple performers, at the service of goals set by others. Therefore, it is reinforced the understanding that the organizational culture is a factor that can potentiate or restrict management activities, in the quest for sustainability and competitiveness of its projects (Duluc, 2000; Kerzner, 2010; PMI, 2013).

The studies by Ansoff, Declerk and Havyes (1976) suggest that every organization conducts its management activities in two fundamental ways: (i) the operational mode, aiming at the exploitation of competitive advantage and current position in the market, providing profits and renewal or increase of resources and, (ii) the business mode or project, targeting the search for new position or competitive advantage. Therefore, they consume their resources (personal and material) by combining both modes, to ensure their sustainability and development in increasingly dynamic and competitive environments (see Figure 1).

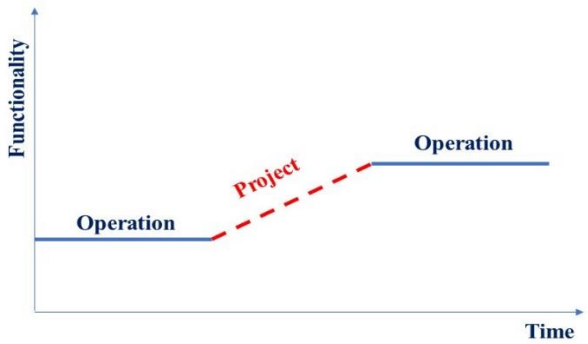

Figure1 - Project vs. Operation
Source: Own elaboration.

In this sense, Kerzner (2006) conceptualizes that to understand project management it is first necessary to know how to recognize what a project is. To this end, the Brazilian Association of Technical Standards (ABNT) (2012) defines, through ISO 21.500: 2012, a reference standard for organizations by facilitating the transfer and synchronization of knowledge, as well as harmonizing principles, processes and terms from the project definition itself.

In the ABNT doctrine, the project is a set of processes that consists of coordinated and controlled activities, with start and end dates, undertaken to achieve its objectives, requesting deliveries and condescending to specific results.

In historical terms, studies mark the end of the 1980s as a framework for creating organizational structures that seek to standardize governance processes related to projects. Methodologies, tools and techniques are sought in the sharing of resources, the search for management efficiency by reducing the risks of failures and increasing the success of the benefits delivered to the stakeholders.

Additionally, they suggest the concept of Project Management Office [PMO], or Project Offices, directly related to the increase of the complexity of the projects and the distinct and changing needs of each organization. They argue, therefore, that this is an organizational structure that is not standardized, extremely dynamic in its format, purpose and scope, where its legitimacy is constantly questioned within the organization and whose main function is to support project managers (Aubry, Hobbs, & Thuillier, 2007; Englund, Graham, & Dinsmore, 2003; Kutsch, Ward, Hall, & Algar, 2015).

Therefore, it is important to provide a governance structure capable of ensuring that decision makers are effectively empowered and accountable to stakeholders. Where the actions undertaken are transparent in the different contexts of the organization, thus highlighting the discussion of the concept of Project Governance in forums on project management (Biesenthal & Wilden, 2014; Bingham, Nabatchi, & O´Leary, 2005; Crawford & Helm, 2009; Muller, Pemsel, & Shao, 2014) (see Figure 2).

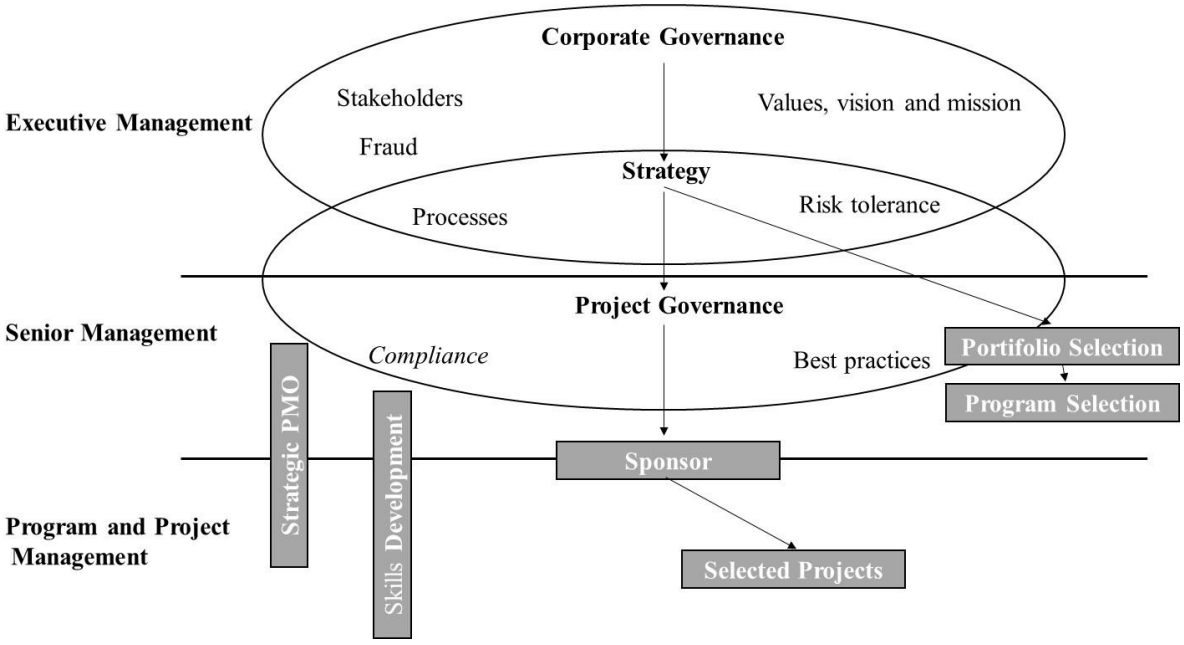

Figure 2 - Strategy - Corporate Governance - Project Governance
Source: Krause, 2014.

According to the Court of Audit of the Union (TCU) (2014), governance is a structure that aims to provide guidance, monitoring, supervising and evaluating management performance, to meet the needs and expectations of citizens and other stakeholders.

When applied to portfolios, programs and projects, it coexists within the framework of corporate governance and is called Project Governance. It encompasses a set of principles, ethical values, structure and processes that aim to enable projects to achieve organizational objectives by identifying

possible interdependencies and synergies, promoting the integration of the interests of all stakeholders (Cooke-Davis, Crawford & Lechler, 2009; Krause, 2014, Too & Weaver,2014).

2.2 Maturity in Project Management in light of Institutional Theory

According to Schutz (1989), the maturity of an organization evolves in a specific context, dependent on its relations in dynamic and complex corporate environments, where aspects such as trust and motivation of its teams are extremely relevant organizational factors for the maintenance of its efficiency.

In the perception of Verzuh (2015), an organization that aims to achieve maturity in project management needs to establish an effective structure, through processes and information systems capable of reducing a large gap normally existing between the strategic and operational levels. Additionally, studies propose the maturity of project management as a prerequisite of organizational excellence, where the correct application of good practices, together with the continuous perception of success in its management, tends to succeed in improving the implementation of strategic planning and increasing organizational competitiveness (Heldman, 2007; Kerzner, 2009; Muller, 2009; Webster, 2000).

Greenwood and Hinings (1996, p. 1023) corroborate Selznick's (1971) understanding by agreeing that Institutional Theory "is not normally seen as a theory of organizational change but generally considered an explanation of similarity in a population working in the same environment, or even in an area of organizational interest ".

For Selznick (1971, p. 271), "Intitutional Theory traces the emergence of distinct forms, processes, strategies, perspectives and competencies as they emerge from patterns of organizational interaction and adaptation. Such standards should be understood as responses to both internal and external environments ".

In Meyer and Rowan's (1977) concept, highly institutionalized environments, where there are no outcome indicators and ambiguous or unenforceable goals prevail, there tends to be homogenization as a safeguard of managers' actions and decisions, as well as the very survival of the organization. Additionally, DiMaggio and Powell (1983) certify that the exchange of knowledge, in the quest for legitimacy in the institutional environment, reduces diversities and makes organizations similar in their procedures and activities. Thus, there is a direct relationship between process improvement, maturity and legitimacy.

In this context, studies point to Project Governance, characterized by: (i) use of good project management practices; (ii) elimination of the causes of anomalies, and (iii) continuous and sustainable improvement of technological-process innovation, as a foundation for the development of ethical principles and values, providing standardized behavior and socially shared practices, thus showing the identity of the organization (Barbalho & Medeiros, 2014; Krause, 2014; Tolbert & Zucker, 2010).

In large part, the perception of institutional legitimacy stems from the demonstration of the effective use of institutionalized practices to stakeholders, that is, the externalization of a socially constructed system of norms, values, beliefs and definitions. Therefore, the introduction of these variables in complement to the isomorphism in the environmental analysis is considered in the sociological emphasis of the Institutional Theory, considering in the structures and routines analyzed, the reflection of contextually institutionalized norms (Deephouse, 1996; DiMaggio & Powell, 1983; Meyer & Rowan, 1977; Suchman, 1995).

For Scott (2007), the basis of legitimation is based on three institutional pillars: (i) the regulatory pillar, where the legitimacy of actions is associated with compliance with rules, monitoring and punishment; (ii) the normative pillar, which includes values and norms in the definition of legitimate meanings in the context of the organization; and (iii) the pillar of a cognitive nature, supported by regulatory and normative structures.

In addition, Freitas, Oliveira, Emmendoerfer and Cunha (2012) have used this sociological aspect of Institutional Theory to study the process of institutionalization of public policies in Brazil,

supported by studies by Tolbert & Zucker (2010), who defend innovation as an element external to the organization and starting point of a sequential process of stages that make it possible to evaluate the stage or degree of institutionalization of a given social reality (Figure 3).

Dimensions	Stages		
	Pre-Institutional	**Semi-Institutional**	**Total Institutionalization**
Process	Habitualization	Objectification	Sedimentation
Adopters Characteristics	Homogeneous	Heterogeneous	Heterogeneous
Diffusion Impact	Imitation	Imitative / Normative	Normative
Theorizing activity	None	High	Low
Implementation variance	High	Moderate	Low
Structural Failure Rate	High	Moderate	Low

Figure 3 - Stages of institutionalization and comparative dimensions.
Source: Adapted from Tolbert and Zucker, 2010.

In addition, Tolbert e Zucker (2010), propose that the process of institutionalization involves the standardization of behaviors and a greater control of the social relations between the employees, making the identity of the organization more transparent, thus allowing the creation of a more stable social environment. In terms of their procedural dimension, they clarify the progression of their maturity levels, proposing the following concepts:

- Habitualization: generation of new practices, structural arrangements and standardization, with emphasis on the development of standardized behaviors;
- Objectivization: generalization of the meaning of a socially shared practice, with some degree of consensus among the decision maker under its strategic focus, especially when compared with other organizations in the sector; and
- Sedimentation: transmission and maintenance of the practice for a long, sustainable and structurally consilient period.

In the institutional perspective of Schuman (1995, p. 576), "the concepts of legitimacy and institutionalization are synonymous", that is, both are operationalized through isomorphic mechanisms, resulting from environmental pressures that motivate the adoption of certain forms and practices organizational, reinforcing the classic teaching of DiMaggio and Powell (1983), according to which organizations are rewarded for legitimacy, resources and sustainability, based on the moment they conform to (i) coercive pressures, (ii) normative and (iii) mimetics of the other institutions:

- Coherent: it results from formal and informal pressures exerted on organizations by other organizations on which they depend, as well as on the cultural expectations of the society in which they act, capable of imposing uniformity among them;
- Normative: originated in the professionalization, formal education, dissemination of knowledge by specialists and in the definition of working methods to establish a cognitive base and legitimacy;
- Mimetic: occurs when organizational technologies are poor, when the objectives are ambiguous or when the environment creates symbolic uncertainties, leading organizations to model themselves in others. Uncertainty is a powerful force to encourage imitation.

Jacobson (2009, p. 8) ponders that "rational organization theories provide a static view of organizational life. Balance is achieved when the governance structure and environment are aligned or when transactions or contracts are properly organized", concluding that organizational life is much

more dynamic than simple analysis. In addition, Rodrigues and Souza (2012, p. 486) argue that in the isomorphic mechanisms, related to good project management practices, the "key link for a gradual increase in the maturity level of processes of legitimacy for organizational change".

Cleland (2004) and Verzuh (2015) share the understanding that, within the context of excellence in management, reference organizations are distinguished by presenting as fundamental attributes, essentially: (i) a clearly defined set of processes for project management, (ii) a specific organizational element, responsible for project management practices, and (iii) the effective use of information technology in the development of its processes.

In this context, studies propose maturity measurement frameworks to provide a methodology for the evaluation and improvement of the management capacity, that is, for presenting to the organization an analysis of established methods and processes, in accordance with good practices and a set of external project parameters (Cooke-Davis, 2004; Grant & Pennypacker, 2006; Ibbs & Kwak, 2000; Prado, 2012b).

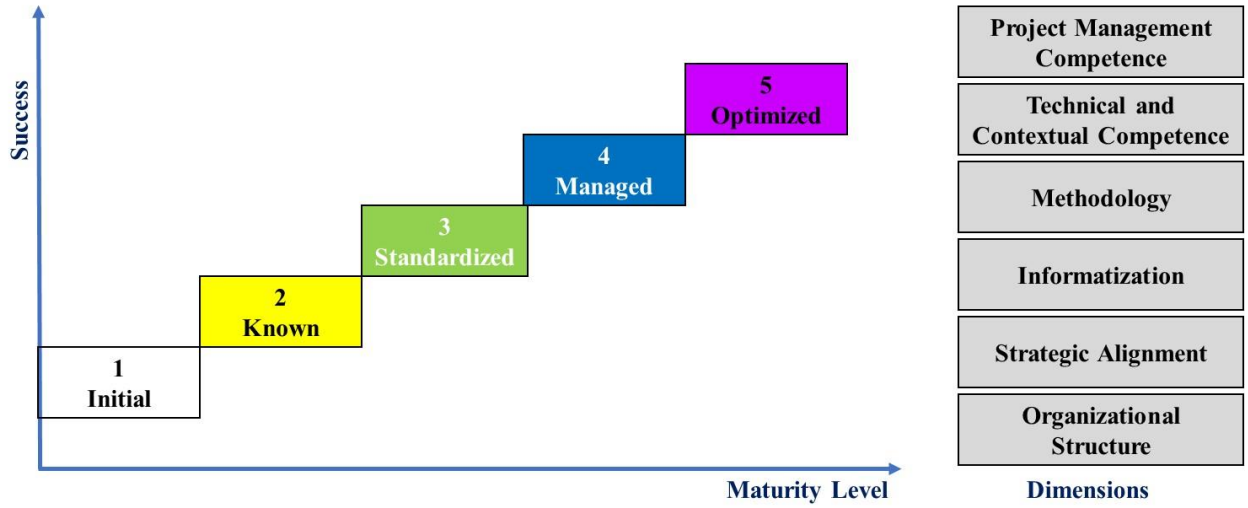

Figure 4 - Maturity Framework in Project Management Prado-MMGP.
Source: Prado, 2015.

The previous figure shows the Prado-MMGP framework, identified in the 2014 edition of PMSurvey.org - annual survey organized by the Project Managment Institute [PMI] since 2003 in several countries - together with the OMP3®-PMI and Kerzner-PMMM framework, such as more representatives in the market.

Developed between 1998 and 2002 by Prof. Darci Prado, the "Maturity Framework in Project Management" [Prado-MMGP] is characterized by being a national framework, adhering to the terminologies used recognized methods Project Management Body of Knowledge [PMBoK] and International Project Management Association Competence Baseline [ICB], compatible and referenced by ISO 21.500/2012. Through the characterization of seven organizational dimensions, permeating five levels of maturity proposed, it contemplates aspects such as governance, processes, tools, human resources, structures and strategies of a specific sector (Krause, 2014; IPMA, 2006; Nascimento, Veras & Milito, 2013; Prado, 2010).

3 EMPIRICAL STUDY

3.1 Research Methodology

Based on the assumption that science aims to produce knowledge and that knowledge is never definitive, errors and comparisons are part of the research process (Camões, 2012). Therefore, the preliminary review of the literature allowed us to "identify problems that are important for the scientific community, which are in the real world and have not yet been solved" (H. C. Silvestre &

M. J. C. Silvestre, 2012, p. 50), summarized in the question: To what extent are project management practices institutionalized in the Science, Technology and Innovation of the Brazilian Navy Command portfolio?

Therefore, specific objectives were defined as (i) verification of the compatibility of Project Governance and maturity concepts in project management with the legitimation of management activities, in the light of Institutional Theory, (ii) identification of the maturity level of the project management practices in STI-BNC, and (iii) the analysis of the adequacy of the STI organizational structure to good project management practices, according to ISO 21.500/2012.

The methodology used to increase them had a predominantly quantitative approach, instrumented by the promotion of an exploratory-descriptive study by means of a survey, adapted from the Prado-MMGP Sector framework of maturity measurement in project management (version 2.2.0, from July 2014), and qualitatively complemented in its analysis gap by bibliographical and documentary research.

3.2 Universe and sample

The National Defense Strategy (END) - Decree nº 6.703/2008 - has as its structuring axes (i) the reorganization of the Armed Forces, (ii) the recomposition of the troops, and (iii) the restructuring of the Defense Industry (MD, 2008). About the restructuring of the Defense Industry, the National Defense Industry Policy [PNID] - Normative Order nº 899/MD/2005 - and the constitution of the Science, Technology and Innovation System of Defense Interest [SisCTID], the "institutional and physical framework necessary for the integration of the Forces and those with the civil scientific and technological community" (Longo & Moreira, 2013, p.290).

This organizational environment is composed of 20 Scientific and Technological Institutions [STI], coordinated by the Ministry of Defense [MD] and in support of the Ministry of Science, Technology and Innovation [MCTI] and whose purpose is "to enable scientific-technological solutions and innovations for the satisfaction of the country's needs related to defense and national development "(MD/MCTI, 2003, p.12).

Starting in 1980, with the creation of the Navy Science, Technology and Innovation System [SCTMB], BNC began to count on an "organized set of human, material and financial resources, structured with the purpose of providing the generation and dissimination of scientific and technological knowledge" (MB, 2009, p. 4-1), composed of eight STI and representing 40% of this organizational universe, were sampled in the research.

3.3 Research design

According to Marconi and Lakatos (2003, p;. 108), "statistical processes allow us to obtain from complex sets, simple representations and verify whether these simplified checks have relations with each other". This fact reinforces the decision by the predominance of the quantitative paradigm over the qualitative one, since "a quantitative analysis will seek to operationalize concepts, establish causal relations, generalize the conclusions of its study to the population and allow the study to be reproducible" (Rodrigues, 2012, p.172).

In addition, the empirical part was structured in five phases: (i) formulation of the problem, (ii) study plan, (iii) fieldwork, (iv) data analysis, and (v) presentation of the results, oriented to from Research Design (Figure 4), which allows the replication of studies by other researchers for error correction, as well as the interpretative correlation between theory and empirical analysis (Moreira, 2007).

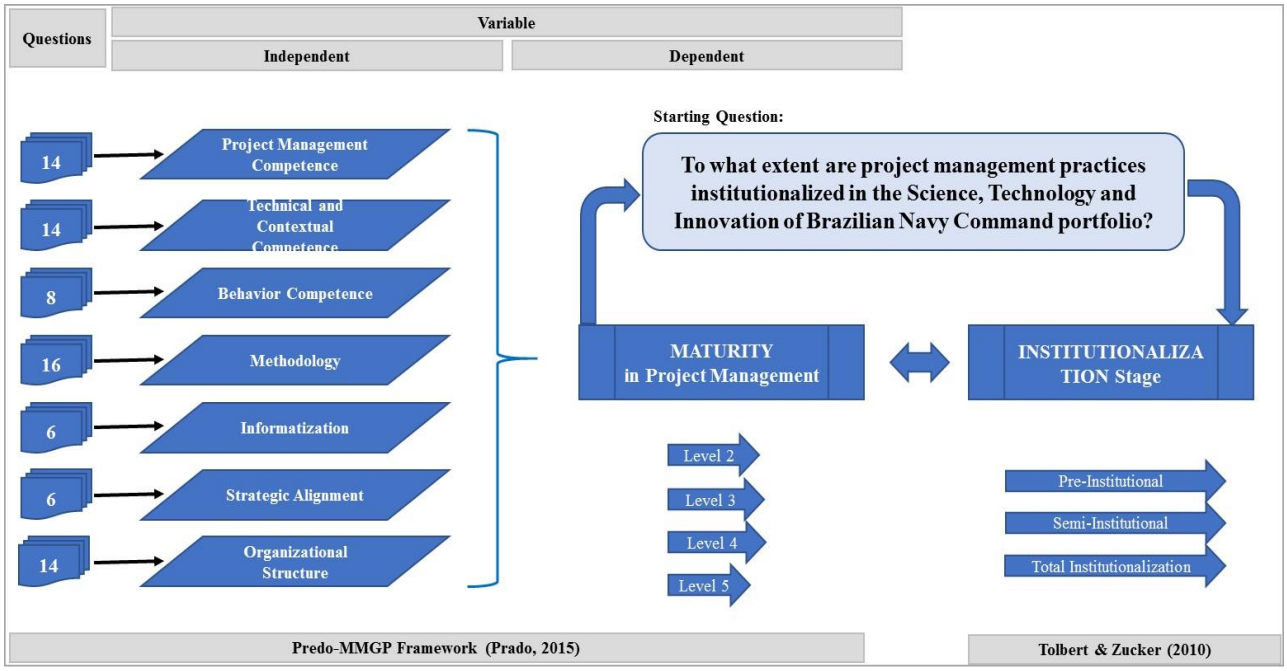

Figure 5 - *Research Design*

4 PRESENTATION AND DISCUSSION OF RESULTS

4.1 Sample Description

Since the project management profession is not regulated within the scope of the Brazilian public administration, it was considered as a potential respondent, the professional who performed a collateral function or charge related to this ST&I-BNC area. In this sense, it was decided to send the questionnaire through the Secretariat of Science, Technology and Innovation of the Navy [SecCTM].

From the survey, 50% of respondents had a master's degree as an academic degree, of which 58% had some training in project management, although they did not have professional certification (PMI or IPMA). It is worth noting that 44% work in project management between 2 and 5 years, as well as 36% for more than 5 years.

Regarding the organizations, although 60% of the STIs have overseen project management for over 5 years, only 28% have implemented PMOs in their structure during the same period. In this sense, studies point out that an organization, when investing in the implementation of a PMO, for example, seeks to equip its specialists with a structure and functions specific to their needs and strategic objectives, consequently tends to advance in their maturity in project management (Krause, 2014; Pennypacker & Grant, 2003; Prado,2012b).

Finally, in the category of projects, the most important are those focused on research and development (38%) and defense, security and aerospace (29%), with projects costing R$ 500.000 to R$ 1 million (42%) and average duration over 24 months (42%). These data reinforce the importance of investing in a robust and sustainable governance structure capable of aligning the strategic thinking of the organization with the execution and reduction of risks inherent to complex and costly ventures of this nature (Dai & Wells, 2004; Muller, 2009; Prado, 2012a).

4.2 Analysis of the Prado-MMGP Sectorial questionnaire

After insertion of the data of the respondents in the online questionnaire, the value of 2.69 was obtained as the mean of the Final Maturity Indices (FMI) of the STI-BNC managers, with a standard deviation of 0.88. Strong adherence to "Level 2 - Known Processes" is observed, pointing to the achievement of its maturity and recognized preparation for the beginning of the third stage, that is,

the search for the consolidation of "Level 3 - Standardized Processes".

It is important to highlight that this perception of adequacy is identified by the concept of Adherence Indices, that is, the adherence profile will be directly proportional to the perception of the intrinsic characteristics of adequacy of each level and dimension, associated and measured by the Level Adherence Index [LAI] and the Dimension Adherence Index [DAI].

Figure 6 allows a detailed view of the FMI, since the LAI is directly proportional to the fact that the portfolio presents intrinsic characteristics that, in the perception of its professional team, require an improvement action plan directed to the pertinent dimensions, identified by the DAI, with the purpose of seeking the consolidation of that stage of maturity of the management practice.

Level	Points Obtained	Adherence Profile (10 20 30 40 50 60 70 80 90)	Final Maturity Indice
2	52		$FMI = \frac{(100 + \sum LAI)}{100}$
3	48		
4	42		
5	27		
∑ LAI	169		**FMI = 2,69**

Figure 6 - STI-BNC Level Adherence Index (LAI)

According to Prado (2010, p. 78), a "robust evolution of maturity, to meet the challenges of an organization presenting results, should contemplate people, processes, technology and structuring". Figure 7 shows a balance between the organizational dimensions of STI in the order of 40%, which suggests a "Regular" adherence, with emphasis on the Strategic Alignment (48%) and Technical Competence and Contextual dimensions (45%).

Dimension	Percentage Obtained	Adherence Profile (10 20 30 40 50 60 70 80 90)
Project Management Competence	41%	
Technical and Contextual Competence	45%	
Behavioral Competence	39%	
Methodology	44%	
Informatization	42%	
Strategic Alignment	48%	
Organizational Structure	43%	

Figure 7 - STI-BNC Dimension Adherence Index (DAI)

In this sense, it corroborates in the analysis that Strategic Alignment and reinforces the cognitive pillar of the process of habitualization - where mimetic isomorphic actions support shared meanings among the participants about the organization's normative and normative structures. As well as the Technical and Contextual Competence reinforce the pillar normative process of institutionalization objectification, where normative isomorphic actions are prescriptive, evaluative and seek to include values and norms that define legitimized rites and meanings, highlighting moral and cultural aspects of the organizational context.

4.3 The Institutionalization of Project Management practices

Figure 8 proposes a benchmarking of the FMI 2,69 obtained by the STI with the research Maturity

Research, edition 2014, which was attended by 415 professionals from private, public and third sector organizations, using data from 7.885 projects (Prado & Archibald, 2015). Under analysis, it is reinforced the understanding that the STI-BNC are in an implementation stage appropriate to the contemporary national scenario.

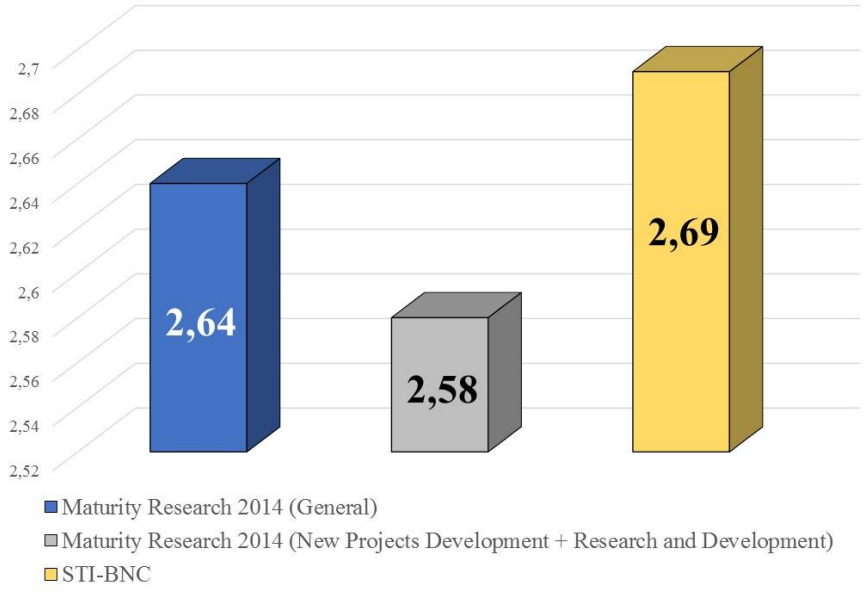

Figure 8 - *Benchmarking*: Final Maturity Indice (FMI)

However, the analysis of the institutionalization stage of project management practices is based on isomorphic mechanisms related to the process of legitimacy for organizational change, by relating the typical scenarios of levels 2 (current) and 3 (future) maturity proposed by the Prado-MMGP framework, to the concepts of habitualization, objectification and sedimentation, present in the Pre-Institutional and Semi-Institutional stages of the Institutional Theory (see Figure 9).

Level	ST&I Portfolio Characteristics
Known	Investment in training and project management software, with isolated initiatives and restricted use in the standardization of procedures. There is recognition of the need for planning and control of actions, but failures persist in terms of time, cost and scope.
Standardized	Consolidation of the standardization of procedures, with the use and diffusion of the knowledge acquired through the PMO. The planning and control processes are consistent and the replication of learning allows for more effective execution of projects, reflected in the positive results in term, cost and scope.

Figure 9 - ST&I portfolio characteristics for levels 2 and 3 of the Prado-MMGP framework
Source: Adapted from Prado, 2010

The analysis of the actions of the STI, from the point of view of the institutional processes of Tolbert and Zucker (2010) and the institutional pillars of Scott (2007), both supported by the isomorphic mechanisms of DiMaggio and Powell (1991), whether there is legitimacy in the implementation of good project management practices in the ST&I-BNC portfolio (Figure 10).

Stage	Process	Characteristics
Pre-Institutional	**Habitualization**	Generation of new practices, structural arrangements and standardization, with emphasis on the development of standardized behaviors.
Semi-Institutional	**Objectification**	Generalization of the meaning of a socially shared practice, with some degree of consensus between the decision makers under its strategic relevance, especially when compared to other organizations in the sector (benchmark).
Total Institutionalization	**Sedimentation**	Transmission and maintenance of the practice for a long, sustainable and structurally consolidated period.

Figure 10 - Characteristics of the institutionalization process
Source: Adapted from Freitas et al., 2012

However, it is worth to stress that because there is no specific law for the implementation of project management practices in public bodies, it is expected that those activities will be legitimized from the perspective of the regulatory pillar. That is, by coercive isomorphic actions, in response to the relevant collective interest and compliance with legal rites, with emphasis on the Principles of Legality (Article 37) and Efficiency (Article 74) provided for in the Constitution.

With regard to the normative pillar, adherence to International Standards Organization [ISO] standards is considered as a reference of legitimacy. Since normative isomorphic actions are based on the moral expectation that the State will use its STI to implement public policies in the ST&I sector, reinforcing the perception and acceptance by the search for efficient management activities and able to well manage the public treasury.

Finally, from the perspective of the cognitive pillar, no research of this nature was found in the corporate environment in which STI are inserted. Therefore, it was proposed that mimetic isomorphic actions, capable of impacting the legitimacy of these management practices, can be suggested by the benchmark Maturity Report 2014, which offers some indications as to the relevance of maturity in project management and its relation to success organizations

In summary, the mean coefficient STI maturity was 2.69 points, with emphasis on levels 2 and 3 and for the balance, in the order of 40%, in the percentage of adherence to organizational dimensions. These results show that there is a structured plan for the growth of the project management practices in the ST&I-BNC portfolio, in compliance with the strategic planning of the organization.

Thus, in the light of the Institutional Theory, it is possible to classify the Science, Technology and Innovation (ST&I) of the Brazilian Navy Command (BNC) portfolio in the process of consolidating the habitualization of project management practices, fostering the process of objectification, which allows interpreting it as in transition from the stage "Pre-Institutional" for the "Semi-Institutional" stage.

Thus, in the light of the Institutional Theory, it is possible to classify the Science, Technology and Innovation (ST&I) of the Brazilian Navy Command (BNC) portfolio as in the process of consolidating the habitualization of project management practices, fostering the process of objectification, which allows to interpret it as in transition from the stage "Pre-Institutional" for the "Semi-Institutional" stage.

The objectivity of the Semi-Institutional stage occurs through proposals for the implementation and internalization of management activities, which are characterized by normative isomorphic actions and whose purpose is to consolidate, as a priority, the mimetic pillar of the organization and the beginning of actions aimed at normatization of organizational change.

In summary, the data indicate that the Science, Technology and Innovation (ST&I) of the Brazilian Navy Command (BNC) sector has its strategic planning aligned with the precepts of the search for the consolidation of "Level 3 - Standardized Processes" of project management (Figure 11).

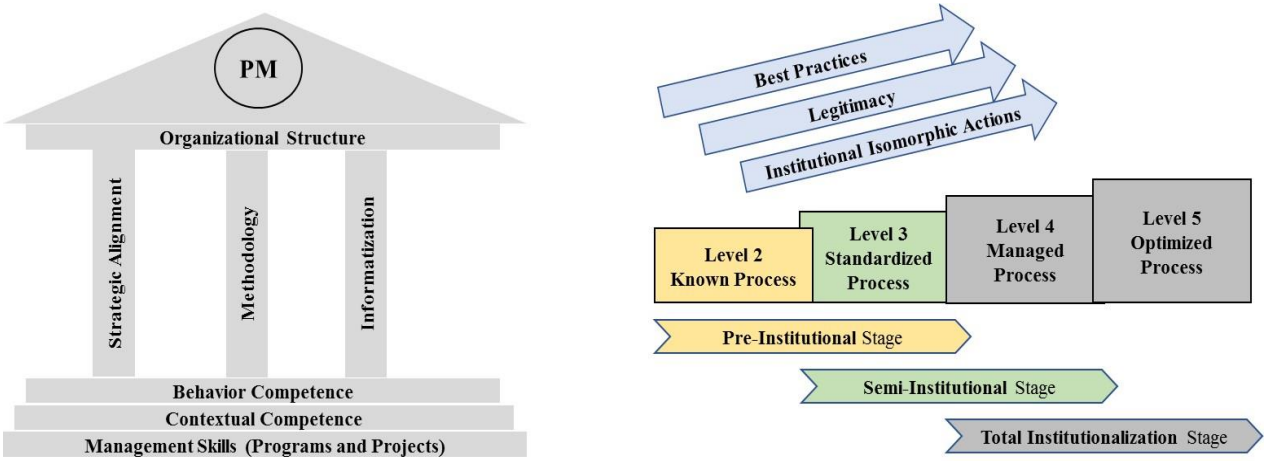

Figure 11- Empirical Study Synthesis

5 FINAL CONSIDERATIONS

Research has shown that maturity measurement frameworks allow us to analyze the level of adequacy of project management practices in organizations, based on pre-established but commonly accepted and shared characteristics. They allow the construction of a culture oriented to excellence by providing better results, resulting from plans for improvement and training, promotion of restructuring and organizational performance, and consequent increase of competitive advantage in the corporate environment.

However, despite being a strategic differential, the legitimacy of good project management practices, due to process improvement and consequent maturity advancement, need the support of top management to maintain the evaluation and structural support cycle for the project development of its management activities.

Establishing the relationship between the characteristics of the maturity levels of the project management practices and the predominant characteristics in the stages of the institutionalization process of a management instrument, it was possible to answer the starting question: To what extent are the project management practices institutionalized in the Science, Technology and Innovation of the Brazilian Navy Command portfolio?

In the meantime, the characteristics were associated with the transition from the "Pre-Institutional" stage to the "Semi-Institutional" stage, from which normative isomorphic actions were highlighted, consolidating the process of initially existing habitualization, passing to the process of objectification of the organizational legitimacy of its management practices of projects.

In addition, it is understood that, because it is a topic that has not yet been explored in the Brazilian organizational context, this research opens the way for both academic research and the administrative field of the public sector, and can serve as a basic reference for actions to be undertaken by the Scientific and Technological Institutions [STI] and not only of the Armed Forces, but of members of the other Ministries that compose the National System of Science, Technology and Innovation [SNCTI].

As a contribution, the compilation of recent and complex concepts, such as Project Governance and Maturity in Project Management associated with the classic Institutional Theory, allowed to clarify theories and construct understandings that supported the objective empirical part of the research, allowing a qualified academic analysis of a market measurement, applied to the day to day of organizations. From a practical point of view, the Maturity Report (2014) identified the structural adequacy of STI-BNC to good project management practices, supporting the construction of a strong foundation for strategic management, enhancing objectives and disseminating knowledge for the entire institution.

In terms of limiting the study, despite the ideal insertion of the researcher into the organizational environment, with direct observations in addition to the quantitative analysis, the inevitable cross-

section of the research space is overcome. The peculiar rotation of functions in military organizations will no longer allow the replication of the instrument to the same managers, which weakens a historical series for analyzing the evolution of its maturity. Therefore, although the sample consists of the 8 STI-BNC, this is an approximate picture of the organizations that make up the Defense Science, Technology and Innovation System [SisCTID], in support of the National Defense Industry Policy [PNID].

Ultimately, the dissemination of good management practices and the very concept of Project Governance for the government enterprises efficiency, meeting citizens' expectations regarding the good use of the public treasury, play an important role in fostering not only ST&I activities, but in the institutionalization of the country's public governance process.

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