Contractual claims management team as a governance component of energy infrastructure projects in Colombia

Equipo de gestión de reclamaciones contractuales como componente de gobernanza de los proyectos de infraestructura energética en Colombia

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Abstract

Energy infrastructure projects in Colombia present contractual claims constantly. Traditionally, the project team and its director oversee the handling of these claims, without being experts in contractual, legal, or claim management issues. In the cases in which these claims are managed by the legal departments of the organizations, there is a lack of expertise regarding claims management, focused on the characteristics of the projects and the needs of the project teams. The objective of the article is to analyze the importance of setting up contractual claim management teams for energy infrastructure projects as a component of governance. In this exploratory research, we applied content analysis by the application of the software Maxqda Pro-2019 to representative cases of contractual claims, complemented by the review of articles from specialized journals. We located forty-eight cases in de-centralized related entities of the mining and energy sector in Colombia and reviewed seven documents in Science Direct, with the criteria of "*Energy + Contracts*", "*Energy + Projects*", and "*Projects + Claims*". As relevant results, it wenerated a taxonomy of ten topics that show the importance of the proposal of the claims management team, and it analyzed the relevance of the creation of the project claims management office (CPMO).

Keywords: PMO; CPMO; taxonomy of contractual issues; PMI.

Resumen

Los proyectos de infraestructura energética en Colombia presentan reclamaciones contractuales de manera constante. Tradicionalmente, el equipo del proyecto y su director son los encargados de atender estas reclamaciones, sin que sean expertos en temas contractuales, legales o de gestión de reclamaciones. En los casos en que estas reclamaciones son atendidas por los departamentos legales de las organizaciones, se observa una falta de experticia en cuanto a la dinámica de las reclamaciones, enfocada en las características de los proyectos

y en las necesidades de los equipos de proyectos. El objetivo de este artículo es analizar la importancia de la constitución de equipos de gestión de reclamaciones contractuales para proyectos de infraestructura energética como un componente de gobernanza. En esta investigación exploratoria se aplicó análisis de contenido mediante el software Maxqda Pro-2019 a casos representativos de reclamaciones contractuales, complementado con la revisión de artículos en revistas especializadas. Se analizaron cuarentaiocho casos en entidades vinculadas descentralizadas del sector de minas y energía en Colombia, y se revisaron siete documentos en Science Direct,con los criterios de *"Energy + Contracts"*, *"Energy + Projects"*, y *"Projects + Claims"*. Como resultados relevantes, se generó una taxonomía de diez temas que evidencian la importancia de la propuesta del equipo de gestión de las reclamaciones, y se analizó la pertinencia de la creación de la oficina de gestión de reclamaciones de proyectos (CPMO).

Palabras clave: PMO; CPMO; taxonomía de temas contractuales; PMI.

1. Introduction

In Colombia, it is usual to have all sorts of problems in energy infrastructure projects, in fact, the PMBOK® contains a set of tools and techniques to address them (Project Management Institute [PMI], 2017), and the extension for construction projects indicates that they are unique because of the series of complexities they face (PMI, 2017; Porras; Sanchez; Galvis, 2014). Ordinarily, the head of projects addresses these problems with the aid of project teams, and in some cases, such problems are very complex, and thus deserve attention by specialized staff, and must be remitted to the opinion of experts, however, for our proposal, these will be considered as problems managed by personnel belonging to the organization. Consequently, the purpose of the research is to analyze the importance of the formation of the contractual claims management team as a governance component. This document addresses different positions regarding the theoretical hypothesis on the importance of the participation of a contractual claims team for the improvement of energy infrastructure projects.

Projects management has defined two kinds of processes; those oriented to the product, which are expressed within the project's life cycle, and which vary pursuant to the application area and stage of said cycle (PMI, 2017); and those processes oriented to the project management that determine their progress efficiently during the course of their life cycle (PMI, 2017). Within project management, the PMI has clustered the management processes in large areas of knowledge, defined as concepts, terms, and activities within a professional field, and those of project management or within a specialization area for all kinds of projects. Regarding construction projects, specific areas of knowledge have been defined from their peculiarities (PMI, 2017), these are security management, environmental management, financial management, and claims management. Consequently, the work hereunder is comprised basically of the development of an analysis of the contractual drawbacks in identified cases that are related to related decentralized entities, together with the literature review resulting from the search in Science Direct with the criteria of *"Energy + Contracts"*, *"Energy + Projects"*, *and "Projects + Claims"*.

In the first instance, content analysis was applied to the cases and the literature, in order to determine the main causes of the contractual claims; the results of the causes of said claims and the dissertation regarding the creation of a management team were then grouped; then the conceptual foundations of the proposal were described, together with the conceptualization of the contractual claims management team; the roles and responsibilities of the team were defined; as well as their interpersonal skills; and, finally, the conclusions of the work are presented, showing the contributions of the team, and the proposals for the improvement of the governance of projects in the energy sector, and finally reaching the verification of the corresponding hypothesis.

2. Methodological aspects

In the Colombian energy sector, there is evidence of drawbacks that have taken place in contractual claims, which could have been prevented with appropriate management from a claim management team. This article followed the content analysis methodology (Barringer; Jones; Neubaum, 2005), through the application of the Mazqda Pro-2019 software, thus proposing an exploratory study (Hernández; Fernandez; Baptista, 2013), wherein forty-eight cases associated with related decentralized entities in the mining and energy sector were reviewed, twenty of which were arbitration decisions and the remaining twenty-eight cases resulted in judicial rulings. In these cases, the issues were related mainly to changes in the scope, modifications to the conditions of the venue, significant delays, problems with subcontracts (Odeh; Battaineh, 2002; Richter; Mitchell, 1982), contractual variations, and/or additional work (Chappell; Powell-Smith; Sims, 2008; Semple; Hartman; Jergeas, 1994), all of the above, in scenarios not foreseen in the initial project conditions. In this first exercise, the top ten causes of the claims were determined.

Besides the forty-eight cases, documents were reviewed in Science Direct with the criteria of *"Energy + Contracts"*, *"Energy + Projects"* and *"Projects + Claims"*, wherein fifteen documents were identified, of which seven articles were subject to the content analysis (Barringer *et al.,* 2005). Consequently, seven issues pertaining to the management of contractual claims were detected in infrastructure projects, as well as seven topics regarding the management of contractual claims in the energy sector.

3. Results

When reviewing the literature regarding the management of contractual claims, a series of authors were found who met the defined criteria of the PMI, who showed recurring situations, such as the need of quantitative analysis regarding the implications of the claims management in infrastructure Projects (Adrian, 1988); advantages of pre-contractual clarifications to avoid conflicts and claims (Aibinu, 2009); scenarios where, despite the fact of the existence of recorded lessons regarding contractual claims, very similar mistakes are still being made (Mullen; Davison, 2009; Richter; Mitchell, 1982); emphasis in the decrease of contractual claims as a new process of construction projects (Hartman, 1994; Richter, 1983); emphasis on the magnitude of contractual claims costs within the total costs of construction projects (McDuff; Ray, 2002; Semple *et al.,* 1994); the need to handle well-defined claims management parameters (Mirza, 2005); and contractual claims as inherent to the development of construction projects (Thomas, 2001).

The analysis of the different topics, which resulted from the bibliographic review, enabled us to corroborate the causes of the claims in all cases while verifying the hypothesis raised, wherefore, it was possible to note that an expert team in contractual claims, actively participating in the different processes, affects the improvement of the governance in energy infrastructure projects.

Regarding construction projects in the energy sector, from the documentary review we identified a number of other relevant issues, such as the importance of community analysis affected by projects to mitigate situations that could result in claims (Rogers; Simons; Convey; Weatherall, 2012); the way in which the implementation of clear policies affects the improvement of project management conditions and decreases contractual claims (Abeelen; Harmsen; Worrell, 2013); the financial compensation processes before the stakeholders directly affected by claims management projects, related to the specific matter of offshore renewable energy projects, where stakeholder analysis is essential for establishing a contractual scenario involving risk mitigation in reference to claims (Reilly; O'Hagan; Dalton, 2016); the theoretical and methodological importance in the understanding of the challenges regarding production and energy consumption with its social, economic and environmental implications, which ultimately require deep contractual analysis in terms of Projects (Lappe-Osthege; Andreas, 2017); the relevance of the quantitative studies, regarding the mitigation of financial risks

through the entering of efficiency contracts of energy projects that involve different stakeholders, in order to help with the success of the projects (Lappe-Osthege; Andreas, 2017); the need for a comprehensive review of the legal aspects to improve the effectiveness of projects and the conditions for generating value in the life cycle of the deliverables (Toppel; Tränkler, 2019); and, finally, the importance of the contractual analysis when managing community energy production projects, with the purpose of becoming a support for the effective formulation and management of the projects (Elsner; Suarez, 2019).

The exploratory analysis of the forty-eight cases enabled us to identify the ten main causes of claims: infrastructure damage, economic imbalance, illegality, contractual errors, breach, nullity, damages, cost overrun, contractual breach, and theory of imprevision (Table 1).

Table 1. *Identification of main causes of contractual claims*

Stakeholders	Year	Kind of Measure	Infrastructure Damage	Economic Imbalance	Illegality	Contractual Errors	Non-Conformity	Nullity	Damages	Cost Overruns	Contractual Breach	Theory of Imprevision
Consorcio grupo de Ingenieros vs. Ecopetrol.	1978	Lau					1		1			
Consorcio Pavimentos Colombia vs. Ecopetrol.	1988	Lau		1		1	1		1	1		
Ecopetrol vs. Stewart &amp – Stevenson Operations Inc.	2000	Lau	1			1	1		1			
Sociedad Latiff Ingeniería Limitada vs. Ecopetrol.	2001	Lau		1		1	1	1	1	1		1
Consorcio Cosacol - Hanover vs. Ecopetrol.	2002	Lau		1			1		1	1		
Gases de Boyacá y Santander S.A. vs. Ecopetrol.	2003	Lau		1		1			1	1		
"Daip S.A." y Conequipos ING. Ltda vs. Ecopetrol.	2003	Lau		1			1			1		1
Consorcio Tibú vs. Ecopetrol.	2004	Lau					1					1
Merichem Company vs. Ecopetrol.	2005	Lau		1			1		1	1		1
Consorcio CCIM vs. Ecopetrol.	2005	Lau		1			1		1	1		
Alcanos de Colombia S.A. ESP vs. Ecopetrol.	2007	Lau	1						1			
Ecopetrol vs. Hupecol Caracara LLC – Cepsa Colombia S.A.	2009	Lau				1						
Mansarovar Energy Colombia Ltda vs. Ecopetrol.	2010	Lau				1						
Transgas de Occidente S.A. vs. Ecopetrol S.A.	2017	Lau		1				1	1	1		1
Serviport S.A. vs. Ecopetrol.	2017	Lau		1		1	1		1		1	
Compañía de Electricidad del Cauca S.A. ESP CEC vs. CEDELCA.	2014	Lau					1		1			
DEPI Ltda vs. DISPAC S.A. E.S.P.	2007	Lau					1		1			
Interaseo S.A. E.S.P vs. DISPAC S.A. E.S.P.	2011	Lau				1						
DISPAC S.A. E.S.P. vs. Consultores Unidos S.A.	2011	Lau		1		1	1		1			
Skanska Aktiebolag vs. Urrá S.A. ESP – Corelca.	2001	Lau		1					1	1		
Consorcio Protécnica LTDA vs. Ecopetrol	2002	Sen					1					
Ecopetrol vs. Liberty Seguros S.A.	2004	Sen					1	1				
Ever Alfonso Suarez Lagos vs. Ecopetol.	2011	Sen				1	1		1			

Stakeholders	Year	Kind of Measure	Infrastructure Damage	Economic Imbalance	Illegality	Contractual Errors	Non-Conformity	Nullity	Damages	Cost Overruns	Contractual Breach	Theory of Imprevision
Sociedad Latiff Ingeniería Limitada vs. Ecopetrol.	2012	Sen		1			1	1	1	1		1
Meta Petroleum Corp. Sucursal Colombia vs. Ecopetrol.	2014	Sen				1						
Aseguradora Colseguros S.A. vs. Ecopetrol.	2015	Sen		1			1	1	1			
Ecopetrol vs. Liberty Seguros S.A.	2015	Sen				1	1		1			
Sociedad Zuleta Holguín y Compañía S.A. vs. Ecopetrol.	2014	Sen			1			1	1		1	
Ecopetrol vs. Gran Tierra Energy Colombia LTDA.	2015	Sen					1	1				
Industrias Crisaza S.A. vs. Ecopetrol.	2016	Sen				1	1		1			
Ecopetrol vs. Sociedad Tecni JB y MP LTDA.	2016	Sen		1			1		1	1		
Insurcol Ltda vs. Ecopetrol.	2016	Sen				1	1					
Montajes Técnicos Zambrano y Vargas MTZ LTDA vs. Ecopetrol.	2016	Sen		1		1				1		
Transportes Montejo LTDA vs. Ecopetrol.	2016	Sen				1	1		1			
Alvarado y During LTDA vs. Ecopetrol.	2016	Sen		1		1			1			
Elías Francisco Serpa Torres vs. Ecopetrol.	2017	Sen					1	1	1			
Transgas de Occidente S.A. vs. Ecopetrol.	2018	Sen				1						
Jose Milton Morales Rey vs. Ecopetrol.	2018	Sen	1						1			
Idrojet SRL vs. Ecopetrol.	2018	Sen		1			1		1			
Fluvial del Caribe S.A.S. vs. Ecopetrol.	2018	Sen				1		1				
Urrá S.A. ESP – Corelca vs. Ecopetrol.	2018	Sen				1		1	1			
Transgas de Occidente S.A. vs. Ecopetrol	2018	Sen	1									
Ecopetrol vs. Lucendy Duarte Narváez y otros.	2018	Sen						1	1			
Incopav S.A., Intricon S.A. y FM Ingeniería S.A. vs. Ecopetrol.	2018	Sen		1			1		1			
Edgar Mauricio Lozano Gómez vs. Ecopetrol.	2018	Sen				1	1	1	1			
Vibran S.A.S. vs. Ecopetrol.	2018	Sen		1				1		1		
Prago Ingeniería S.A.S. vs. Ecopetrol.	2019	Sen					1		1			
Interconexión Eléctrica S.A. – ISA S.A. vs. Atlas Ingeniería S.A.	2015	Sen					1		1			
Results			4	19	1	21	30	13	33	13	2	6

Source: own elaboration through the results analysis from the Maxqda Pro-2019 software.

The exploratory analysis results resulted in the elaboration of a ranking of causes of contractual claims, which in turn, enable us to delve into the causes considered recurrent: damages, breach, and contractual errors (Figure 1).

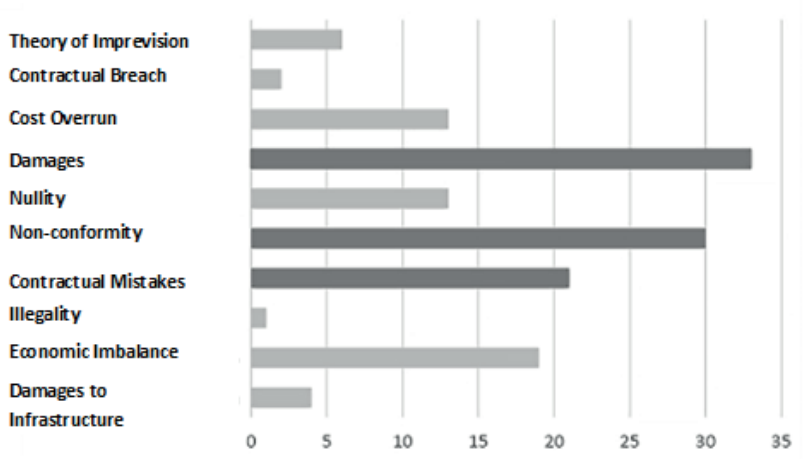

Figure 1. Ranking of causes of contractual claims
Source: own elaboration.

The bibliographical review enabled us to corroborate the ten Causes of claims identified in the cases of arbitration decisions and judicial rulings and, furthermore, it showed the need to identify the factors that could represent risks of contractual claims, wherein the cause of contractual errors is highlighted. This cause is shown in the third place in the ranking of Figure 1 below, and therefore, the anticipation based on the lessons learned is important, as well as the support of an expert team in this kind of situation, and in the management of the causes of the claims.

Moreover, the detailed analysis of the 20 arbitration decisions and the 28 judicial rulings enabled us to identify Empresa Colombiana de Petróleos-Ecopetrol S. A., as the main stakeholder of these arbitration decisions and judicial rulings (Figure 2), mostly performing as a passive subject, highly representative, with 73 % of cases wherein the entity is involved in contractual claims; and, as an active subject, with a 15 % of the cases wherein the entity is involved as an agent that generates the claims. Consequently, we were able to conclude that this organization requires better contractual management, and this management could be optimized with the proposal of a claims management team.

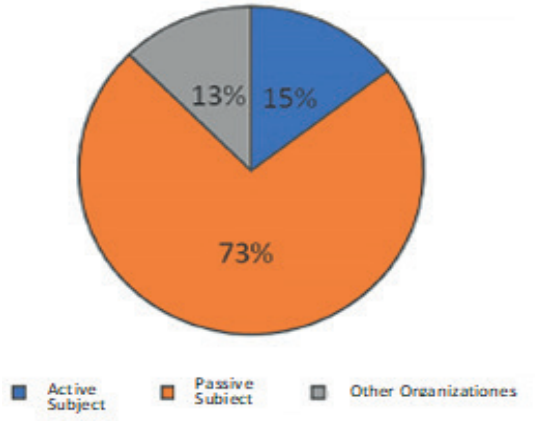

Figure 2. Participation of Ecopetrol S. A. in contractual claims
Source: own elaboration.

The situation may seem discouraging, to the extent that, pursuant to the review of the claims, and considering the abovementioned authors, the construction projects in general, and the energy infrastructure projects, have shown a group of features that further contractual claims; however, it is possible to decrease the probability of configuring a claim based on the theory of imprevision and the breaking of the economic balance within contracts, through the application of good project management practices and, if necessary, resorting to good management practices of claims, with the purpose of minimizing the impacts thus generated for the project and for the different stakeholders, especially when managing claims related to unforeseen risks (Gonzalez; van der Weijde; Sama, 2020; Marmolejo, 2016).

The exploratory analysis showed the existence of shortcomings in the definition of a subset of the project team, which is responsible, in the first instance, for identifying risks related to contractual reforms and then, if any risk materializes, for managing contractual claims effectively (Marmolejo, 2016). The foregoing takes into account that the causes of identified contractual claims could be addressed preventively by the contractual claims management team (González *et al.*, 2020).

According to the PMBOK (PMI, 2017), the project manager is in charge of addressing contractual claims, so they must have skills, knowledge, and tools in this regard. Thus, the basic proposal of this article is the analysis of the importance of the creation of a contractual claims management team for projects in the energy sector (González *et al.*, 2020), presenting the fundamentals in terms of attributes, characteristics of its members and environment. As part of the dissertation that was generated from the findings, the creation of an entity was proposed, focused on issues of contractual claims with similar characteristics and responsibilities to the Office of Project Management (PMO), which would be called the Office of Project Claims Management (CPMO), and which would have direct contact with a special team in charge of managing the different aspects related to contractual claims at the project level.

It should be noted that the organizations which are executing projects in the mining sector, which were stakeholders in the arbitration decisions and judicial rulings, base their operation on the practices set forth in the PMBOK, and that, even following these guidelines, they have presented inconveniences of contractual errors, which is part of the exploratory analysis that leads to the proposal of a structure that increases the organizational capacities to address the legal framework associated with projects in the energy mining sector. This transition between the way in which the processes of formulation and management of projects of the sector have been developed requires a vision that departs from traditional practices immersed in a logic of institutional isomorphism (DiMaggio; Powell, 1983), wherein the practices accepted by the industry are adopted, towards a perspective of competitive isomorphism (Fennell, 1980; Meyer, 1979), wherein innovative actions are determined according to the requirements of the context, which, in general, are accompanied by decisions to identify and link the ideal human talent in a process related to transaction costs (Williamson, 1981), as a support for increasing organizational capacities (Danielson; Doolittle; Bradley, 2007).

4. Contractual claims management structure

The proposal herein is that the contractual claims management structure is subject to the CPMO, which is proposed as an expert entity in contractual processes, claims management and in project management, which manages and applies the assets of the organization's processes, knowledge, specific skills, tools, and techniques in contractual claims processes of the organization, and that provides follow-up to the status thereof within the projects developed by the organization.

The CPMO, as with the PMO (Cleland; Kerzner, 1985; Marmolejo, 2017), is defined as a team of people authorized to talk about the projects, and a strategic facilitator in terms of regulation and governance of the projects management supported in the contractual field and claims related to the projects (González *et al.*, 2020), and that affects the treatment of the project risks (Del Río; Cárdenas, 2018), based on the analysis of contractual

issues. The CPMO is also proposed as an independent organizational structure, providing contractual analysis services through the exercise of the functions of contractual engineering, cost engineering, programming engineering, risk management, and legal management.

In contractual engineering, the CPMO would be focused on the review of the relevant contractual documentation, according to the complexity of the corresponding projects; regarding cost engineering, evaluations of the cost structures of the projects would be developed, with emphasis on the possible impacts of the different kinds of agreements pertaining to project management; in programming engineering, the optimal interconnections between the activities with the assessment of contractual needs would be determined; in risk management, the emphasis would be placed on possible risks associated to the different contractual frameworks; and in legal management, the relevant recommendations would be given regarding the procedures for the successful closing of suitable contracts, design of monitoring indicators and establishment of contractual closing protocols (Figure 3).

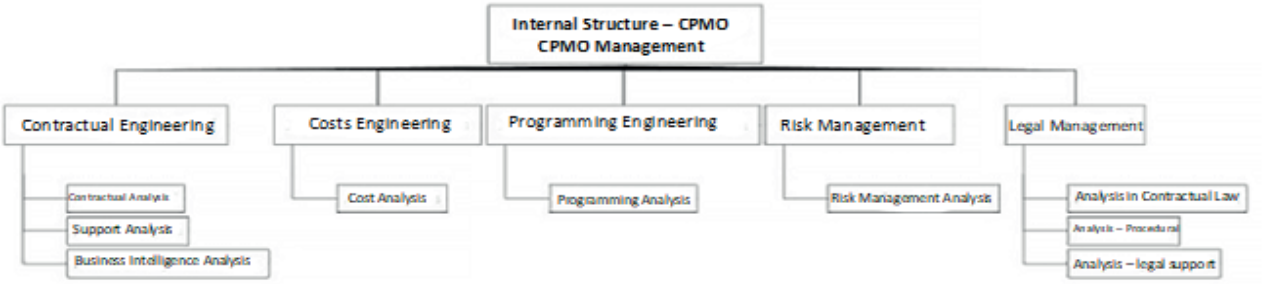

Figure 3. Structure proposal of the Project Claims Office CPMO
Source: own elaboration.

The proposed structure requires the increase of competencies of the project team, in terms of the processes of managing contractual claims, in order to integrate them into the different groups of project management processes, to deal with risks regarding contractual issues. Within a proper organizational structure that manages contractual claims, the claims management team, related to the CPMO, must provide contractual and claim management support internally, as a subset of the project team, in the same sense as the management team, related to the PMO, provides its services in the project management processes. It may be worth opening a space in the graph evidencing the relationships between stakeholders and the project (PMI, 2017), to adapt the claims management team, within the project team, as a distinct subset of the project management team, the project manager and other team members, with a direct relation interface with the CPMO, which is foreign to the project team, such as the PMO, and also, to tighten the working relation and dependence with the CPMO, which is not noticeable between the project management team and the PMO.

To the extent that the PMBOK defines the project team as "...individuals who receive roles and responsibilities, who work together to achieve a common goal of the project..." (PMI, 2017, p. 309), the contractual claims management team is the set of individuals, who receive roles and responsibilities, pertaining to the field of claims management, who work in a coordinated fashion to achieve a common goal of the project, focusing on the management of contractual claims. Regarding the different organizational structures (Rad; Levin, 2002), considered as environmental factors of the company that affect the availability of resources and influence the way of managing projects (PMI, 2017), the shape of the claims management team will be defined depending on each kind of organizational structure.

In a classic functional organizational structure (Figure 4), the claims management team has the same limitations as a project team. However, this team can depend directly on the CPMO or the legal manager of the company, so it will have important support from the legal area of the organization and will respond to said authority. This, perhaps, is the case where the claims management team has the greatest influence on project decisions, due to the known advantages of this situation, for example, the functional experts who will be at the

disposal of the project management team will also work with the contractual claims management team, thus taking the best of the functional area, and especially the legal area, which traditionally has a major influence on contractual decisions in a project, regardless of the organizational structure thereof.

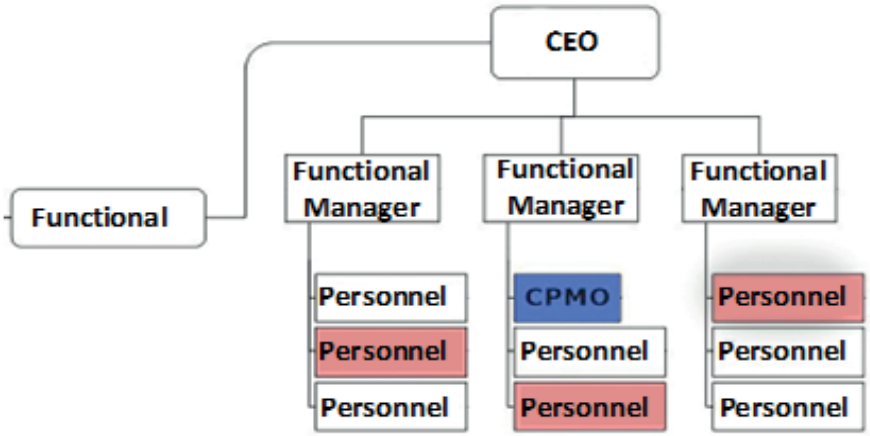

Figure 4. The CPMO in the functional structure
Source: own elaboration based in the PMB OK 2017.

Within a classic functional structure, the project manager, in some cases, will have so little authority that the claims management team will be able to have a greater influence on contractual decisions, for example, as mentioned above, with a delegated power from the legal functional area (PMI, 2013). As for matrix organizations (Figure 5), because they are intermediate in nature, there are few additional characteristics to mention.

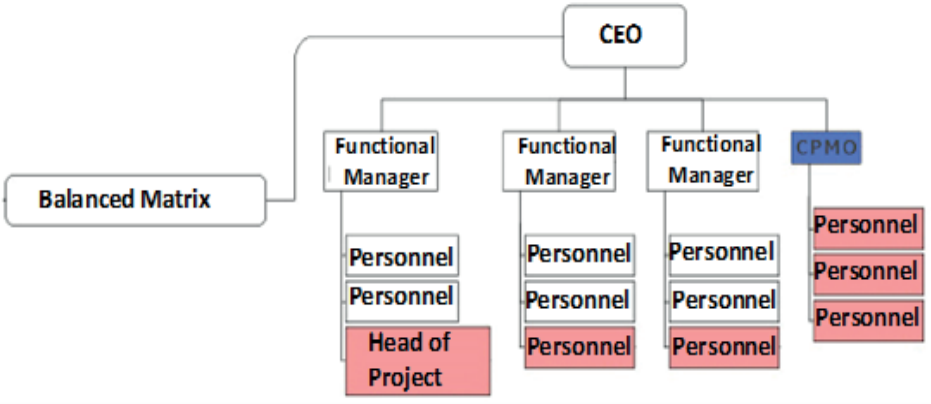

Figure 5. CPMO in the structure matrix
Source: own elaboration based in the PMBOK 2017.

Regarding project-oriented organizations (Figure 6), they have shown advantages, such as that the project team is often located in one place (PMI, 2017), and interacts with members of the claims management team, which results in a "war room" as part of the co-location strategy (PMI, 2013). In this contractual war room, data such as delays in the schedule, pending claims, contractual strategies, values and times claimed, decisions to pay or not to pay, pending urgencies, and breaches, among other aspects, would be discussed.

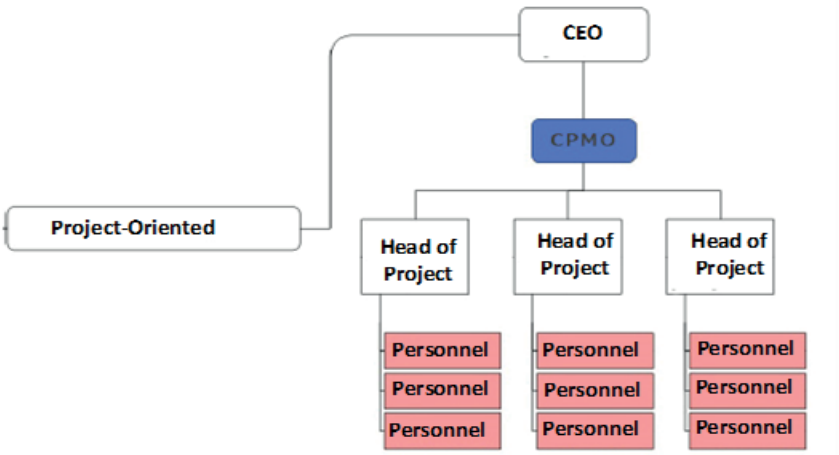

Figure 6. CPMO in the project-oriented structure
Source: own elaboration based in the PMB OK 2017.

As shown in the PMBOK, these organizations have "organizational units called departments" (PMI, 2013), and therefore, it is possible to deduce that the claims management team will be subject to an organizational figure called the claims department, which "can report directly to the project manager or provide support services to several projects" (PMI, 2013). However, once the external interface between the project team and the claims management team is analyzed, the relation between the project management team, the project manager, and other team members with the proposed claims management team would yet remain undefined. In that sense, the project manager should determine the relationship between the claims management team and other components of the project team. The claims management team can at some point be seen as a virtuous team, comprised of the best people of the project team, making claims management a sort of performance, defending the interests of the project owner, meeting goals and deadlines, fostering and trusting their talents (Mishra; Soota, 2006). The claims management team could also be deemed as a high-performance team, with integrated links regarding contractual claims, coexistence of individual methods and common methods, coupled with innovation, with communication based on unconditional acceptance, co-responsibility relations, solidarity, support and, above all, an early resolution of conflicts (Fischer; Boynton, 2005; PMI, 2013). The Project Management Institute defines a role as "the role assumed by or assigned to a person in the project scope (PMI, 2017), and responsibility as "the assigned tasks and the work that a member of the project team is expected to perform in order to complete the scheduled activities" (PMI, 2017).

Strictly speaking, devising desirable roles in the claims management team would mean considering, for example, the participation of the contract management director, contract engineers, contract programming engineers, contract analysis engineers, contract attorneys, auxiliary attorneys, analyst attorneys, auxiliaries, and others. This work could well make a list of titles to be filled in contractual matters for a project, but this is not related to the purpose of recommending general guidelines for the creation of a contractual claims management team, which is the real objective hereof. However, some elements are presented herein that may be useful for the reader, on a case-by-case basis, to establish the roles from defined responsibilities and objectives, for this kind of team, which will also have to be customized to the conditions of each project.

Whereas the main objective of the project team is to comply with the scope of the project, through a final delivery (Cleland; Kerzner, 1985; PMI, 2013), the main objective of the contractual claims management team is to comply with the scope of the project, up to its final delivery, with the due treatment and management of any contractual claims that may have arisen to give them an appropriate closure. It is also important that the contractual claims management team, such as the project team, is clear on its mission, goals, and objectives, in order to prevent any deviation thereof (Fischer; Boynton, 2005; Uribe; Molina; Contreras; Barbosa; Espinosa, 2013).

As well as the procedure followed when solving international contractual claims (Lewis, 2007), but without mentioning the roles and responsibilities of a team, the contractual claims management team should have defined roles and responsibilities to prepare claims, make negotiation agreements, prepare documents as alternate mechanisms for conflict resolution, and avoid future claims. Furthermore, the contractual claims management team will traditionally have tasks of follow-up to delays and interruptions aimed at preventing the claim, formulation and filing of claims, response to claims and counterclaims; and, finally, through different analyses, to avoid, solve and settle disputes (Lewis, 2007; Uribe *et al*., 2013).

The claims management team should be a peacemaker in contractual disputes, constantly working to improve relations between the parties, and conducting workshops and imparting trainings on contractual matters (Lewis, 2007). Contractual disputes should be delegated to the claims management team, so that the rest of the project team may focus on their own activities, while keeping very good relations with peers in the counterparty teams. The contractual relations management team is conceived as a filter before the problems that transcend technical aspects and project management, always keeping cordiality, good relations and, in particular, keeping everyone working on their own, but also obtaining from the other party the expected receivable, or limiting the pressure from the negotiations (Richter, 1983). As with the project manager, the claims management team must have a balance between its ethical, interpersonal, and conceptual skills to analyze contractual situations and interact with the rest of the project team and contractors (PMI, 2017).

The interpersonal skills of the project manager are basically related to the management of contractual claims, which are considered the most relevant. Nonetheless, the foregoing does not mean that those claims not brought to the context hereof are not necessary. Therefore, the management skills must be suitable and relevant skills in contractual matters, the development of team spirit, communication, influence, decision making, negotiation, conflict management and training, inter alia. The development of team spirit in claims management has to do with uniting people around the objectives defined hereinabove. The joint work with the leader and other stakeholders must be constant in contractual matters. While it is true that the contractual claims management team is a different group, although operating within the project team, it must work together with the different project teams and all stakeholders (PMI, 2017). As proposed by the Project Management Institute (PMI, 2017), the development of the team spirit consists of 1) addressing tasks jointly, such as preparing and responding to claims and negotiations, resolving disputes, avoiding claims, monitoring delays and interruptions, formulating and filing claims, and avoiding, solving and settling disputes; and 2) assuming processes in coordination, such as those set forth in the PMBOK and contractual claims management processes. The development of the team spirit also implies the need to reaffirm the collective nature, not the individual nature, nor the idea of people working independently, and such development requires, in turn, the support of senior management, through the use of rewards and appropriate acknowledgments, emphasizing the need for interpersonal skills in the initial stages of the project, in order to prevent claims in the following phases, to the greatest extent possible.

Interpersonal communication skills are indispensable for a contractual claims management team. The Project Management Institute (PMI, 2017) has described it as one of the most relevant and important reasons for the success or failure of a project. As with the project team, "it is essential that there is effective communication within the project team and between the project manager, team members, and all external stakeholders" (PMI, 2013), and as a consequence thereof, the claims management team should excel at this skill. Managing complaints is communicating, expressing oneself, making oneself understood, understanding others, learning to read and listen to the pretenses of others and being able to express one's own. Every member of the contractual claims management team should be an excellent communicator, by any method or size, and with the most efficient communication model (PMI, 2017; Thomas, 2001). Consequently, the importance of communication in the field of organizations has been widely remarked (Baena; Montero, 2014; Rebeil; Ruiz Sandoval, 1998; DiDonato, 1993; Rodriguez, 2015; Kase, 2008; Ongallo, 2008; van der Hofstadt, 2005), and furthermore, it is considered relevant and important to the project that the claims management team has remarkable communication skills.
Regarding the personal skill to influence, the PMBOK says that it consists of "sharing authority and relying on interpersonal skills to make others cooperate in achieving common goals" (PMI, 2013, p. 515), which is

certainly important for a claims management team, insofar it facilitates the cooperation of other members of the project team, with those of the claims management team. However, character is the basis of credibility and persuasiveness (Ongallo, 2008), so the contractual claims management team must hold consistent character in order to be able to influence the entire project team. On the other hand, decision-making is an interpersonal skill that should be present in every member of the claims management team, and the PMBOK points out the basic decision-making styles normally used by project managers (PMI, 2017), as well as four main factors that affect decision-making style: "time constraints, trust, quality and acceptance" (PMI, 2013, p. 516), but in terms of contractual decision-making, there is a lack of evidence.

Regarding claims management, it is necessary to resort to more elaborate conceptual tools for decision-making. For example, the use of mathematical models for decision-making, used to solve complex problems that overcome qualitative models (Rebeil; RuizSandoval, 1998) has been proposed. In projects, and in particular, in the contractual field, there are numerous variables, and problems involving several people or groups, and there are considerable dynamics, which offer multiple alternatives, which, in terms of the success of the projects, require models that enable quantitative analysis for decision-making (van der Hofstadt, 2005). This kind of quantitative solutions for decision-making, as proposed by several authors (van der Hofstadt, 2005), is used in game theory, and is very similar to a contractual relationship, and to certain quantitative methods used in successful organizations.

Additionally, negotiation as an interpersonal skill must be developed by all members of the contractual claims management team. Negotiation is defined as "the strategy that consists of dialogue with the parties that have shared or different interests, with the purpose of achieving a compromise or reaching an agreement" (PMI, 2013, p. 517), so it is very much in line with the requirements of the subject matter of claims management, given the definition of claim. Consequently, negotiation is one of the most usual interpersonal skills found in claims management, this skill should be highlighted in a member of the claims management team. Therefore, the claims management team must have sufficient techniques and tactics of negotiation (Kase, 2008), while also developing active listening. The claims management team should use this interpersonal skill during all stages of the contractual conflict, applying mechanisms, such as anticipation, conscious but unexpressed difference, open discussion, dispute, and conflict (Rodríguez, 2015), but always remembering that contractual conflicts should not affect the life cycle of the project, and hopefully not transcend it.

In conflict management, it is clear, as in the whole project, that "conflicts are inevitable in the environment of a project" (PMI, 2013, p. 518). In contractual matters, conflicts are also unavoidable and are dealt with through the management of contractual claims, and that is why this work proposes that the claims management team should be the one that manages them. Moreover, the guide to the fundamentals of project management indicates that "within the environment of a project, conflicts can generate dysfunctional results" (PMI, 2013, p. 518), and specially, contractual conflicts, and this is another reason to support the proposal of the claims management teams as the team in charge of managing this type of conflict, given its contractual nature. Nonetheless, the contractual claims management team must have knowledge of the conflict status, and must understand what is going on, decide what should be done, and act with the purpose of solving conflicts (Adrián; Andrew, 1999; Gallagher; Watson, 2011; Martinez, 2012).

5. Conclusions

There are requirements in terms of roles and responsibilities for certain types of projects, which are not fulfilled by traditional teams. Without the need to resort to the expert's opinion, it is possible to create subsets of the project team, which are experts in contractual matters, and who provide support to the director. These in-house experts should be familiar with different parameters relevant to the proper management of projects in the energy sector, such as the management of communities as proposed by Rogers *et al.* (2012); the management of the different stakeholders, contributing to the approaches of Reilly *et al.* (2016); the social, economic and

environmental balance, argued by Lappe-Osthege and Andreas (2017); the establishment of clear institutional policies as a relevant part of the assets of the organizational processes, considered by Abeelen *et al.* (2013); the analysis of the legal aspects pertaining to the life cycle of projects and deliverables, as recommended by Toppel and Tránkler (2019); and, finally, the development of specific contractual analysis according to the complexities of projects in the energy mining sector, as required by Elsner and Suarez (2019), regarding the community energy production.

The roles and responsibilities of this kind of team must be defined, considering the different processes of contractual claims management. Likewise, the interpersonal skills of each of the members of the contractual claims management team must be aligned with the topics to be managed, and can be defined from the interpersonal skills related to the matter defined in the PMBOK for the project manager.

Undoubtedly, contractual conflicts and disputes occur throughout any infrastructure project in the energy sector, which is shown by the forty-eight cases identified when adding arbitration decisions and judicial rulings, as well as in the analysis of the literature. Although the evidence indicates that the forty-eight cases of arbitration decisions and judicial rulings could have been managed better if they had been managed by the contractual claims management team, whereas the elements described in this article would have contributed to the proper management of the situations in the different cases, it is also clear that due to the costs involved in the assumption of a new structure, the organizations involved the arbitration decisions and judicial rulings would have to weigh the transaction costs (Williamson, 1981), which they would incur into in order to move from institutional isomorphism (DiMaggio; Powell, 1983) towards competitive isomorphism (Fennell, 1980; Meyer, 1979), on the subject of contractual claims.

According to the approaches presented above, the proposed contractual claims management team is the first choice when dealing with claims in infrastructure projects in the energy sector; however, if this type of projects present a highly complex configuration, and if the issues are supremely sensitive, the claims management team itself may not be enough, and the CPMO should be resorted to as the entity governing the project from a contractual and claims management standpoint.

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