AMERICAN UNIVERSITY OF BEIRUT

DECISION MAKING IN RELEVANCE TO GOVERNANCE MECHANISMS ALONG THE CLAIMS/DISPUTES RESOLUTION TIMELINE

by

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AN ABSTRACT OF THE THESIS OF

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Claims and disputes have become a certain event within construction projects. Failure to address claims and disputes results in repercussions that may harm the project participants in regards to tangible and/or intangible assets. Failure to address claims in precise leads to the evolution of simple differences in opinions to disagreements and conflicts. The FIDIC 1999 conditions of contract propose some guidelines and procedures to be adopted when claims and disputes are imminent, but it does not propose strategies in regards to the detailed governance mechanism practices and decision-making processes underlying the claims/disputes phase.

This research aims to illustrate the claims/disputes timeline in accordance with FIDIC 1999 contract conditions and to explore the milestones along this timeline that require major decisions to be taken by the contractor. Organizational structures for the project participants will be proposed with an analysis on the governance mechanisms adopted by the contractor's organization. This research will then explore the decision-making process through illustrating the committees that the contractor utilizes along the claims/disputes timeline. A rationale will then be discussed and analyzed for the choices of representations from the head office and the site office within the contractor's organization with voting procedures being discussed as well. Recommendations will follow on how the project participants can improve their practice in order to avoid claims/disputes and realize more success in projects and along the organization's lifetime.

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1. INTRODUCTION

1.1. Background

Project management is being practiced in all organizations in attempts to ensure the success of projects in an era where all projects face failure in many areas, of which are: cost, time, and quality. Construction projects describe such situations ideally, where attention to time, cost, and quality restrictions is of crucial importance, and the fact that various problems arise makes it even more worthwhile to keep records and perform analysis on the project's performance continuously (Abdul-Malak & Jaber, 2015). Jahn, Cook, and Graham (2008) discuss that it is important to have planning and control processes in place that are recognized and understood through all administrative and managerial levels by in-house and/or outsourced project management units. This is evident where project planning techniques are employed to prepare realistic schedules within manpower, materials and funding constraints.

The completion of a project requires input from a variety of groups, including the employer, the consulting firm, the contractor, the end user, and other outsourced or third party firms. These roles are set forth via contracts which aim to achieve both the parties' and projects' benefit.

A contract by default is a document or set of documents that serves to allocate risks to each of the signing parties in a fair manner. Moreover, it is a good practice to make a well-drafted contract in which the scope of work, completion time and method of reimbursement are clearly stated while of course abiding by governing laws (Jahn Cook and Graham, 2008). A well-designed and fairly administered contract is a catalyst for good contractor performance; selection of contract type and risk allocation are basic to this contract design.

Tabish & Jha (2012) said that the success of projects depends on critical factors (CSFs) that when well managed by the contractor success on many fronts including the financial front may be achieved. Yet, it is evident that factors, such as scope changes, poor contract documentation, restricted access, unforeseen ground conditions, and contractual ambiguities are obstacles that projects face (Love, Davis, Cheung, and Irani, 2011).

Construction claims arise when such problems are faced. Di Castri (2000) states that a good contract should define how to manage claims, how to calculate the amounts, and how to proceed in case of disagreement. Moreover, the claim/dispute timeline is one consisting of many stations that require attention from the parties concerned in the construction project. This means that there are times after a problem arises where the contractor will be faced with having to make important decisions on whether to go through with the claim process or not. Many considerations should be respected when taking such decisions. These considerations may include seeking technical inputs from the site-office staff such as those recorded in project files or video footage (Kululanga, Kuotcha, Mccaffer, Edum-Fotwe 2001).

"The construction industry is also one in which decentralized project team working is the norm, causing significant horizontal and vertical differentiation within individual construction firms and a high degree of uncoupling between project activities and wider organizational strategies," (Bresnen, Goussevskaia, Swan 2004). The competitiveness of firms is directly tied to the ability to effectively create and share knowledge both within and across organizations. Yet, for such organizations and projects, the term knowledge governance should be used to highlight this issue. Knowledge governance (KG) involves "choosing organizational structures and mechanisms that can influence the process of using, sharing, integrating, and creating knowledge in preferred directions and toward preferred levels (Pemsel et al., 2016).

1.2. Problem Statement

Each form of claim/dispute resolution requires a certain level of preparation to solve the dispute, but parties often progress without a clear strategy to guide themselves through the procedure (Martin, Thompson 2011). "Recent studies have demonstrated that mature project-based organizations (PBOs) need to adopt integrative approaches that will enable consistent structures, delivery of strategy and uniformity of knowledge," (Thiry, Deguire 2007).

In the construction project context, light is not shed enough on the issue of which and how head- or site-office work units are triggered at each decision station related to the tracking and management of claims/disputes. This matter is crucial, in order to know if all the units are performing as they should in regards to performance standards and to decentralization rights. Yet, the major problem lies in the hierarchy interactions of the

project-based organization. Additionally, the noticeable features of PBOs are such that the organization tends to be loosely tied and characterized by poor cooperation across units and below par resource usage. These adversities will likely lead to difficulties in developing, embedding, and integrating new management practices and organization-wide knowledge bases (Pemsel et al., 2016). Finally, it is unclear as to what repercussions the contractor should consider before taking a decision.

1.3. Research Objectives

This thesis will produce models that portray the governance structure for each participating entity in a traditional construction project delivery, where the contract administration units in the governance structures for each of the Employer, A/E, and GC's entities are involved in managing claims and disputes for the project at hand. What makes these models more important is the fact that the site office for each entity is a mirror image of the head office in terms of units' composition.

This thesis will also show that the governance structure for a GC is the largest and most complex between the usual three, which entails more employees and units which in its turn entails more diffusion of authority and responsibilities. Thus, the GC shall be chosen for the studies of decision making at the decision stations along the claim/dispute timeline.

At last, this thesis will give recommendations regarding governance strategies that large companies may adopt when dealing with decision-making milestones along the claims/disputes tracking timeline. These strategies will include clarifying variances in

intervention between the head-office and site-office in what relates to the various stages of claims and disputes. Most importantly, it will investigate the considerations that a contractor should observe while searching for a suitable decision by the appropriate governance body at the various decision stations along the claims/disputes timeline.

1.4. Methodology

The methodology followed in this thesis will consist of the following steps:

1. Carry out a thorough literature review on subjects that directly or indirectly relate to:

- Claims and Disputes Management
- Organizational Structures
- Governance Mechanisms
- Project Management
- Decision Making in Project-Based Organizations

2. Propose a suitable generic organizational structure model for a traditional construction contract setup. Certain parameters will be taken into consideration in the design of an organizational structure such as vertical and horizontal decentralization. The concept of a project-based organization shall be assigned to a contractor's organization with support from literature review about this matter. This general structure will be integrated with the subsequent material to highlight further the role of each unit of the contractor's organization in taking decisions that affect the project as a whole.

3. Conduct a comprehensive reading of the Claim/ Dispute timeline, by relying on the relevant conditions offered by the 1999 FIDIC's general contract conditions. This timeline shall be reproduced for highlighting the stations where decisions are required to be taken by the Contractor's entity in terms of continuing, suspending, or terminating the claim/dispute administration process.

4. Integrate points 2 and 3 by a link that is mainly a character-based code. Also, the degree of intervention and the rights for each party in a huge organization in regards to taking a decision in the matter shall be shown. This happens while clearly defining the roles of units participating in the project that were mentioned in point 2.

5. Propose a set of guidelines for efficient decision-making processes. Also, these processes should abide by the considerations proposed in this research. These considerations, some of which are deduced from the literature, are nitpicked and studied differently for each of the early, interim, and late stages in the claim/dispute resolution timeline.

2. LITERATURE REVIEW

2.1. Preamble

It is evident from practice in the construction industry that conflicts, claims, and often disputes are evident to happen in construction projects. In normal circumstances, it would be the interest of parties participating in a construction project that claims do not evolve into disputes. Yet, reality does not aid the parties participating in the project to achieve their interests due to reasons pertaining to the difficulty in tracking and resolving claims which is usually backed by poor claim management, poor communication between and within parties, and authority being given to staff within each company that are not too aware of the company's requirements when taking decisions. These problems are one of the main catalysts behind the evolution of claims into disputes that lead to arbitration or litigation.

Recently, studies and experience have shown that dispute resolution methods exist and offer a more practical solution than commencing arbitration or litigation. These methods also help alleviate much of the tension that is built up between the parties along the claims/disputes timeline (Yiu & Cheung, 2007). The literature review part of this research aims to expand on claims/disputes administration, governance mechanisms, and decision making. This literature review will also explain how proper knowledge

management within an organization prepares the staff to be able to handle the authority given to them by the top management to take decisions along the claims/disputes timeline.

2.2. Construction Claims

A claim is a demand for an alleged right when one party has suffered a certain loss. This right is called alleged because the claim is based on what the contractor perceives to be their right when requiring the other party to compensate for it. Construction projects as mentioned earlier are never devoid of incidents that force changes on the project, so a need for a practice within the organization to manage claims has risen in the past years (Kartam, 1999). As mentioned in sub-clause 20.1 of FIDIC 1999, "If the Contractor considers himself to be entitled to any extension of the Time for Completion and/or any additional payment under any Clause of these Conditions or otherwise in connection with the Contract. The Contractor shall give notice to the Engineer, describing the event or circumstance giving rise to the claim,", thus it can be inferred that a claim is what a contractor or an employer perceives as his own right for an additional amount of payment or time. Since events giving rise to claims are bound to happen in a dynamic environment such as in the case of construction projects, there is a need for regulation of processes, good strategy, and sound project management practices when dealing with the claims administration process.

Claims are mainly grouped into two categories: incident-based claims and global claims (Abdul-Malak &Jaber, 2015). Incident-based claims are easier to formulate in regards to the preparation of particulars and offer a more clear view to both The Engineer and the employer when analyzing the case at hand. Meanwhile, global claims represent a

group of claims that the contractor has an idea of their cumulative value but doesn't have an idea on each individual claim's value. Global claims are mainly used in the construction industry when the contractor feels that there is no time to prepare for one claim or that this certain claim has a slim chance of being agreed to in favor of the contractor by The Engineer.

2.2.1. Causes of Claims

The causes of claims vary widely in the construction industry, but this literature review has found that some of these causes have been grouped into main categories as shall be presented. Barnard (2005) groups claim causes into categories based arbitrary factors and highlights the fact that some claims may fall under more than one category:

- Delay
- Directed change
- Constructive change
- Acceleration
- Differing site conditions

Zanedin (2006) has performed a study on the types of claims that included six categories for types of claims and has considered 71 different entities with 9 of them being owners, 33 contractors, and 29 being consultants. The results of this study are shown in table 1 below.

Table 1: Ranking of Claims Based on their Frequency (Zaneldin, 2006)

TYPES OF CLAIMS	IMPORTANCE INDEX (%)	RANK
CHANGES	60.5	1
EXTRA-WORK	60.2	2
DELAY	51.1	3
DIFFERING SITE CONDITIONS	40.5	4
ACCELERATION	39.1	5
CONTRACT AMBIGUITY	32.7	6

2.2.2. Claim Management

Di Castri (2000) discusses that the appraisal done by the contractor's site team to specify a reimbursement or an extension of time is generally too optimistic which in turn requires negotiations and in some cases consultations by third parties who are professional in such a domain. This give and take process has given birth to the idea of having conditions of contract that specify time bars in the case an event has occurred which the contractor sees as a right for claim.

The conditions of contract that this research shall be considering is the 1999 FIDIC which is an updated version of the 1987 FIDIC. But what happens in large projects where claims may be in the hundreds or even rarely in the thousands? This question has been answered by organizations that have concluded that adopting claim administration practices is a crucial matter in a problem-filled industry (Barnard, 2005).

2.2.3. Definition of Claim Management

Claim management by definition is the process of administration of claims in respect to the conditions of contracts agreed by the parties participating in a project. This process requires having a unit or department depending on the size of both the company

and the project to be specialized in the matter of claims/disputes resolution. Martin et al. (2011) discuss that there should be a plan before embarking on any conflict resolution path.

2.3.2. Successful Claim Management Practices

Tabish & Jha (2012) discuss in the matter of project success that one of the critical factors for success is the participation of different members within the organization in project-related activities. This means that in addition to a company having a unit(s) specialized in solving claims/disputes it should also have a plan that takes into consideration the company's well-being. Kululanga et al. (2001) have identified that any construction claim management practice has to include the following claim-related processes: identification, notification, examination, documentation, presentation, and negotiation. Kululanga et al. (2001) also advises practitioners in the claim management domain to use total quality management tools in an effort to prevent claims.

The industry though has developed well since 2001 and has been applying these concepts, but nowadays the problems lie in the application of claim management itself. Martin et al. (2011) mention these problems when talking about how the claim management process is being neglected by some of the project participants since there is an increase in reliance on consultants.

2.4. Construction Disputes

Construction disputes arise when disagreement between parties has happened and consultations between those two parties have stopped being fruitful. Pang and Cheung (2014) discuss that the construction environment and construction contracts are the main reasons for the existence of disagreements. Thus, certain practices should be adopted in

order to resolve the dispute at hand and avoid the disastrous repercussions that unsolved disputes have on both parties whether in regards to tangible or intangible assets (Reid and Ellis, 2007).

Martin et al. (2011) discuss that disputes are not a result of the truth, but they are more based on parties perceiving that they have an alleged right. Thus, certain methods should be created to attend to those disputes.

Dispute resolution requires preparations and processes to be created in order to effectively take gain benefit from opportunities present to the parties participating. Martin et al. (2011) propose five processes that are usually adopted by project participants to put an end to disputes:

1) Partnering: Parties agree to negotiate issues that arise during a project. These negotiations are often included in the construction contract. Partnering also entails that these parties have to keep in mind that concessions may exist in order to resolve the dispute
2) DRB or DAB: A dispute review board or a dispute adjudication board is a panel of professional(s) who aid the parties through giving recommendations and/or decisions that are in some cases binding to both parties. These panels are most effective when hired at the start of the construction project in contrast to ad-hoc panels that are cheaper to hire but are most likely less informed of the project's details.
3) Mediation: A neutral third party is involved in formalized negotiations between the contractor and the employer in order to achieve agreement between the parties on an outcome that suits them both. The mediator doesn't have the same rights as the DRB or DAB in the sense that he/she is not allowed to have a judicial or quasi-judicial role.

4) Arbitration: Arbitration is a mirror image of a court trial in certain aspects. It consists of a panel of one or three members as stated by FIDIC 1999 and in theory should be able to result in more correct decisions in the matters of dispute. This idea is also backed by the fact that the arbitrators should be people whom have no interest whatsoever in the outcomes of the arbitration in regards to both parties.
5) Litigation: Litigation is considered by many as preparation for the court's trial. The important difference that litigation offers is that the stronger party in terms of the facts and particulars prepared is more likely to succeed. Litigation also offers an extra window for parties to negotiate before reaching the final court trial. Martin et al. (2011) also mentions that litigation management is of utmost importance in the sense that parties could have reached more favorable results through negotiations instead of proceeding with a trial that includes a dis-interested judge.

It should be noted that the preparation of particulars is a tedious task for the contractor at the earlier stages of the project, so this task would become even more tedious when the particulars are being prepared for arbitration or litigation (Long, 1988).

In summary, attending to one of these processes will give an outcome that will solve the dispute. Yet, the outcome depends on the collaboration between the parties in dispute and the amount of compromise that they are willing to make. In the cases where no compromise is made, a binding decision will be taken in regards to the dispute to end the whole process.

2.5. Organizational Structures and Governance Mechanisms

The study of organizational structures and governance mechanisms aids management teams in the production and control of better strategies. This study takes into consideration corporate governance that is practiced by a unit that should be in control of managing the organizational structure and keeping governance mechanism practices in check (John & Senbet, 1998).

The contractor's organization is usually the largest organization participating in a project in terms of the amount of functional departments. Thus, it is important to highlight the entities in charge of maintaining the organizational structure. John & Senbet (1998) discuss that the shareholders or in this case the contractor himself, is responsible for the assignment of the board of executives' in addition to choosing a certain size and composition for this board. Moreover, this board should receive a certain degree of authority which shows delegation from the contractor to the board. This authority helps the board in taking decisions which the contractor may not have time due to the diffused nature of the contractor's organizational structure which makes it a tedious task to monitor the different functional units within that organizational structure (John & Senbet, 1998).

Turner and Keegan (1998) expand on the idea of hierarchical organizational structures by stating:" Functional hierarchical line management was the main paradigm of management for nearly two hundred years from the late 18th century until the mid-20th century. Turner and Keegan (1999) also expand on the idea of having specialized units that cause the work on projects to be discrete and highly specialized in accordance with the functions of those specialized units.

Tenah (1986) also mentions functions that should be exercised by the organization's corporate management to fulfill its role completely:

1) Set out company objectives
2) Formulate company plans and strategies
3) Exercises responsibility for overall growth and profitability of company
4) Acts as liaison between the functional units and the presidents' level

2.5.2. Ensuring Successful Governance Mechanism Practices

Insurance of outcomes is definitely a hard idea to exist in the simplest of tasks, so it is only natural that this idea to be even harder to exist in the construction industry and more specifically when studying governance mechanism practices. Thus, it is important to highlight the potential problems that the contractor's corporate management team may face when applying governance mechanism practices before showing the guidelines that this team can follow to achieve better results.

Tenah (1986) mentions that the disadvantages of the hierarchical structure are translated into obstacles that stand in the way of the growth of both the organization and its units. These disadvantages are listed below:

1) Organizations following the hierarchical structure have great difficulty in adapting to changes in the environment since they are designed to achieve certain goals as efficiently as possible. "Corporate Anorexia" thus results from the redundancy of functions. This redundancy's time could have been used in the investment of new ideas to further improve the services provided by this organization.

2) The drive for stability within an organization causes loss in the focus on customer satisfaction. Customers take what they are given, what the organization wants to produce for them. Coupled with this, the organization becomes
3) very introspective. The structure exists because 'that is the way we do things', not for the sake of delivering desired benefits to customers.
4) The drive for stability also causes the organization to be highly risk-averse and will thus miss on greater opportunities that would have helped in the organization's growth.
5) Members within the organization may become introspective and thus becoming vulnerable when the external environment experiences changes.
6) The vertical promotional ladder within an organization allows for members that are excelling in management to reach positions where they are poor in. As such is the example of managers becoming administrators while they are unable of having good administration practices.
7) The functional hierarchy is draining to the members of occupations at the bottom ladder where these members will have less chances for showing creativity due to being limited to defined tasks.

Dealing with such problems proves tedious to construction practitioners especially with the scarce amount of research done by organizations to promote better governance mechanism practices. Wycombe (2011) offers a set of questions that guide the board of directors or also known as the corporate's management in assessing the competency of the project teams and reaching more success in relation to governance mechanism practices as shown in the tables 2 & 3 as shown below with PD referring to questions directed to project

developers or in this case corporate management personnel and PM referring to project managers.

Table 2: List of Factors to be Considered to Assess Sound Governance Mechanism Practices

PD1	Is the organisation's project portfolio aligned with its key business and organisational objectives, such as those of profitability, customer service, reputation, attitude to risk, corporate responsibility, sustainability and growth?
PD2	Are the organisation's financial controls, financial planning and expenditure review processes applied to both individual projects, and to the portfolio as a whole?
PD3	Is the project portfolio prioritised, refreshed, maintained and pruned in such a way that the mix of projects continues to support strategy and take account of external factors?
PD4	Does the organisation discriminate effectively between activities that should be managed as projects and other activities that should be managed as non-project operations?
PD5	Does the organisation assess and address the risks associated with the project portfolio, including the risk of corporate failure?
PD6	Is the project portfolio consistent with the organisation's capacity?
PD7	Does the organisation's engagement with project suppliers encourage a sustainable portfolio by ensuring their early involvement and by a shared understanding of the risks and rewards with due protection of commercial confidentiality?
PD8	Does the organisation's engagement with its customers encourage a sustainable portfolio?
PD9	Does the organisation's engagement with the sources of finance for its projects encourage a sustainable portfolio?
PD10	Has the organisation assured itself that the impact of implementing its project portfolio is acceptable to its ongoing operations?

Table 3: List of Factors to be Conisdered to Assess Competency of the Project Teams

PM1	Do all projects have clearly defined outcomes with clear critical success criteria that are tracked to inform decision-making?
PM2	Is the board assured that the organisation's project management processes incorporate review points, are subject to continual improvement and maturity and that project management tools are appropriate for the projects that it sponsors?
PM3	Is the board assured that the people responsible for project delivery, especially the project managers, are clearly mandated, sufficiently competent, and have the capacity to achieve satisfactory project outcomes?
PM4	Are project managers encouraged to identify and exploit opportunities for improving project outcomes?
PM5	Are key roles and responsibilities for governance of project management clear and in place?
PM6	Are service departments and suppliers able and willing to provide key resources tailored to the varying needs of different projects and to provide an efficient and responsive service?
PM7	Is the management of issues, changes, risks and opportunities integrated into the decision making process and in line with adopted policies?
PM8	Is authority delegated to the right levels, balancing efficiency and control?
PM9	Are project contingencies and other risk responses estimated and controlled in accordance with delegated powers?

It can be seen from thorough analysis that tables 2 and 3 propose answers and guidelines to the problems that organizations face as mentioned in table 1.

2.6. Project Management

A "Project" is a task that has to be performed in accordance with certain specifications and in a timely manner for an agreed price. Moreover, projects require that there should be an employer and a contractor who in some cases are one entity including both. Thus, projects require units/members with varying set of skills to collaborate in completing the project to evolve the project from being a conception to being a completed end-product (Jahn et al., 2008).

Project management practices are adopted in most of the markets around the world to achieve favorable outputs for an organization. Project management is defined as the usage of knowledge, tools, and skills to properly organize projects which are coupled with sustainability in regards to social and economic concepts (Martens & Carvalho, 2016). Thus, in such a case project management is conveyed as being more of a science than an art. Taghipour et al. (2015) move towards classifying project management as an art where they claim that:" Project management is the art of directing and coordinating human resources and materials throughout the life of a project by using modern management techniques of which the most important objectives include the reduction of cost and time and improving the quality of the projects,".

2.7. Decision-Making in Project Management

The definitions of project and project management entail that decision-making is evident in such practices. Decision-making is a widespread concept, but decision-making processes differ when the natures of the events at hand differ. Tenah (1986) mentions for example some of the roles of the corporate management team thus supporting the idea of having capable decision makers at the top levels within an organization:

1) Setting out which members are responsible for decision-making within the organization as well as the time at which these decisions should be taken;
2) Choosing specialists for the functional units;
3) Organizing lines of communication, and guiding research and development;
4) Standardizing standing orders and procedures; and
5) Making financial and economic decisions in relation to investments.

In accordance with the first point, it is thus important to explore the role of project managers within the organization in order to better understand the decision-making processes required by these managers. Yet, the project managers hired within an organization are to not required to be perfectly rational members. This idea is discussed by Reason (2000) in the context of the human error being a factor that should be taken into consideration when a company is formulating its strategies in regards to risk management. One of the solutions to this lack of perfection within individuals is the collaboration between these individuals in an effort that they complement each other's set of skills.

Reason (2000) also mentions that proper project management practices should focus more on the reform of systems rather than focusing on the errors of individuals. Thus, the idea of simulation has been recommended to project managers in order to prepare these project managers to be ready for dealing with the human errors in projects.

The matter of dealing with errors can be further improved when project managers are also controlling the decision-making processes made by the individuals that they are supervising directly and indirectly. Yun et al. (2016) discuss that the application of Total Quality Management principles within the organization by the managers helps in reaching higher levels of project success. This idea is achieved when efficient project controls are being practice and when competent project teams are dedicated to the project's portfolio and the organization's objectives (Williams & Samset, 2010).

3. CLAIMS/DISPUTES TIMELINE & ORGANIZATIONAL STRUCTURES

3.1. Preamble

The 1999 FIDIC conditions of contract specify processes and time bars for the administration and submission of claims, as well as procedures to be followed throughout the management of claims and resolution of disputes. An ample reading of the Claims/Disputes timeline as per the 1999 FIDIC shall be presented as well as which milestones along the timeline are considered as stations that require major decisions. It should also be noted that the existence of a diamond shape along the timeline entails a decision being required by the contractor where one decision is hidden along the timeline which the decision on accepting the Engineer's Final determination also known as claim tabling.

This chapter will also highlight the major decision stations along the claims/disputes timeline from the point the point of view of the contractor while presenting the rationale behind the mentioned stations being major since the contractor in principle is faced with hundreds if not thousands of decisions on a daily basis. Also, the impact of the decisions taken at the aforementioned stations shall be studied. In addition to the major decision stations, interim determination cycles shall be discussed to highlight further the process precedent to The Engineer giving a final determination in accordance with sub-clause 3.5 of FIDIC 1999.

Furthermore, organizational structures for each of the entities participating in the project shall be proposed along with some of the mechanisms that pertain to the interactions between these entities. Due to the plethora of members in the organizational structures, a coding system shall be adopted to facilitate the process of referral of those members.

3.2. Claims/Disputes Timeline

Proper claim management is crucial to the success of any project. Construction projects thus are even more complex due to the fact that the slightest changes may cause huge repercussions on the project's performance. So, management of claims at the project's site forms a huge challenge to contractors (Kululanga et al., 2001). Also, documentation especially has been seen to be a vital process that if neglected may have repercussions more dangerous than that of the project's success being hindered (Barnard, 2005). Barnard also mentions that such repercussions may be avoided if simple guidelines are followed by the on-site teams, and in the cases that claims/disputes are inevitable it is then that conflict management procedures shall come handy. The primary objective of these procedures is to guarantee the reimbursement for the contractor's alleged rights.

Thus, it is of utmost importance that each phase along the timeline is dissected to be able to thoroughly study the factors contributing to decisions taken at the selected phases. Also, the phase contributing to claims and that to disputes shall be discussed separately to serve the idea that these phases are treated differently by the participating entities since there is a difference in practice between differences of points of view which resembles the case in the claims process and disagreement which resembles the case of disputes. These details will be illustrated in the sub-divisions to come. It should be noted

that the existence of diamond or rhombus shape within the illustrations pertains the existence of the need for a decision to be taken.

3.2.1. Claims Timeline as per 1999 FIDIC

Claim management as defined in the literature review chapter of this thesis is an important practice for all parties participating in the construction project. Thus, it is of this thesis's interest to study the claim timeline which can be deduced by the proper in-depth reading of the 1999 FIDIC contract conditions. An illustration of the claim as deduced from the 1999 FIDIC is presented in figure 1 below.

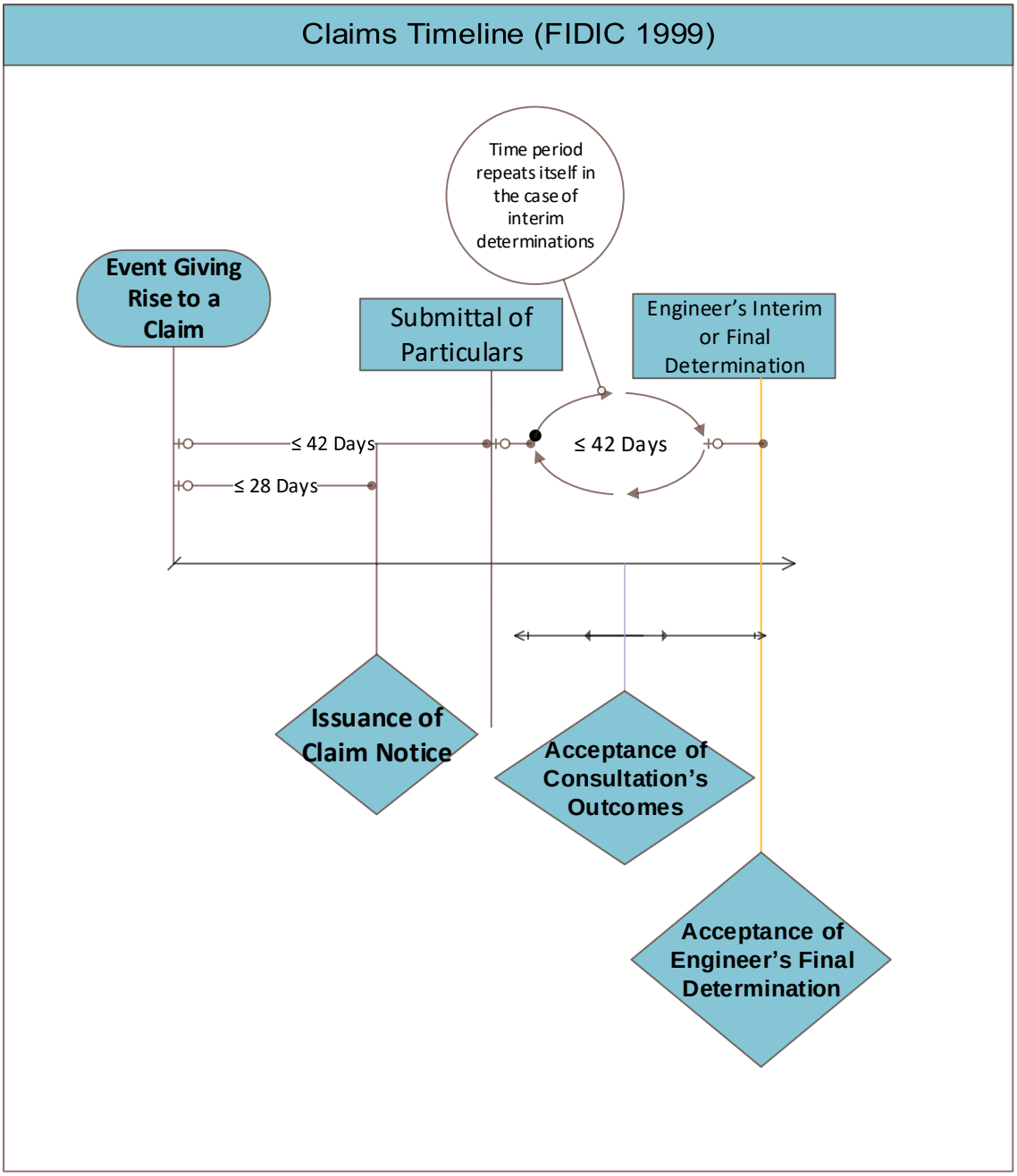


Figure 1: Claims Timeline as per FIDIC 1999

The time bars presented in figure 1 are all deduced from both sub-clauses 20.1 and 3.5 of FIDIC 1999. Sub-clause 20.1 states that contractor when considering himself entitled to "any extension of the Time for Completion and/or any additional payment" under any clause of FIDIC 1999 conditions which are mainly clauses that deal with unforeseeable

conditions and delays that the contractor is not responsible for. Thus, sub-clause 20.1 of FIDIC 1999 states the contractor has 28 days to submit a notice of claim and 42 days in total to submit a full claim with supporting particulars. Yet, it is important to highlight the idea that sub-clause 19.1 of FIDIC 1999 states that force majeure is to be treated in a different manner where 14 days is the deadline to present The Engineer with a notice of the incident. After that, The Engineer under sub-clause 20.1 of FIDIC 1999 has a maximum of 42 days to give at least a response on the principle of the claim. This period will repeat itself when consultations occur between the two parties and further particulars are asked for. A detailed explanation on the process regarding the give-and-take procedures preceding The Engineer's Final Determination shall be shown in the section below.

3.2.1.1. Interim and Final Determinations Scenarios

Figure 2 shown below is deduced from the practices recommended by the FIDIC Guide in which showing how the 42 days stated by sub-clause 20.1 in regards to sub-clause 3.5 "Determinations" of FIDIC 1999 can be recurrent when consultations didn't lead to agreement and further particulars were required by The Engineer. The illustration also shows the decisions that are required to be taken by the contractor in such cases. It should also be noted that for simplification, only two cycles of consultations have been taken into consideration.

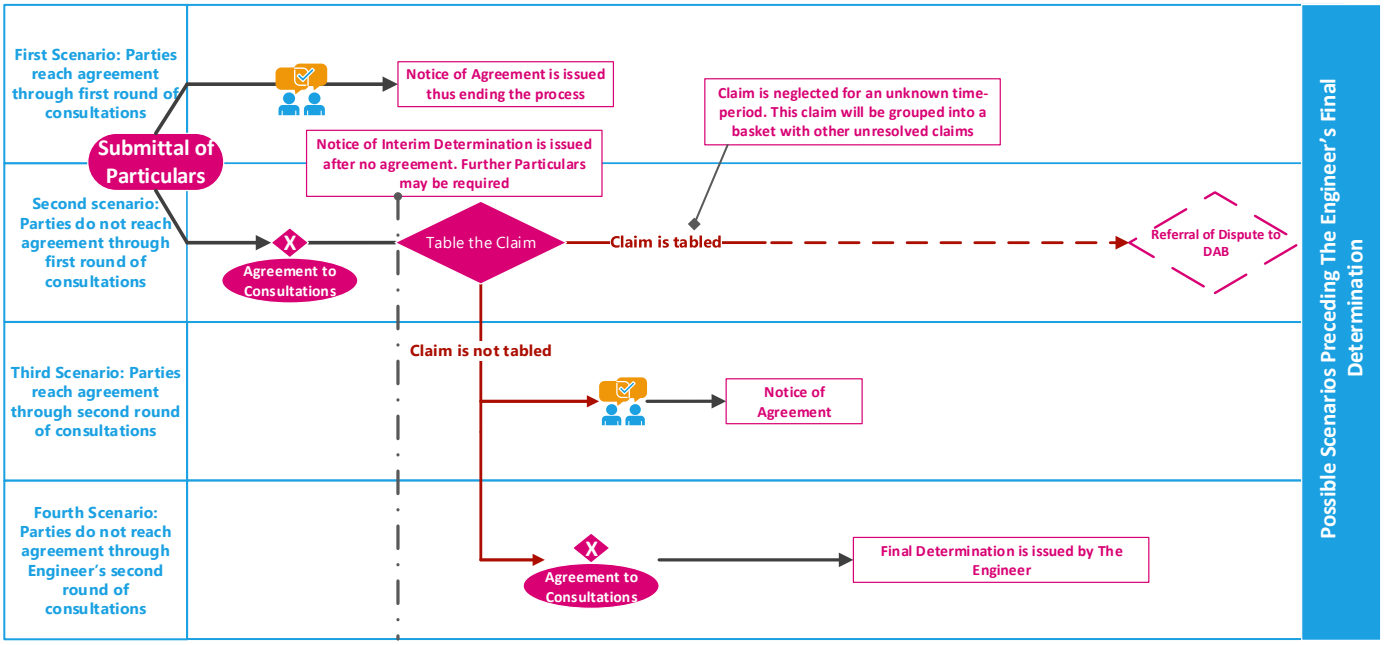


Figure 2: Interim and Final Determination's Possible Scenarios

The FIDIC Guide states:" In practice, the Engineer may first make an interim determination [or determinations], indicating his intention to review it when further particulars are presented to him, and meanwhile including the appropriate adjustment in Interim Payment Certificates. Although an interim determination may nevertheless be referred to the DAB directly without further delay, it is usually preferable, if further particulars become available, for the Engineer to review his previous determination,". This idea is highlighted in the "Table the Claim" decision where the contractor has the right to either submit further particulars after The Engineer has issued an interim determination or to table the claim for an unknown time-period (which may be very short) in order to refer the dispute to the DAB. FIDIC 1999 also mentions indirectly that success in reaching

agreement with sufficient particulars entitles The Engineer to issue a notice of agreement that is considered binding on both parties which is not the case of a determination that may be referred to the DAB.

Moreover, The Engineer's rights in asking for further particulars and his obligation of making further determinations grants him another 42-day time-period in which the cycle representation in figure 1 has been adopted. This process of taking a decision on tabling the claim and accepting a consultation's outcomes of course requires certain considerations to be taken by the contractor as shall be discussed in chapter IV of this thesis.

3.2.1.2. Claim Funneling

In order to better understand the contractor's decision making process at the third decision station, it is important to highlight one of the mechanisms adopted by the contractor in regards to claims. Claim funneling, is a process where the contractor manipulates the unregulated period between The Engineer's final determination and the referral of dispute to the dispute adjudication board. This process is illustrated in figure 3 below.

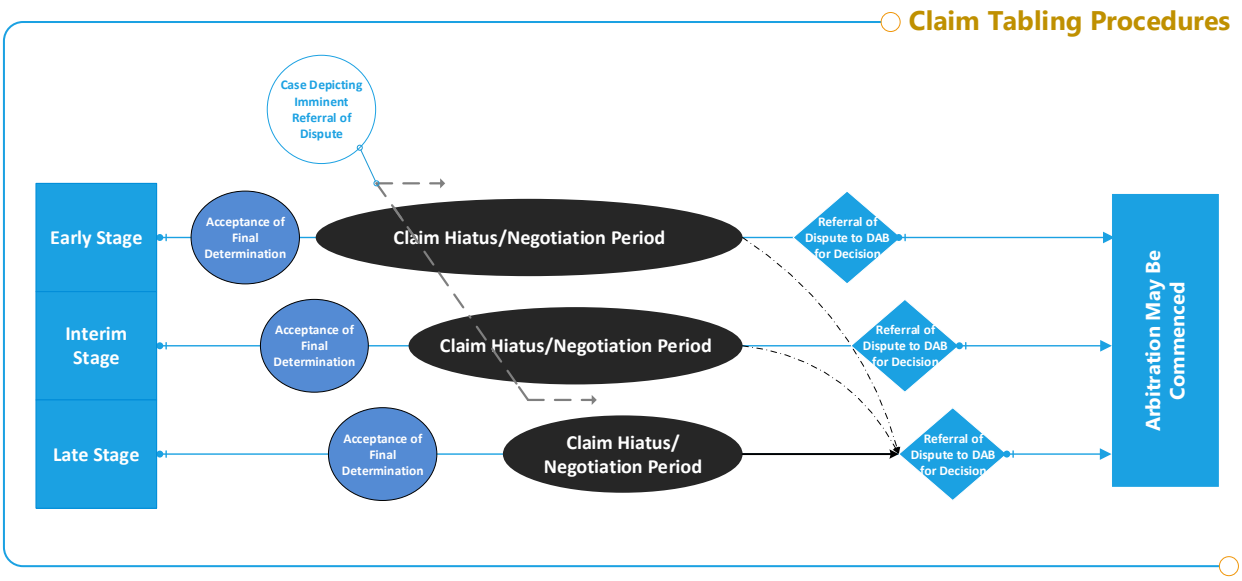


Figure 3: Claim Tabling Procedure Depicting "Funneling"

As illustrated, the contractor has two options after The Engineer's final determination that is presented in an oval shape to highlight that the contractor has already passed that phase that is no longer a decision. The contractor's first option for each stage of the contract's duration is to activate his right in accordance with sub-clause 20.4 entailing referral of dispute to the DAB board and termination of the claim hiatus/negotiation period. The second option that the contractor can entertain is extending the aforementioned period for each claim in an attempt to refer all claims that are now disputes to the DAB board. This practice allows the contractor at times to have the chance to "win" more reimbursement since the DAB shall be judging on the whole portfolio presented (Owen, 2015). Thus, there is an evident difference between referring one dispute vs. many disputes at one time where this difference will be a consideration that shall be explained further in section 4.4.5. of this thesis.

3.2.2. Disputes Timeline as per 1999 FIDIC

As can be deduced from the FIDIC 1999 conditions of contract, a timeline can be illustrated to highlight the major stations along the disputes resolution timeline. This timeline shall be presented in figure 4 below with an explanation on some of the milestones along it as per FIDIC 1999.

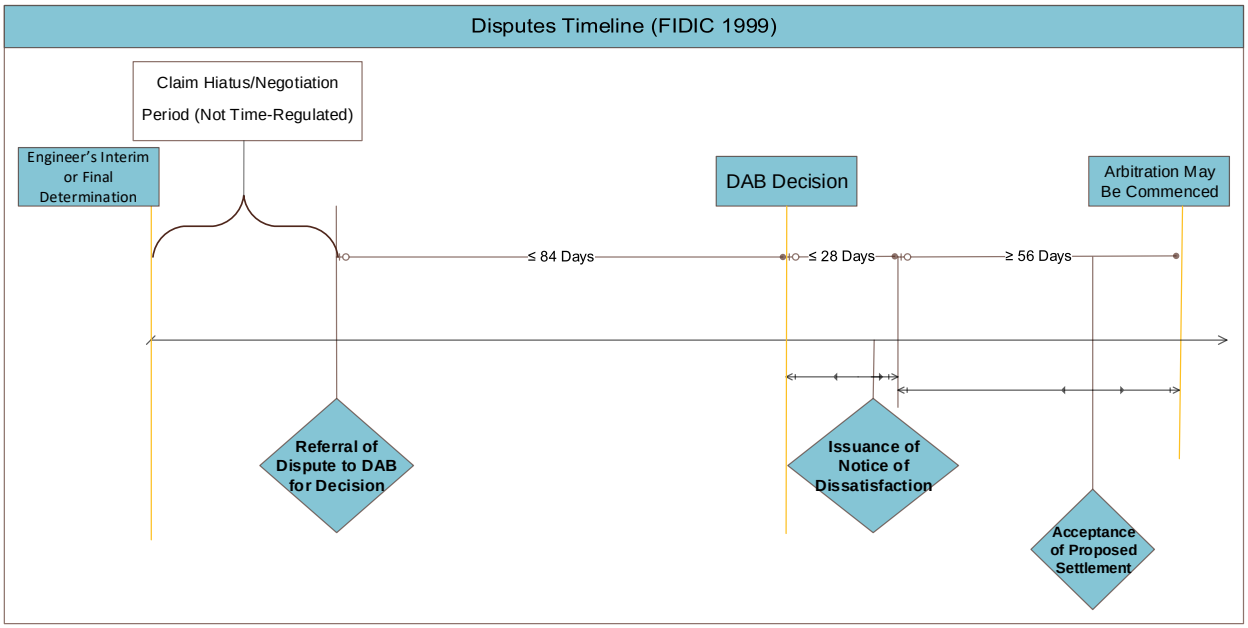


Figure 4: Disputes Timeline as per FIDIC 1999

The main highlight along this timeline is that there is a period that is not time-regulated prior to the referral of dispute to the DAB for a decision. This period is result of no regulation by the FIDIC 1999 and allows both the contractor and the employer to have control over the timing of the start of the disputes timeline. Although, this time period may be considered as a double-edged sword in cases when one party knows of the other party's dissatisfaction in The Engineer's determination since this knowledge will cause stress and anxiety as to when the disputes timeline may start.

After deciding to refer the dispute to the DAB for a decision and with giving the DAB further access to site as well as necessary information in accordance with sub-clause 20.4 of FIDIC 1999, the DAB has a maximum of 84 days to give a decision on the matter as stated in sub-clause 20.4 as well. The same sub-clause states that after the DAB has given a decision, parties have 28 days to issue a notice of dissatisfaction or the decision shall become binding. Failure to comply with decision after it has become binding allows the other party under sub-clause 20.7 of FIDIC 1999 to refer the failure itself to arbitration.

If a notice of dissatisfaction is issued under sub-clause 20.4, parties should attempt amicable settlement under sub-clause 20.5 of FIDIC 1999. It can be said that this amicable settlement is not obligatory since under sub-clause 20.6 of FIDIC 1999, arbitration may be commenced on or after 56-day period has expired even if no attempts for amicable settlement have been made.

3.3. Major Stations along the Claims/Disputes Timeline

After the claims/disputes timeline has been dissected, it is important to highlight the stations that the contractor considers to be major decision stations. Major decision stations are defined by requiring the contractor to take a do-or-die type of decision in which either the contractor ceases the opportunity or abandons the claim temporarily or indefinitely. These major decision stations are mainly the milestones mentioned in sections 3.2.1. and 3.2.2. previously. Moreover, studying these major decision stations helps the contractor in formulating strategies for many of the aspects relating to the project's success (Jahn et al., 1998).

It should also be noted that these stations are also directly related to the tension in the relationship between the employer and the contractor. The study of this relationship is important as well since attitudinal barriers hinder the progress during a construction project (Vennström & Eriksson, 2010). An illustration of the full timeline showing the major decision stations is shown in figure 5 below.

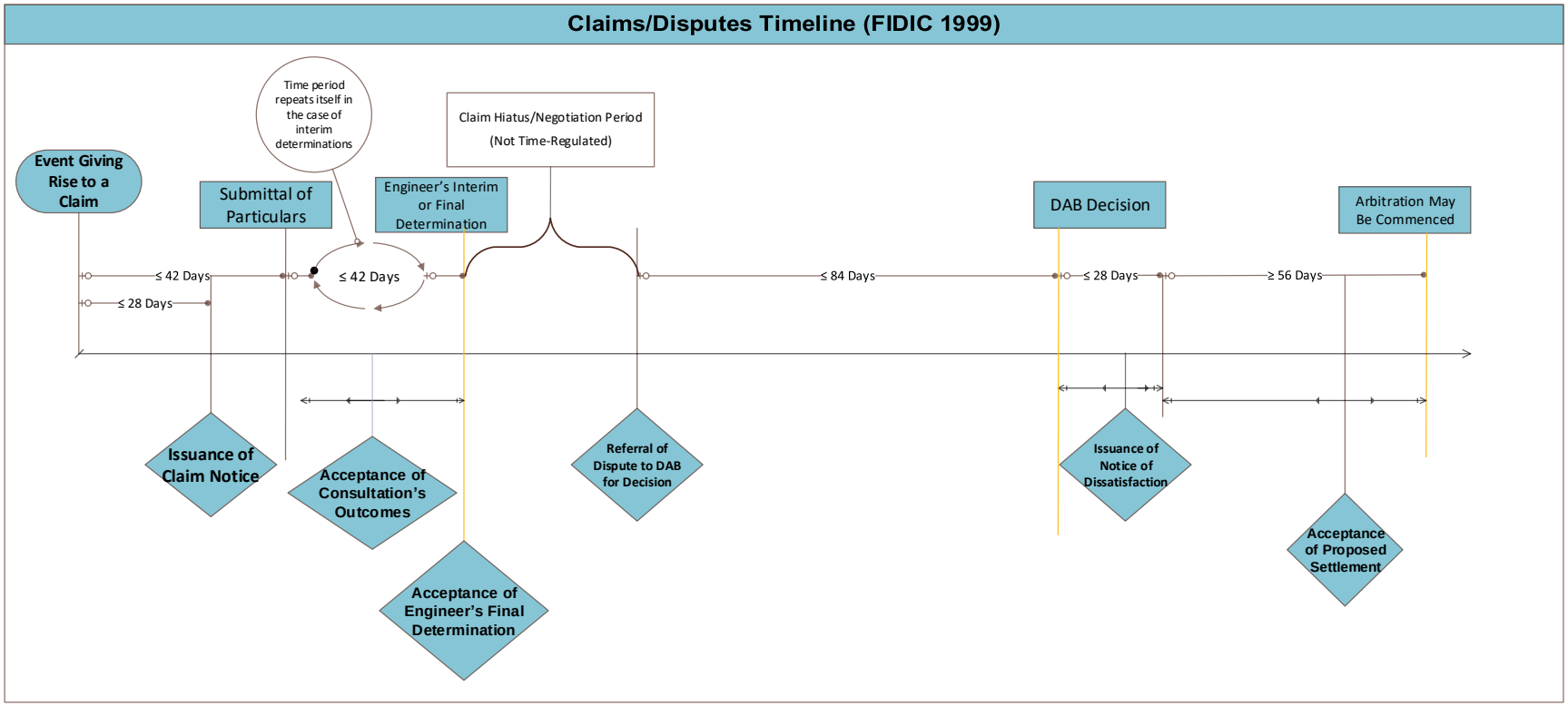


Figure 5: Claims/Disputes Timeline as per FIDIC 1999

The first major station along the claims/disputes timeline is the Issuance of claim notice. As mentioned in section 3.2.1. of this thesis, a contractor has 28 days from the to submit a notice of intention to claim to The Engineer or else the contractor shall lose all rights for potential reimbursement with the employer being discharged from any liability. This clause makes this station along the claims/disputes timeline one worthy of being studied since it's the trigger to many probable futuristic events especially if the contractor decides on submitting particulars within the time allocated for that matter. A question that arises is on the matter of submittal of particulars not being considered a major decision station on its own. This is mainly to the known practice by the contractor who usually has the mentioned particulars already ready when wanting to study the matter of issuing a notice of claim. Thus, it makes submittal of particulars to submit a claim in most cases a certain event in the case of issuing a notice of claim.

Subsequently, as mentioned earlier as well in section 3.2.1. of this thesis in accordance with sub-clause 3.5 of the FIDIC 1999, the consultations that The Engineer undergoes with each party are not a haphazard event. These consultations have the goal of reaching agreement in an attempt to evade proceeding with a determination produced by The Engineer. Moreover, it is not clear from the literature on whether the agreement achieved is binding to both parties or not, but what is clear is that if dissent arises from a certain party after agreement is reach then problems and delays are evident to happen. This idea makes this station a milestone worthy of being considered a major decision station.

In the event of disagreement after multiple rounds of consultations where The Engineer's final determination although not contractually binding as well, the contractor is still better off making a final decision on whether to accept the determination or not. This

decision station is considered major due to the fact that in the event of the contractor deciding to table the claim, a non-time barred period starts. This time period as mentioned previously although may be used for further negotiations presents a sort of anxiety to both parties since they don't know if the contractor shall proceed with referring the claim-now-a-dispute to the DAB or not. Thus, the contractor is faced with a major decision here on whether to end this process and accept the final determination or trigger a period of anxiousness preceding the decision of referral of dispute to DAB.

In accordance with sub-clause 20.4 in the 1999 FIDIC as well, the contractor has 28 days to submit a notice of dissatisfaction with the DAB's decision as mentioned earlier. This station is a do-or-die situation for the contractor since only amicable settlement follows in precedence to the commencement of arbitration or litigation. Here, knowing that previous consultations have apparently not paid off and with the level of tension rising to a near maximum, the contractor will have to utilize the highest members within his organization to reach a decision on whether to submit a notice of dissatisfaction or not. The importance of this station is highlighted in the fact that arbitration causes relationships to go adversarial and is itself a very costly process as shown in the literature review chapter of this thesis (Ilter, 2012).

The final decision station worthy of studying comprises of the contractor having to decide on accepting the proposed settlement which is the result of attempting in accordance with sub-clause 20.5 of FIDIC 1999 amicable settlement after a notice of dissatisfaction has been issued. As mentioned earlier, many incentives are present when parties are faced with amicable settlement since both parties already have enough at their hands from other

projects and would prefer solving the dispute amicably for both the sake of their own respective companies (Panov and Petit, 2015).

3.4. Project Organizational Structures

The study of project organizational structures is helpful in better understanding the goals and interests of an organization in relation to the project especially since it shows the specialties that an organization has adopted within its staff. Moreover, Taghipour et al. (2015) discusses that since risk in projects is created usually by the actions of both the employer and the contractor, then there should be units within an organization that deal with project-related matters until the end of the project's timeline. This idea proves further need for studies of governance mechanisms as shall be done in the sections included in this chapter.

3.4.1. The Contractor's Organizational Structure

The contractor's organizational structure is probably the most branched structure. The contractor's organization should also in principle have many units within the same department in a distributed in a hierarchical structure so that the different units may refer ultimately to the contractor himself. Turner & Keegan (1999) present four advantages as to how the hierarchal structure in the contractor's organization helps in adopting better governance mechanisms and project management processes as listed below:

1) This structure allows for governance mechanism practices through the authority of top management which regulates feedback and communication within the organization
2) Allows for operational control. Also, it allows for better functional control by transforming inputs into outputs

3) Allows for a better learning curve on an individual basis. Also, these skills are most unlikely to be unchanged
4) Better knowledge management repositories which are easily accessible

As such, it is crucial to study the contractor's organizational structure in a recursive manner to comprehend the contractor's goals and vision. The contractor's organizational structure is shown in figure 6 below with a brief explanation on some aspects of this structure.

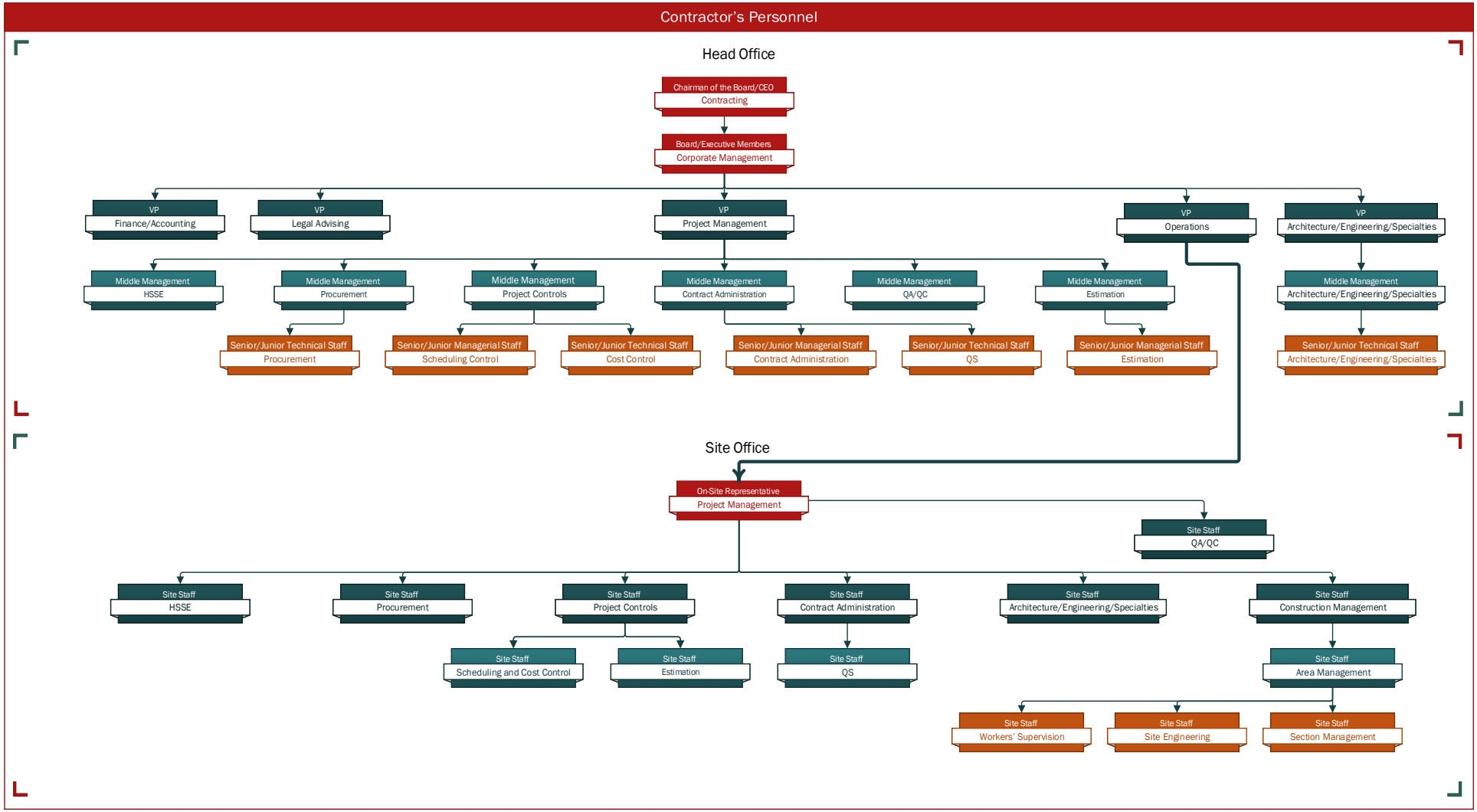


Figure 6: The Contractor's Proposed Organizational Structure

This organizational structure is split into a head office and site office for two main reasons:

1) Highlight the fact that there should be people specialized in managing the site's practices
2) Highlight the fact that the sub-organizational structure at the site office mirrors that of the head office

Yet, this split doesn't negate the fact that continuous fruitful communication should exist between the head office and site office or else the site office might lose the organization's vision in regards to the project's portfolio. This connection is shown mainly in the arrow that links the on-site representative concerned with project management towards the vice president of operations. Nevertheless, other connections exist as shall be discussed in chapter V to support the choice of the site office being a mirror image of the head office in regards to specialties.

In the case of the head office, it is evident that there are multiple levels for certain functional departments. This hierarchy proves to show that members of different experience are needed within the same department within the contractor's organization mainly due to:

1) An organization cannot thrive if members with low levels of experience are hired in an attempt to save money on salaries
2) An organization cannot also entertain the idea of hiring only senior members for daily tasks such as keeping records and sending e-mails
3) The experience provided by the senior members when combined with the energy and passion of younger junior members allows for organizational growth

This hierarchy is mirrored as well in the site office through the process of distributing tasks among the site staff while submitting these staff to the authority of the on-site project manager who is most likely a senior with on-site experience that combines knowledge from multiple domains in regards to project management.

3.4.2. The Employer's Organizational Structure

The employer's organizational structure has to accommodate for most of the units as those present in the contractor's organization. This idea is supported by the fact that a person should have knowledge on the matter that he/she is going to judge or supervise (Barnard, 2005). Thus, the employer should follow an organizational structure with staff holding specialties that are directly related to the aspects of the project that are of interest to the employer. An illustration of the employer's personnel's governance structure is shown below with the Architect/Engineer being also included.

Moreover, Turner & Keegan (2001) represents the employer's organization structure as an owner having functional units that work for him and representatives that meet with the contractor. This representation further clarifies that the traditional organizational structure has been almost unchanged in the past two decades. The employer's choice of organizational structure is shown in figure 7 below.

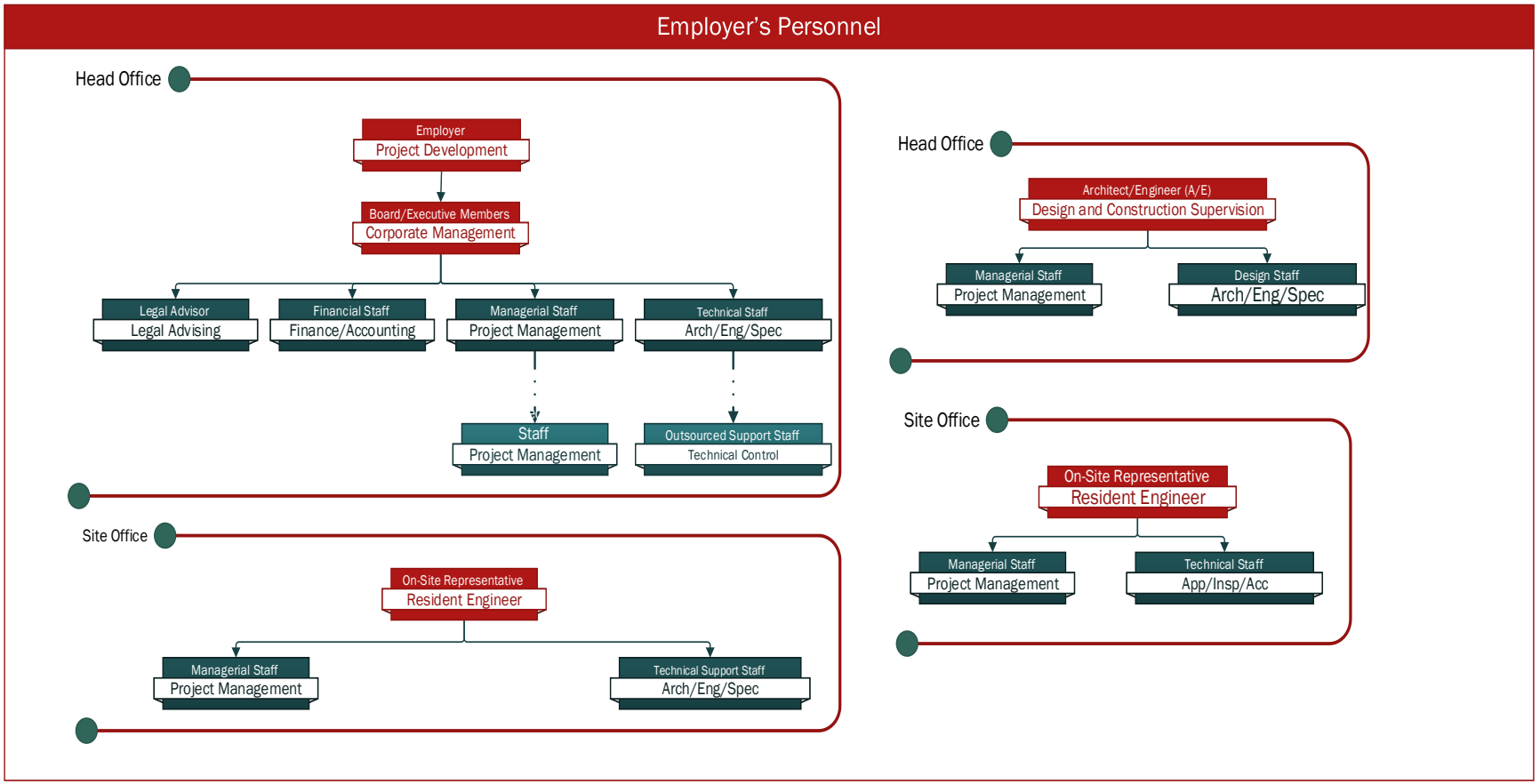


Figure 7: The Proposed Employer's Organizational Structure

The first note on the employer's organizational structure is that it has the A/E firm included in it. This presentation serves the idea that the A/E acts in many projects as a consultant to the employer. In addition, in most construction projects, the A/E is assigned as The Engineer in accordance with sub-clause 3.1 of FIDIC 1999. In addition, the employer may need to hire outsourced support staff to assist his/her own staff in complicated issues or in issues that require experience that his staff does not have. This organizational structure also mirrors the employer's interest in the project in a market where employers are constantly thriving to be more knowledgeable about the construction process to avoid as much futuristic problems as possible (Cherns & Bryant, 1984). In addition, this knowledge gained from having departments specialized in different sectors is fruitful for the client in achieving more project success.

3.4.3. Other Participating Entities

As a start, although The Engineer is a huge participator within the construction process, this thesis will study The Engineer with other participating entities since the person holding the title "The Engineer" is usually a single entity making the matter not one in need of much analysis when not mentioning The Engineer's full role

3.4.3.1. The Engineer/DAB Interjections

As per sub-clause 3.1 of the FIDIC 1999, an entity should be assigned by the Employer holding the title of "The Engineer" where this entity has to perform certain tasks assigned by The Employer. These tasks are mostly mentioned by the employer but may also vary in accordance to the conditions mentioned within the contract. One of these conditions may be that The Engineer would also act as the DAB in what is called a "quasi-judicial" capacity when a decision is required on a dispute. Otherwise, in the case of the

existence of a DAB, FIDIC 1999 states in sub-clause 20.2, that a party may refer dispute to a DAB for its decision or may even upon agreement ask for a DAB's recommendation and as such both scenarios have been illustrated. For this thesis, the option of DAB's decision will be taken into consideration due to the more common use of the DAB in this manner. This idea does not negate the fact that in tight economic capabilities, ad-hoc DAB's are being hired more, but this thesis is focused mainly on traditional practices as well as more effective ones. Also, it should be noted that a DAB's Recommendation and Decision cannot exist at the same time. The figure showing the list of interjections is shown in figure 8 below.

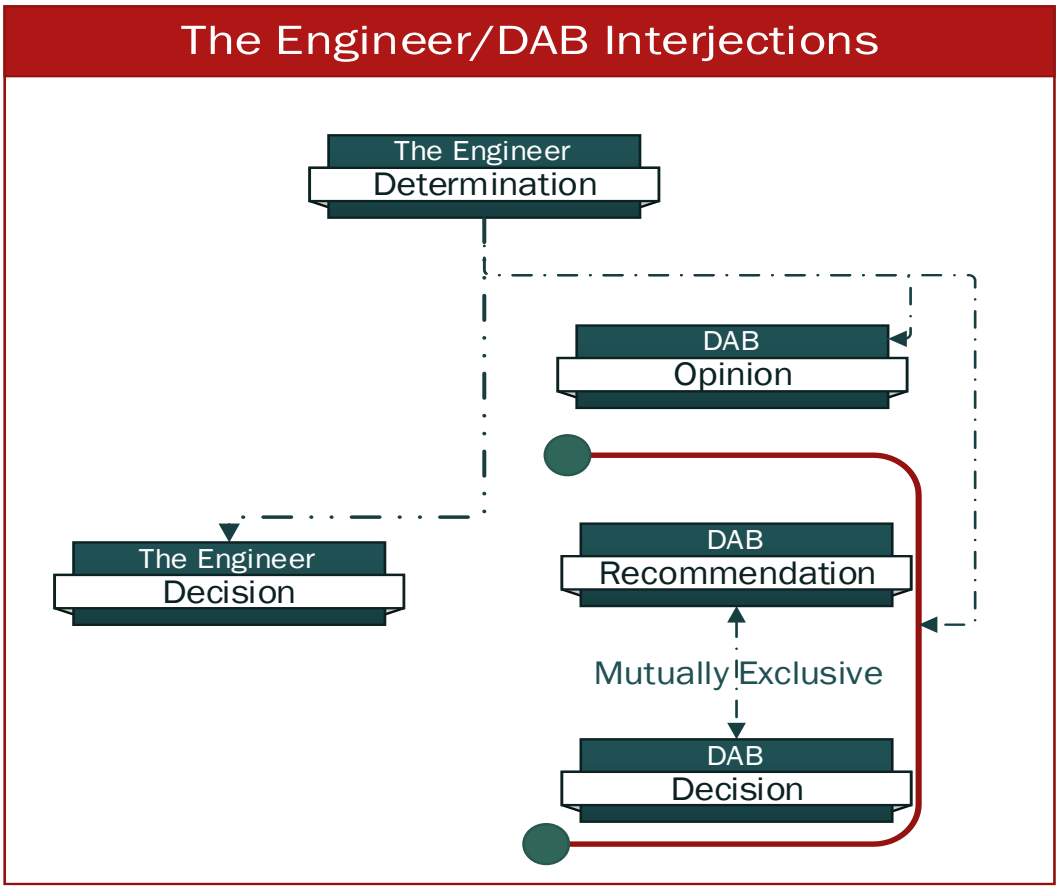


Figure 8: List of Possible Interjections

3.4.3.2. Intermittent Services

Aside of outsourced staff and company advisors as seen in the cases of the employer and the contractor, specialty consultants may be needed in the process of claims/disputes management. These consultants hold occupations that mirror the project's main aspects that are expressed in the iron triangle: cost, time, quality, and even safety. As such, five consultants have been chosen that directly or indirectly relate to those concepts, i.e. the consultant for claim analysis as shown below would help the contractor in a claim that relates to time extension and thus helping with the aspect of the contract's duration. Thus, it is important to mention that these consultants stay for a certain amount of time as needed by the party hiring them. It should be noted that even though consultants can be hired at any point during the project, some consultants are better hired at the start and kept in service. An example would be hiring a consultant with the specialty of claim analysis; such a consultant is most likely to be hired at the stage of preparing the particulars to submit to The Engineer and would stay till The Engineer's final determination is issued. Whereas the legal advising consultant for example would be most likely hired at a stage where the dispute will be taking a legal route. The list of consultants chosen is illustrated in figure 9 below.

Figure 9: List of Most Possible Intermittent Services to be Hired

3.4.3.3. Third-Party Interventions

Alternative dispute resolution methods (ADR) play a huge role in resolving disputes in the construction industry recently. These methods help both parties to avoid the huge costs imposed by proceeding with arbitration or litigation (Martin et al., 2011). As such, neutral third-party interventions provide great help not only with the current claim/dispute at hand, but may also extend that help by providing solutions that have effects that extend to future claims/disputes as well. The list of most possible third-party interventions to be hired or called for are listed in figure 10 below. It should also be noted that these interveners are listed in order of most likely to be hired first along the claims/disputes timeline which is in accordance with the roles of each intervener.

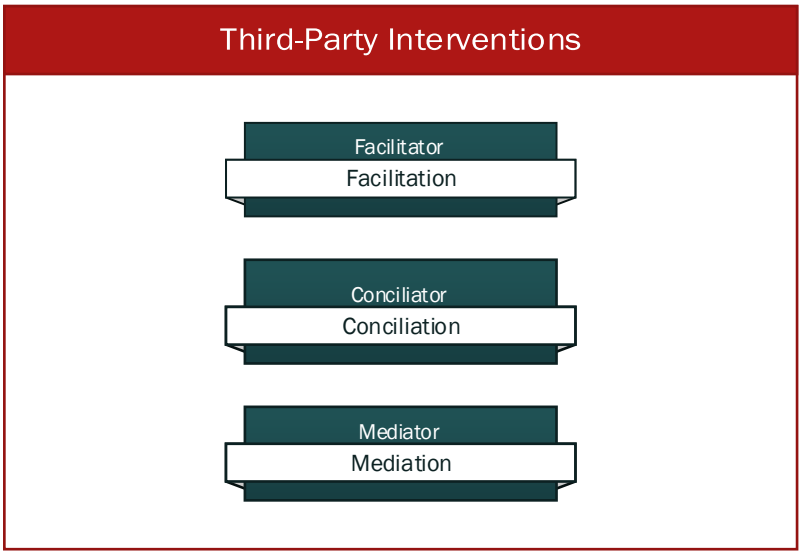


Figure 10: List of Possible Third-Party Interventions Hired for Alternative Dispute Resolution

3.4.3.4. Third-Party Rulings

In accordance with sub-clause 20.6 of the FIDIC 1999, the dispute shall be settled in the court of arbitration or even litigation in some instances unless agreed otherwise by both parties. As such, it is important to mention both entities in the project's timeline as a part of the whole project. It should be noted that in accordance with the same sub-clause, there may exist more than one arbitrator in the arbitration proceedings where FIDIC 1999 states that there should be three members, the list of the possible entities is shown in figure 11 below.

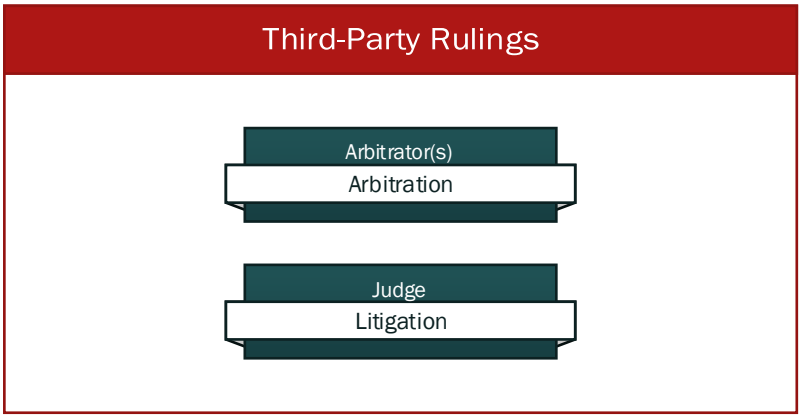


Figure 11: List of Possible Third-Party Ruling

3.5. Coding Method for Abbreviating Members' Names

Referral to units/members within an organization proves to be a tedious task for members concentrated on pursuing the status of the aforementioned units from a project management perspective as is the case in this thesis. This is mainly due to the fact that when referring to a unit, one should mention detailed information about the units due to similarities between levels of command within the organization and even within the same departments at times. For example, there exists more than one engineer within an organization with differences between each in specialty and seniority, thus in design companies there should be distinctions between electrical engineers & mechanical engineers and between the senior structural engineer & junior structural engineer.

3.5.1. Definition

The aim of having a coding method for this thesis is mostly to refer to units/members within an organization in a neat and non-crowded manner since processes along the claims/disputes timeline require intervention from many units/members. Moreover, the usage of a coding method highlights even further the differences in the hierarchy in the organizational structures. It should be noted that the differences in

hierarchy are mostly evident for the contractor's organization which is shown to be the organization with multiple levels as shown in section 3.4.1.1. of this thesis. Thus, in principle there is no need to use ranking numbers for other members or organizations participating in this project.

3.5.2. Codes and Rankings

Starting with the contractor's organization, there are 3 levels at most where a specialty is repeating itself. These Levels are color coded by Dark Blue, Light Blue, and Orange for VP, Middle Management, and Sr./ Jr. respectively as shown within section 3.4.1.1. of this thesis. As such, the colors will be given a number of 1,2, and 3 in the same respect. It should also be noted that some of the same colors used within the contractor's organizational structure may be used for other entities, but these colors don't indicate hierarchical authority as it is self-explanatory that there is no need for hierarchy in an independent entity. The layout entailing the basic code will be mentioning four important elements which all truly are self-explanatory as mentioned previously, and it should be noted that most of these codes are mainly abbreviations that are used on a daily basis within the industry i.e. PM for project management. This practice of using simple abbreviations is beneficial as well in the sense that this code would be user-friendly as well. The four elements aforementioned are listed with a brief definition as follows:

1) Organization: The unit/member's organization should be mentioned to know for whom that entity works
2) Office: It is mainly a matter of the unit/member being a part of either the head or site office for that specific organization

3) Level: The member/unit's level within the organization. Here the word unit is mentioned since within the same level and specialty multiple members may hold the title of "Senior" for example
4) Specialty: The member/unit's specialty is essential to clarify that this member's role is important for a certain event

An example to clarify further the aforementioned information takes into consideration how the vice president of project management within the contractor's head office may be coded for easier referral. As mentioned previously, the code should have the four elements listed which entails that the example code would be:

CP-HO-1-PM, which translates to:

Contractor's Personnel-Head Office-VP-Project Management

All of the required codes shall be mentioned within the appendix.

4. CONTRACTOR'S CONSIDERATIONS AT MAJOR DECISION STATIONS

4.1. Preamble

This section will discuss the factors taken into consideration by the contractor when wanting to take a decision along the claims/disputes timeline. This chapter also serves to compliment the ideas mentioned in section 5.2.4. of this thesis. First the contractor's considerations in relation to the employer shall be listed with an analysis following on the importance of each consideration. Second, the contractor's considerations in relation to The Engineer will be listed with an analysis following on the importance of each consideration especially since the start of the claims/disputes process is signified by progressive give-and-take between the contractor's site office and The Engineer. Third, the contractor's considerations in relation to his own organization shall be listed with an analysis following on the importance of each consideration.

4.2. Definition

Each company has a certain vision in regards to project management in an attempt to reach success. This vision should include certain considerations in regards to decision-making along the project's lifetime. These considerations take into mind mainly the organization's well-being which branches into any aspect of profit. Where these profits may be financial as well as non-financial i.e. having a good reputation in the market.

It is therefore of utmost importance for an organization to have an explicit strategy to achieve goals and objectives in an attempt to achieve success on many levels (Cooke-Davies, 2009). Mentioning this idea means that any decision taken at a certain point within the organization will have repercussions on the both the project and the organization as a whole. Rowlinson (1999) claims that the critical success factors are grouped into five main categories:

- Human-related factors
- Project-related factors
- Project procedures
- Project management actions
- The external environment

A brief analysis on the factors proves fruitful when wanting to link these factors to the contractor's considerations in decision making. It should be noted that these factors mirror the project management cycle provided by European Aid Co-operation office (2002) which consists of planning, organizing, coordinating, and controlling. The first factor highlights the importance of having sound governance mechanisms in an attempt to reduce errors as much as possible when decisions are taken by members within the organization. The second factor shows the importance of studying the factors that affect the project in order to keep the company's formulated strategy updated due to the dynamic nature of projects. The third factor is mainly affected by the second factor and includes the fact that the application of the strategy formulated should be maintained. The fourth factor is a method of controlling the first three factors to ensure that the organization's goals are kept in check. The fifth factor is somewhat divergent from the first four factors and includes the

effects that external entities or events have on the organization and the project. This factor is important mainly in studying the contractor's considerations in relation to the employer and The Engineer.

The considerations that the contractor should take in relation to the project participants are listed in table 4 below.

Table 4: Summary of the Contractor's Considerations in Relation to the Participating Parties before Taking a Decision along the Claims/Disputes Timeline

Parties that the Considerations Address	Contractor's Considerations Before Taking a Decision Along the Claims/Disputes Timeline as per FIDIC 1999
The Employer	Employer's Share of the Market Employer's Social/Political Status Employer's Most Valued Tangible or Intangible Asset in the Project Previous Projects with the Employer Level of Tension Present with the Employer Employer's Perception of Risk Allocation
The Engineer	The Engineer's Competency Level of Tension Present with The Engineer The Engineer's Ethnicity/Culture
The Contractor's Own Organization	Importance of this Project in Relation to other Projects Financial Status Extent of Impact on Contract Price Extent of Impact on Contract Duration Spectrum of Statuses of Claims Own Image Similarity with Previous Projects(Patterns)

4.3. Contractor's Considerations in Relation to the Employer

As mentioned in section 4.2 of this thesis, the contractor should take into consideration the external environment factor. The relationship with the employer as well as the influence on the contractor of any decisions that the employer may take have a huge impact on the contractor's organization. Although the phrase:" The customer is always right" does not apply to the construction industry, still the contractor has to make sure that his employer is satisfied in one way or another. In addition, disagreement between the contractor and the owner may already exist when drafting the contract. Ibbs et al. (1987) mention this idea when explaining that due to the disparities in the interpretations of contract conditions, disagreements are more likely to exist in the matter of risk allocation. Moreover, the contractor and the employer differ in fundamental views and motivations in regards to the project, and by taking into consideration that behavior is not always flexible, one can deduce that coordination between two entities with such differences is not an easy task (Yiu & Cheung, 2007). The considerations a contractor takes in relation to the employer is listed below with an explanation following on the different considerations.

- Employer's Share of the Market
- Employer's Social/Political Status
- Employer's Most Valued Tangible or Intangible Asset in the Project
- Previous Projects with the Employer
- Level of Tension Present with the Employer
- Employer's Perception of Risk Allocation

4.3.1. Employer's Share of the Market

The relationship with the employer as mentioned previously is of utmost importance in the sense that it may affect the contractor's existence in the market. This concept is mostly taken into consideration in areas where there is monopoly in the construction market. Such areas usually consist of private development companies that enter into a foreign market while having a large capital at hand and a well-known name (Priemus & Louw, 2003). The contractor's consideration along the claims/disputes timeline in regards to the employer's share of the market is not only in regards to future projects. Even current projects may be affected by the current relationship with the employer. It should also be clarified that the contractor may give less consideration to this concept at the start of the claims/disputes timeline since claims are seen as causing less tension than disputes between two entities.

4.3.2. Employer's Social/Political Status

This factor is similar to that mentioned in the previous section in the way that if an adversary relationship happens to occur between the contractor and the employer, then the employer may affect the contractor's business as a whole. Giamporcaro and Gond (2016) discuss that the development of markets has to take into context social and political power. In countries such as those in the Gulf region, royal families have a huge share of the market and are well revered by the people as well. Also, in a world where politics has huge control over the economical transactions, dealing with those that have a high political position or even have connections with such people is a very delicate matter. Thus, even if one is to take a decision in regards to acting on a claim, the relationship with the employer should be taken into consideration in the cases where the employer is of high social/political status.

As for disputes, the matter becomes even more delicate. It can be discussed that unless the contractor is facing bankruptcy or any other serious threat to his organization, then the contractor is most likely not going to refer a dispute to the DAB in the cases where the employer is of high social/political status. This is not only related to the fact that the employer would have a huge say in the market, but also due to the fact that success in the court is most likely to be impossible. Yet, it can be argued that foreign contractors coming from more powerful countries may be more willing to take such a risk when the organization's well-being may be affected greatly.

4.3.3. Employer's Most Valued Tangible or Intangible Asset in the Project

It is natural that individuals each have their own beliefs and goals in life. This is also evident in the construction market as discussed by Yiu and Cheung (2007). Thus, the contractor has to take into consideration the employer's motivations or lists of important factors when taking a decision in regards to a claim or dispute. Meaning that the contractor may see a better chance or even a lost cause when taking into consideration what the employer values the most in the project

This concept would best be explained further by examples. Suppose the contractor wants to claim for an extension of time while the contractor knows that the employer is mostly concerned with the financial aspect of the project. This knowledge will encourage the contractor to claim for an extension of time while keeping in mind to offer a good package to the employer in terms of risk allocation and additional financial expenses required. Another example would be on intangible assets such as the beauty of the project which is noticed in some public projects. The contractor in such a case may be encouraged

to claim for additional time or money while keeping in mind to offer something in return that would improve the aesthetics of the project.

4.3.4. Previous Projects with the Employer

In the same manner that project records are kept in databases and maintained for future use, memories are also preserved in the mind. This fact serves the purpose of humans depending on previous incidents to study each other's personalities and be able to formulate strategies for any possible future interactions. This is the case between the contractor and employers with whom he has worked with previously.

When wanting to issue a notice of claim, the contractor should take into consideration the employer's behavioral patterns as well as the goals and ambitions of the employer which rarely change (Cherns & Bryant, 1984). Thus, the contractor can benefit from this knowledge when wanting to preserve a relationship with the employer in which the contractor can gain the best amount of benefit possible. Moreover, this knowledge when well applied can be an effective method in avoiding disputes by proposing an offer that he is certain to an extent that the employer will accept.

4.3.5. Level of Tension Present with the Employer

Claims and disputes cause a rise in tension levels between the contractor and the employer. This is mostly due to the nature of the construction project being of importance to an organization's financial status and public status as well. This consideration synergizes well with the two considerations of the employer's share of the market and the employer's social/political status in the concept that a contractor will care less for tension levels when he is sure that no harm will reach his organization aside of harm to his financial status. Even in such cases, it still remains of both party's interests to not have adversarial

relationships especially in the events that include these two parties participating in other projects currently and in the future as well.

The study of tension within relationships is crystallized further when teamwork is considered crucial to both parties. Ling et al. (2014) discuss that collaboration in projects play a very important role in the success of a project, and that failure to achieve collaboration will cause relationships to turn adversarial at some point. Jelodar et al. (2016) also expand on this concept by claiming that relationship quality should be an important factor in the process of creating a strategy before proceeding with a project.

4.3.6. Employer's Perception of Risk Allocation

This idea is mainly related to the nature of the contractual relationship between the contractor and the employer. As such, the employer's perception of risk allocation may be quite clear to the contractor at the stage where the contract conditions have been drafted. Moreover, risk allocation is mainly driven by self-interest and opportunism especially when huge economic transactions are at stake (Toivonen & Toivonen, 2014).

Ibbs et al. (1987) mention that some contract clauses used in the practice are problematic, but this idea can still be exploited to the contractor's benefit. Thus, when a contractor is aware of the contract conditions and is aware as well to the employer's perception of risk allocation, he will be able to better manipulate the claims administration process in his favor.

4.4. Contractor's Considerations in Relation to The Engineer

Although there are rarely or even no instants at all in which there is a contractual relationship between the contractor and The Engineer, the contractor is still required to have certain considerations in relation to The Engineer when wanting to take a decision. This idea is backed by the nature of the give-and-take relationship between the contractor and The Engineer as stated in sub-clauses 3.3 and 20.1 of the FIDIC 1999. Moreover, it should be noted that the considerations in relation to The Engineer may not be plenty due to two main reasons that were mentioned in this section as well:

1) There is no contractual relationship between the contractor and The Engineer; meaning that the chance that arbitration or litigation happens between the contractor and The Engineer is very low
2) The interaction between the contractor and The Engineer is mainly evident during the claims' timeline unless the DAB is substituted by The Engineer as mentioned in section 3.4.3.1. of this thesis.

The list of considerations that should mostly be taken by the contractor in relation to The Engineer is as follows:

- The Engineer's Competency
- Level of Tension Present with The Engineer
- The Engineer's Ethnicity/Culture

4.4.1. The Engineer's Competency

The Engineer's competency in contract administration practices is one of the factors that may affect the contractor's claim administration process. This consideration stems

from the idea of an entity being driven by self-interest and opportunism in project (Toivonen & Toivonen, 2014). Thus, the contractor will most likely be more encouraged to exploit any gaps in The Engineer's experience in construction management and contract administration when proceeding with a claim.

This exploitation is noticed mostly when the contractor is preparing the particulars for the claim. The exploitation becomes less possible when consultations start with the employer in accordance with sub-clause 20.1 of FIDIC 1999. The main reason for the contractor also not being able to exploit The Engineer's competency is due to the employer having a managerial staff concerned with project management as illustrated in section 3.4.3. of this thesis. Moreover, the employer although having different motivations than the contractor, will still be concerned with the well-being of his/her company and may accordingly hire intermittent services with the specialty of claim analysis in an attempt to reach more favorable results in a claims process thus supporting the idea mentioned about the contractor facing troubles during consultations.

4.4.2. Level of Tension Present with The Engineer

Although the contractor may not be willing to study relationship quality in the same manner as studied in regards to the employer, still it is of the contractor's benefit to maintain a sound relationship with The Engineer. This idea is supported by the fact that as mentioned in section 3.2.1.2. of this thesis, the contractor will not be dealing with one claim during the construction project's lifetime. The contractor will most likely have a basket of claims to be presented, and as such this means that the claims process is a recurrent process. As such, dealing with future claims will make the contractor more interested in having The

Engineer in a more collaborative state as mentioned in regards to the employer in section 4.3.5. of this thesis.

Moreover, as illustrated in section 3.4.3.1. of this thesis, The Engineer may also be appointed in place of the DAB when wanting to take a decision. Although The Engineer is required to make a "fair determination" as mentioned in sub-clause 3.5 of FIDIC 1999, the case that The Engineer is already most likely biased towards the employer is inevitable. This idea is supported by both sub-clause 3.1 of FIDIC 1999 which states that the employer appoints The Engineer, and by the opportunism that individuals practice as mentioned in section 4.3.6. of this thesis. Thus, it would make the contractor's claim administration process harder if there is an adversarial relationship with The Engineer in addition to The Engineer being biased.

4.4.3. The Engineer's Ethnicity/Culture

One can deduce from daily life that cultural differences form obstacles in relationships and the work environment. These differences also form challenges in the construction industry especially when differences in opinions (claims) and disagreements (disputes) are shown. Moreover, in countries ruled by Shari'a Law as is the case in Saudi Arabia, people will be more inclined to base their decisions on such laws. This would have not been a problem if claims ended at the level of final determination. The pressure to consider such traditions by the contractor results from the fact that if the contractor's organization's well-being is at stake, then the contractor may feel forced to resort to referral of dispute to the DAB. Moreover, this also would have not been a problem if the contractor can guarantee that the DAB's decision would be in his favor. Thus, the main pressure point acting on the contractor is that he may at the end be forced to go through arbitration or

litigation. What makes matters even more complicated is that if the contractor is a foreigner or if the employer's status is similar to those mentioned in sections 4.3.1. and 4.3.2. of this thesis, then even the chances of succeeding in arbitration or litigation would become very slim.

Thus, it is of the contractor's best interest to consider The Engineer's ethnicity/culture when taking a decision in attempts to avoid future disputes as much as possible. Also, the matter of facing future problems with The Engineer may also be avoided if this idea is taken into consideration by the contractor.

4.5. Contractor's Considerations in Relation to his own Organization

As much as the contractor cares about the external environment as mentioned is section 4.2., the contractor ultimately cares about achieving success within his organization. Jelodar et al. (2016) expands on this idea by discussing that arms-length contractual relations are based on minimal levels of collaboration and are more directed towards self-interest. This is the case of the contractor putting his organization's goals and motivations on the top of his considerations while giving minimal attention to external factors such as the relation with the employer or The Engineer.

A list of the contractor's considerations in relation to his own organization is shown below with an explanation following on the importance of each consideration:

- Importance of this Project in Relation to other Projects
- Financial Status
- Extent of Impact on Contract Price

- Extent of Impact on Contract Duration
- Spectrum of Statuses of Claims
- Own Image
- Similarity with Previous Projects(Patterns)

4.4.1. Importance of this Project in Relation to other Projects

Contractors in the construction industry often search for opportunities by bidding for multiple projects at the same time. Although it would be rare that the contractor wins all bids or even proceed with all the projects he has bid on, it remains certain that a well-known contractor as that having an organizational structure as mentioned in section 3.4.1. will have a group of projects to complete. Thus, at some points in time, the contractor will have his contract administration units well busy with claims and disputes from multiple projects at once. This consideration is more important though at the disputes level since each project has its own site team most likely with that site team having a certain degree of autonomy as shall be discussed later on. Yet, since individuals are opportunistic as discussed earlier, contractor may even hire site office personnel to manage multiple projects at once as is the case of some on-site representatives.

Taking that idea into consideration means that the contractor has a certain limit on the amount of time and money that can be spent for resolving one claim or dispute. Thus, it should be of the contractor's interest to have an allocation of personnel that will give optimal output in regards to the claims management process. In addition, it should be noted that this allocation becomes more sensitive during the disputes timeline where parties are

usually becoming more stressed in regards to the completion of the project and the organization's well-being.

4.4.2. Financial Status

The contractor's financial status is one of the focal points when taking a decision along the claims/disputes timeline. Yet, the aspect of the financial status being considered may differ at each point along the timeline. This consideration is most effective though before taking the decision on the referral of the dispute to DAB for a decision. This is mainly due to the idea of the last three decision stations being similar to a chain of events that once the first station is triggered, arbitration or litigation will be evident if disagreements continue to occur (Martin et al., 2011). Thus, it would be of the contractor's interest to take his own financial status into consideration in order to be able to meet with the financial demands of any required processes along the claims/disputes timeline and to avoid bankruptcy.

Also, the contractor may not decide to completely neglect the claim, but may adopt the procedure of claim funneling mentioned previously to alleviate financial stresses when needed especially since arbitration as mentioned in sub-clause 20.6 of FIDIC 1999 doesn't have to necessarily start before the completion of works.

4.4.3. Extent of Impact on Contract Price

It is of the contractor's best interest to preserve a certain contingency within the contract's price. As such, the contractor usually takes into consideration the impact of the claim or dispute on the contract price. Although it should be noted that this impact differs with the difference between the costs of each of the processes relating to claims and disputes respectively.

Moreover, this consideration may be studied in accordance with the fact that the contractor when in a state of collaboration will aim to preserve a better relationship with the employer. Thus, after studying the claim or dispute at hand, the contractor may favor incurring the costs himself as long as those costs are within the contractor's contingency and profit. Also, another important idea is that the contractor may still claim, but in such a case of collaboration may aim to reduce the amount claimed for in an attempt to preserve the relationship with the employer or to satisfy other factors.

4.4.4. Extent of Impact on Contract Duration

This section shares many ideas as those presented in section 4.4.3. previously. Yet, it remains of importance to differentiate between money and time even if these two factors intermingle in some project management practices. The main difference is related more towards the contractor's existence on the site. In many cases, the contractor will have to mobilize equipment and staff to another site after the completion of works and in some instances even during the works. As such, the extent of impact on the contract's duration has to be taken into consideration when attempting to take a decision along the claims/disputes timeline.

Moreover, this consideration is very important during the last major decision station. Sub-clause 20.6 of the FIDIC 1999 indicates that the obligations of parties do not change when arbitration is commenced, but reality proves otherwise. With the limited amount of staff within organizations, it is natural to see the efforts of those staff to be concentrated on preparing the organization for arbitration or even litigation. Other units such as the vice president for legal advising will be still concerned with arbitration or

litigation during commencement. Thus, the contractor should take into consideration this impact thoroughly especially since time cannot be turned back.

4.4.5. Spectrum of Statuses of Claims

As mentioned previously in section 4.4.2., the contractor may practice what is called “Claim Funneling” which was mentioned as well in section 3.2.1.1. of this thesis. Yet, the matter of spectrum of statuses of claims does not deal only with the amount of claims at hand, but more precisely with the nature of the claims at hand. This consideration is also taken into mind mostly when wanting to take a decision on referring the dispute to the DAB for a decision. As such, the contractor should most likely employ the contract administration unit to do further analysis on the claim to exploit any benefits possible.

4.4.6. Own Image

Similar to the consideration of the contractor in regards to the employer’s share of the market, this consideration deals with the contractor’s own image in the market. It is also evident that the contractor’s own image is of utmost importance when mentioning future prospects and doesn’t have to necessarily be directly related to the employer’s share of the market or social/political status. It is enough for the contractor to be known as a “claim-conscious contractor” for the contractor to have a not-very-favorable image as a prospective bidder in the construction industry. This idea doesn’t negate the fact that some employers’ practices drive the contractor to have a larger amount of claims, but it should be noted that the focus is on the contractor since employers will take the existence of troublesome employers that the contractor has faced into consideration during the prequalification phase of the project’s lifetime.

It remains evident though that the contractor considers his own image in a more sensitive manner during the final decision stations along the claims/disputes timeline. This idea is backed by the fact that contractors that are known to take a dispute to arbitration or litigation have a tarnished image in the market (Ilter, 2012).

4.4.7. Similarity with Previous Projects

Previous records are an important part of the claims administration process. Thus, combining this idea with that mentioned in section 4.3.4. means that the contractor has to make best use of records kept in the databases of previous projects in order to have a more well-rounded strategy when dealing with a claim or even a dispute (Barnard, 2005).

Although this idea is self-explanatory, it remains a very important idea to highlight since it also helps the contractor in avoiding most of the problems mentioned within section 4.5. as a whole. One of the most important problems that may be avoided is the risk on the contractor's financial status. This idea is supported by the fact that knowledge of previous financial expenses especially those that have occurred in the near past will aid in the contractor in both formulating a better strategy to achieve success and avoiding bankruptcy (Ribeiro, 2009). Also, this experience that the contractor accumulated along the years may aid in having better governance mechanisms as well

5. MECHANISMS UNDERLYING DECISION-MAKING IN REGARDS TO THE MAJOR DECISION STATIONS

5.1. Preamble

In accordance with the time bars presented by the thorough reading of the FIDIC 1999 conditions of contract, a study on the mechanisms underlying decision making in regards to the major decision stations as mentioned in section 3.3. within the contractor's organization will be presented. This section aims to illustrate the different committees formed to vote on the decision proposed in order to either terminate or keep on proceeding with the claims/disputes timeline. These committees shall be illustrated to full details in regards to the members presents and the groups that are directly or indirectly related to the voting process. This section will also take into consideration an analysis on the interventions from the head office personnel from the contractor's organization as well as discussing the modus operandi for voting for all the members present or potentially present within each committee at the major stations. It should be noted also that an analysis will be done on the cases where a decision has been voted to be done but then vetoed. This study shall show how a final decision shall be reached after a veto has been issued.

5.2. Committees Concerned with Decision Making at Major Decision Stations

"He who only settles for his own ideas perishes, but he who consults with men shares their minds" – Imam Ali Ibn Abi Taleb (AS). Applying this wisdom in the

construction industry is crucial due to the multitude of decisions of high magnitude that the contractor is forced to make. This claim is backed by the fact that the more info one can gain from other mindsets the more one can be insightful on the decision taken (Tenah, 1986).

In accordance with the considerations taken by the contractor mentioned in chapter IV of this thesis, the aim of the contractor would be to have decision making committees that vote on decisions along the claims/disputes timeline while taking into mind the aforementioned considerations which are in reality a mirror image of the company's project portfolio (Williams & Samset, 2010). That does not deny that at the end of the claims/disputes timeline the contractor will be the one to take the ultimate decision since the well-being of his company will be at stake most likely with him being the individual that holds the ultimate liability. An illustration showing the sequence of the committees as well as the general seating plans is shown in figure 12 below and is followed by an explanation of some general characteristic concerning the seating distributions.

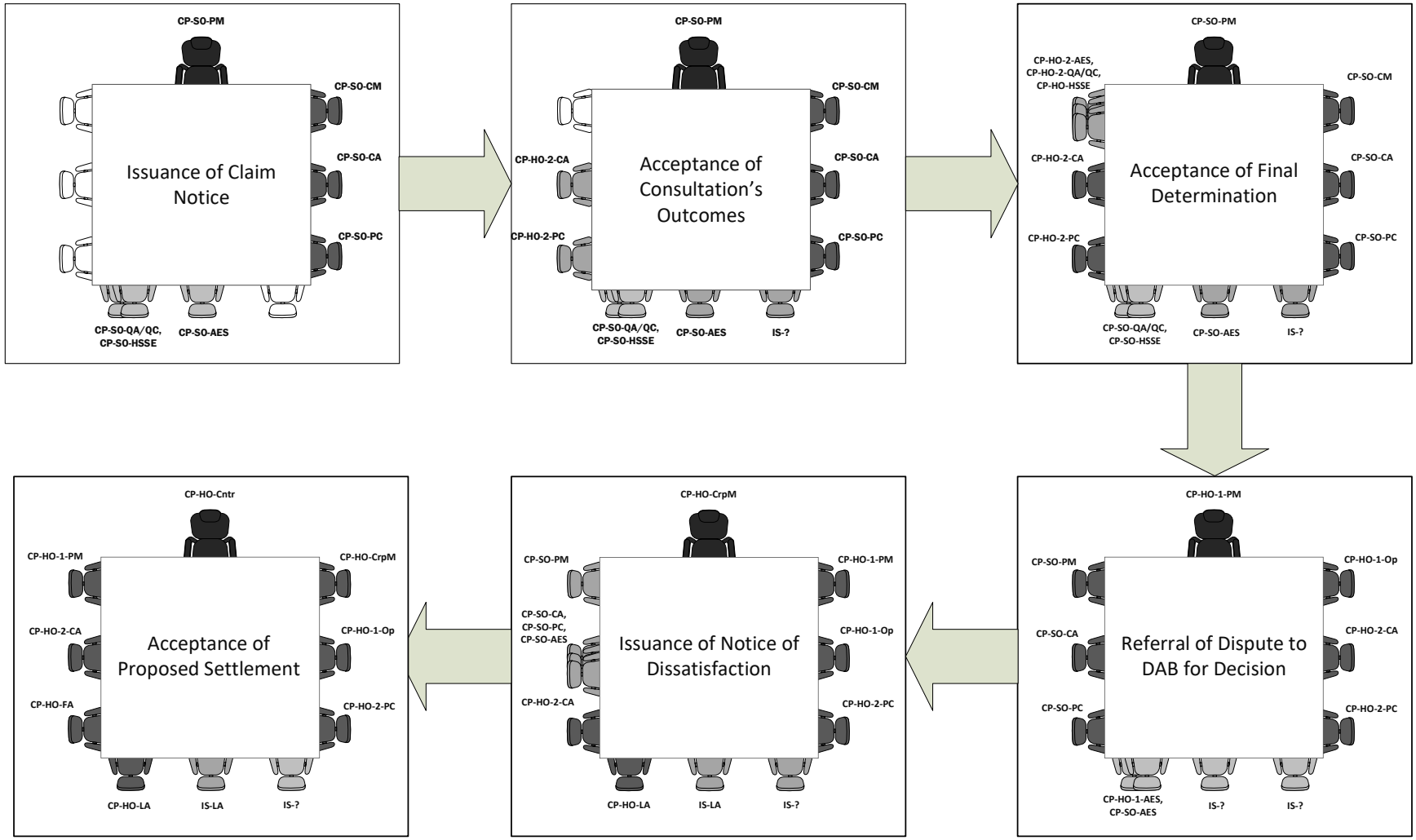


Figure 12: General Illustration of the Committees Concerned with Decisions at Major Stations

5.2.1. Decision Stations' Seating Plans

Starting with the choice of tables, at each decision station there is a rectangular table since the members meeting are all from the same organization. The process then consists of a typical discussion where members give their input leading to a vote taken at the end of the discussion. Moreover, the table is both assisted by consultants and for the first three decision stations exclusively receives review/clearance from members from the head office mostly with the same occupations as those seated at the table. Also, the first five tables report to a higher ranking official as shall be shown in the next sections. It should also be noted that the members at the decision stations' tables are usually seniors or members that are at the highest level in their occupation at the organization's certain office. There are ten seats at the table where the color and shape of each seat conveys a meaning as follows:

- One Head of Committee represented by a large black executive chair: The Head oversees and leads the discussions, and he/she also has the right to veto any result in many cases. In addition, the member acting as Head of Committee should be at a high level within the organization since such decisions have a huge impact on a lot of aspects relating to the project, the organization, and to the relationships between organizations.
- Multiple "Confirmed Member" seats which are represented by dark grey office chairs. These members are obliged to be at the table since their occupation is crucial to reaching a decision on the matter at hand. These members usually have voting rights, but these rights may be limited depending on the "Modus of Operandi" as shall be discussed in this paper later on.
- Multiple "Potential Member" seats which are represented by a light gray office chair. These members may or may not be obliged to be at the table. Their existence at the

table is mostly due to need of their occupations. Also, them being at the table doesn't automatically give them voting rights.

    - Note: In some instances, two or more light gray chairs are overlapping each other. This presentation serves to show that there is a multiple of potential members at this chair group. The rationale behind this representation being used instead of having separate chairs is to avoid crowding of chairs at the tables especially that these members are only potential members at that certain table as well as the fact that these members are from the same office or share the same nature of occupation (i.e. both come from a technical background).

- Empty seats which are represented by a white office chair. These seats indicate that there is capacity for a member to join the table at the next decision station.

Moreover, it should be well noted that the distribution of chairs is not a random process. For example, at one decision station table, members of the same occupation but from different offices within the organization are seated face-to-face. Also, for some instances as shall be shown, members of the same occupation may be seated next to each other for coordination purposes.

5.2.2. Review/Clearance from Head Office

Rationale behind choice of members concerned with review/clearance at the first three decision stations is directly related to the roles practiced by these members (financial, HSSE, etc.) on the project's progress. These members are responsible for giving review/clearance to their site office counterparts. Also, the review/clearance list has members with certain occupations in order to ensure that the members with the same occupations at the decision stations' tables are working in accordance with the head office's

regulations in relation to the project. The choice of members shall be explained further for each decision station table separately.

5.2.3. Appointment of Intermittent Services

Rationale behind choice of consultants at most of the major decision stations is directly related to the roles practiced by these consultants as well as the nature of impact of each decision station (financial, relationship-based, etc.) on the project's progress. Also, it shall be further explained at each decision station's rationale when a list is missing a few members or is non-existent completely. The rationale for each member is as follows:

Claim Analysis Consultant: This consultant's occupation is self-explanatory and is needed especially at the second decision station of the claim/dispute timeline since this consultant can help prevent a crisis starting from the start or help gain rights that could have been lost.

Finance/Accounting Consultant: This consultant is needed when the impact of the event giving rise to a claim is more clear and when an offer or judgement is given to the organization. Also, this consultant should be available at the stage "Referral of Dispute to DAB for Decision" since this stage is a trigger of a chain of events that may lead to arbitration. Moreover, this consultant is needed for very large projects where the contractor's expertise may not be sufficient.

Project Management Consultant: This consultant is needed at stages where an impact assessment is needed to ensure project success. Also, this consultant may be needed when a settlement is proposed in order to give an opinion on how the settlement will affect the project's productivity as well as the contract conditions.

Legal Advising Consultant: This consultant is needed at stages where law becomes binding to parties which becomes more evident at the fifth and sixth decision stations. Also, this consultant is needed for large projects where the outcomes of a judge's decision or a settlement will have severe impact on contract conditions.

AES Consultant: This consultant is needed at stages where a need for assessing technical design is evident. Also, this consultant may be needed for large projects where the outcomes of a consultation includes a change in design that will affect the project's cost and/or time.

5.2.4. Importance of Adequate Knowledge Transfer within the Organization

One of the utmost important concepts within a contractor's organization is that the site office personnel should have a clear idea of the organization's vision and goals in regards to the project. This concept shall be discussed in this section to highlight some important ideas in regards to site office representation within this chapter.

This idea serves the organization well since at the start of the claims/disputes timeline it is realized the site office is in control of most of the proceedings with minimal interventions from the head office. Jahn et al. (2008) discuss that the site office team should reflect the company's vision and experience. This idea is further shown where co-operation between head offices and site offices is considered as one of the critical success factors for a construction project (Tabish & Jha, 2012).

The practice of ensuring that the site office personnel share the organization's owner's vision is a tedious task, but it allows for less head office intervention through giving a certain degree of autonomy to the site office personnel. Moreover, the knowledge database that the company owns can be further expanded when separate people are being

used at the site office where their expertise can be a huge addition to that of the teams dealing with project management at the head office (Hermano and Cruz, 2016). Bresnen et al. (2016) also mention that the complex interplay within sectors in an organization create a scenario in which knowledge diffusion and better working practices are likely. Yet, Bresnen et al. (2016) discuss in the same research that embedding new management ideas is context specific. This means that the resulting process may lead to conflicts within the organization since new knowledge should be reinterpreted to better suit functional conditions and governance mechanisms. This idea goes a step beyond in highlighting the need of precise project management practices from the start and immense amounts of collaboration between the head and site office. If that collaboration happens, then what remains is the proper interpersonal relationships management within project teams (Bendoly et al., 2010)

5.3. Rationale for the Composition of each Committee

It is rare to find two events that are similar in each and every aspect. This idea is true especially for construction projects that are always prone to new events requiring a different approach every time. If that is true, then also there should be differences between the different decision making stations along the claims/disputes timeline. To accommodate for this difference, this section will be going through each decision station separately and discuss the composition of members at each station which in turn gives a better idea of the ideas and mechanisms adopted at each station.

5.3.1. Issuance of Claim Notice

The first committee is concerned with making a decision on issuance of claim notice and is mostly comprised of site office personnel while holding certain links with members from the head office. The detailed illustration of the committee responsible for discussing the decision of issuance of claim notice along with the review/clearance group from the head office and the member reported to at the head office for this station is shown in figure 13 below.

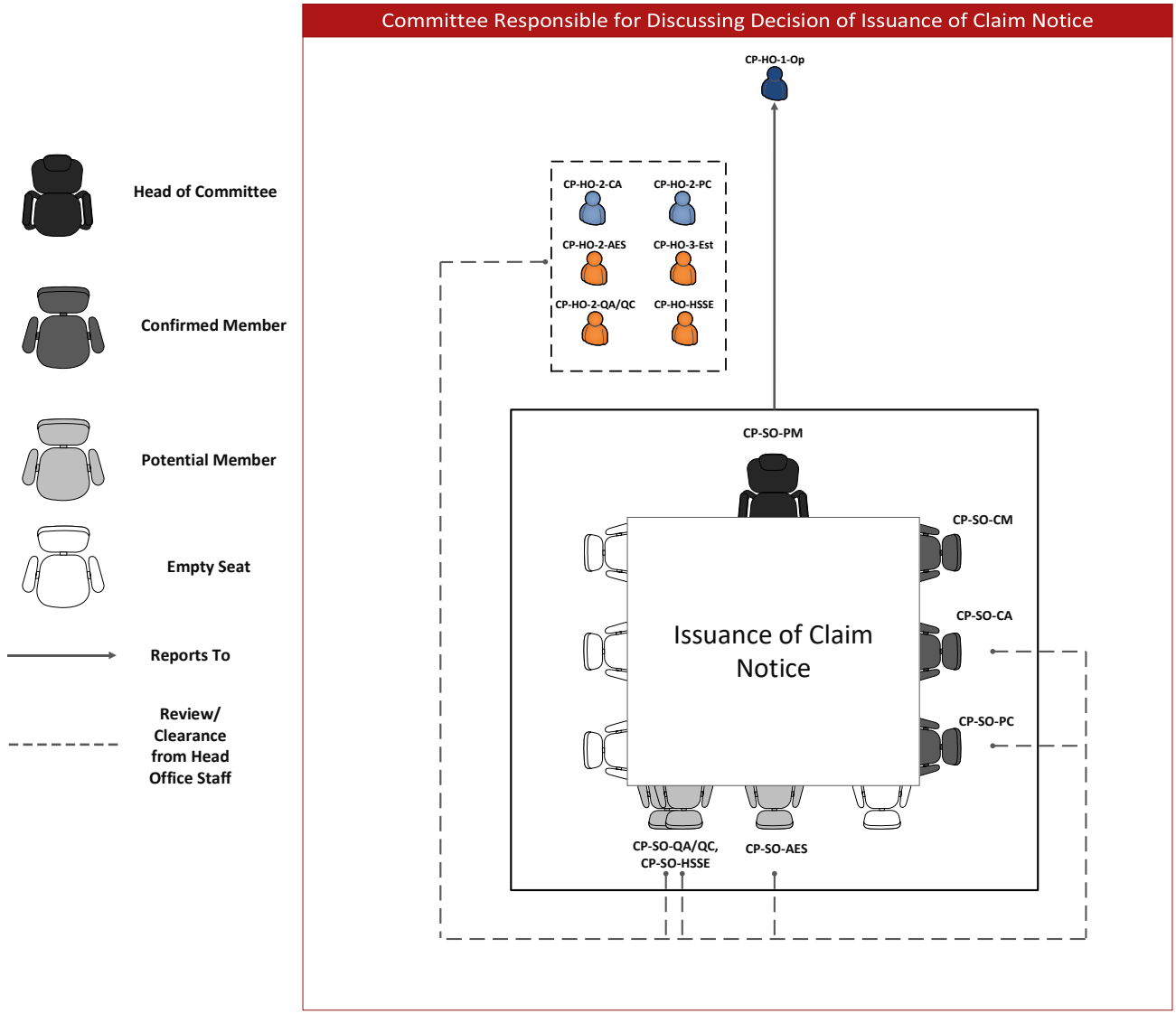


Figure 13: Illustration of the Committee Responsible for Voting on the Decision of Issuance of Claim Notice

The choice of members shown seated at the first decision station's table goes as follows:

a) CP-SO-PM (Head of Committee): The on-site project manager's existence as the head of the committee is necessary at this stage since he/she is seen as the ruler of the site. Also, this person is the best candidate to report directly to the VP of operations since their roles are very similar by nature. More importantly, this is a matter that has started at the site office, so the on-site project manager should be the person giving the final decision on such a matter.
b) CP-SO-CM: This member is needed in order to give an opinion on how the event giving rise to claim has affected the works. Also, this member has an overall view of the site's activities and the roles of the site office personnel and can thus validate most of the talk at the table.
c) CP-SO-CA: This member is needed in order to give an opinion on the impact of the claim on contract conditions as well as showing how the contract can aid the contractor's organization to reach success in the case a claim is submitted.
d) CP-SO-PC: This member is needed in order to give a more detailed opinion on how the event giving rise to a claim has affected the project's schedule or cost. This member is also continuously updated by the scheduling & cost control and estimation units which makes this member really needed at this decision station's table.

e) CP-SO-AES: This member may be needed in order to give a more detailed opinion on how the technical aspect of the event is going to affect the works from a design viewpoint, and thus this is only a potential member at the table.

f) CP-SO-QA/QC, CP-SO-HSSE: One or both of these two members may be needed in order to give a more detailed opinion on how the technical aspect of the event is going to affect the works when the nature of the event relates to their occupations.

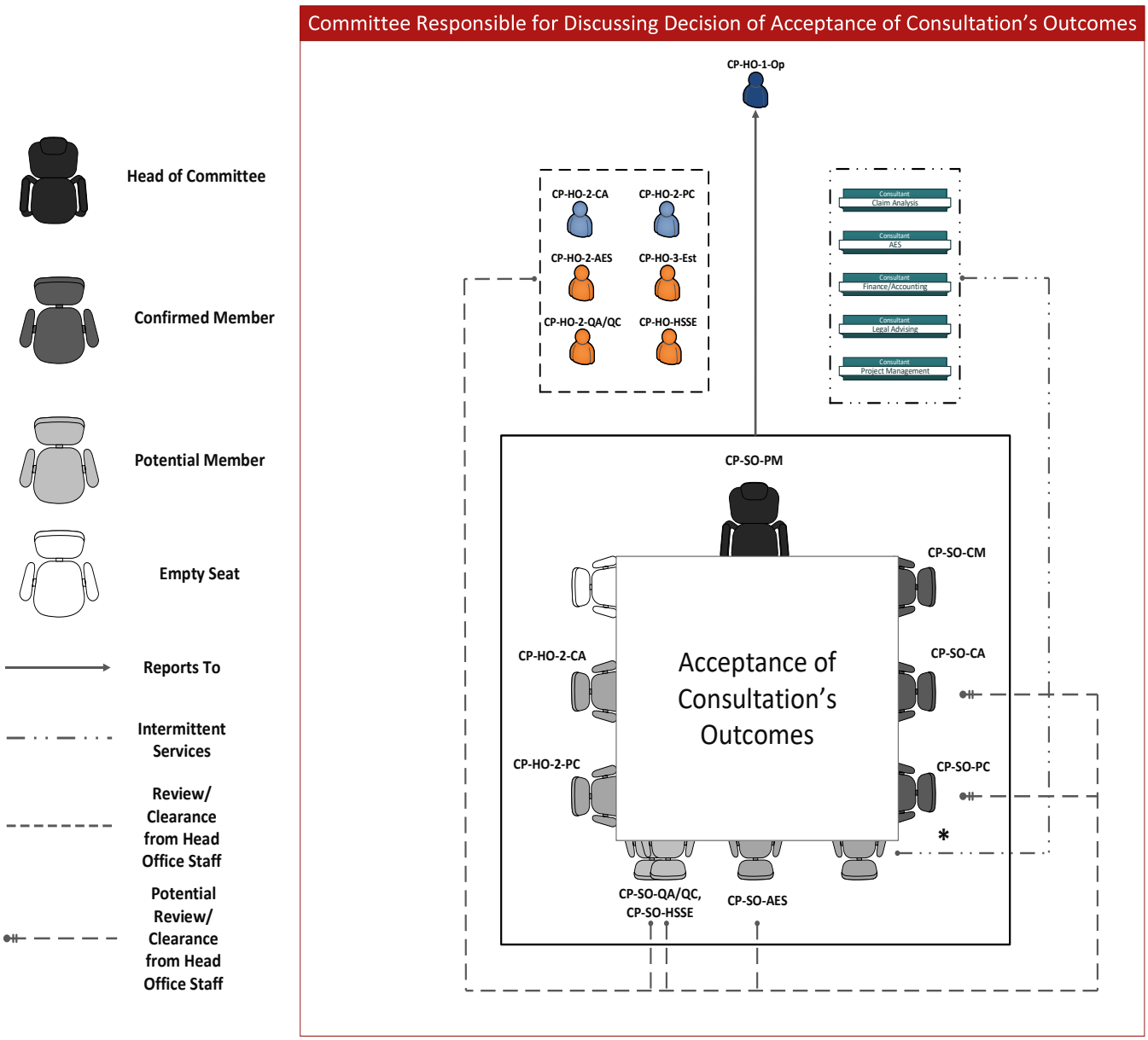
Members (c) & (d) and potentially (e) & (f) require review/clearance from their counterparts at the head office. These counterparts carry mostly the same occupation except for CP-HO-3-Est which is responsible for estimation-related issues. Review/clearance is a way for the head office to intervene at the early stages of the claim/dispute timeline and stay in sync with the site office's practices. In addition, this process helps the office keep records of what's happening on site in order to analyze the performance of the site office as a whole. Finally, this process helps the head office personnel to have a futuristic view in regards to the organization and project's success.

It should be noted that there is no list of consultants at this stage. This is primarily due to the fact that the first station is called "Issuance of Claim Notice" which entails that a fully prepared claim is not going to be sent directly after this decision station is over. It should also be noted that a consultant may be needed when the claim's particulars are being prepared for submittal.

5.3.2. Acceptance of Consultation Outcomes

The second committee is concerned with making a decision on the acceptance of the consultation's outcomes and is mostly comprised of site office personnel with the addition of potential members from the head office while holding certain links with

members from the head office. The detailed illustration of the committee responsible for discussing the decision of acceptance of consultation's outcomes along with the review/clearance group from the head office and the member reported to at the head office for this station is shown in figure 14 below.



***: In the scenario of securing external assistance**

The first remarkable idea at the second decision station is the existence of a list of members with the duty of intermittent services a.k.a. consultants. As explained previously, a consultant was not needed at the first decision station, but may be needed before the preparation of the claim's particulars. Such a consultant is most likely to be available at the second decision station's table where those particulars have been submitted and that consultant stays if needed for their expertise. This probability is illustrated in the fact that the chair reserved for the consultant has a light grey color which means that this is a potential member. Moreover, the asterisk added to the connection line means that in the case that intermittent services are acquire, then one consultant from the list shall be seated at the table. Also, the modus operandi shall explain why consultants are not given voting rights.

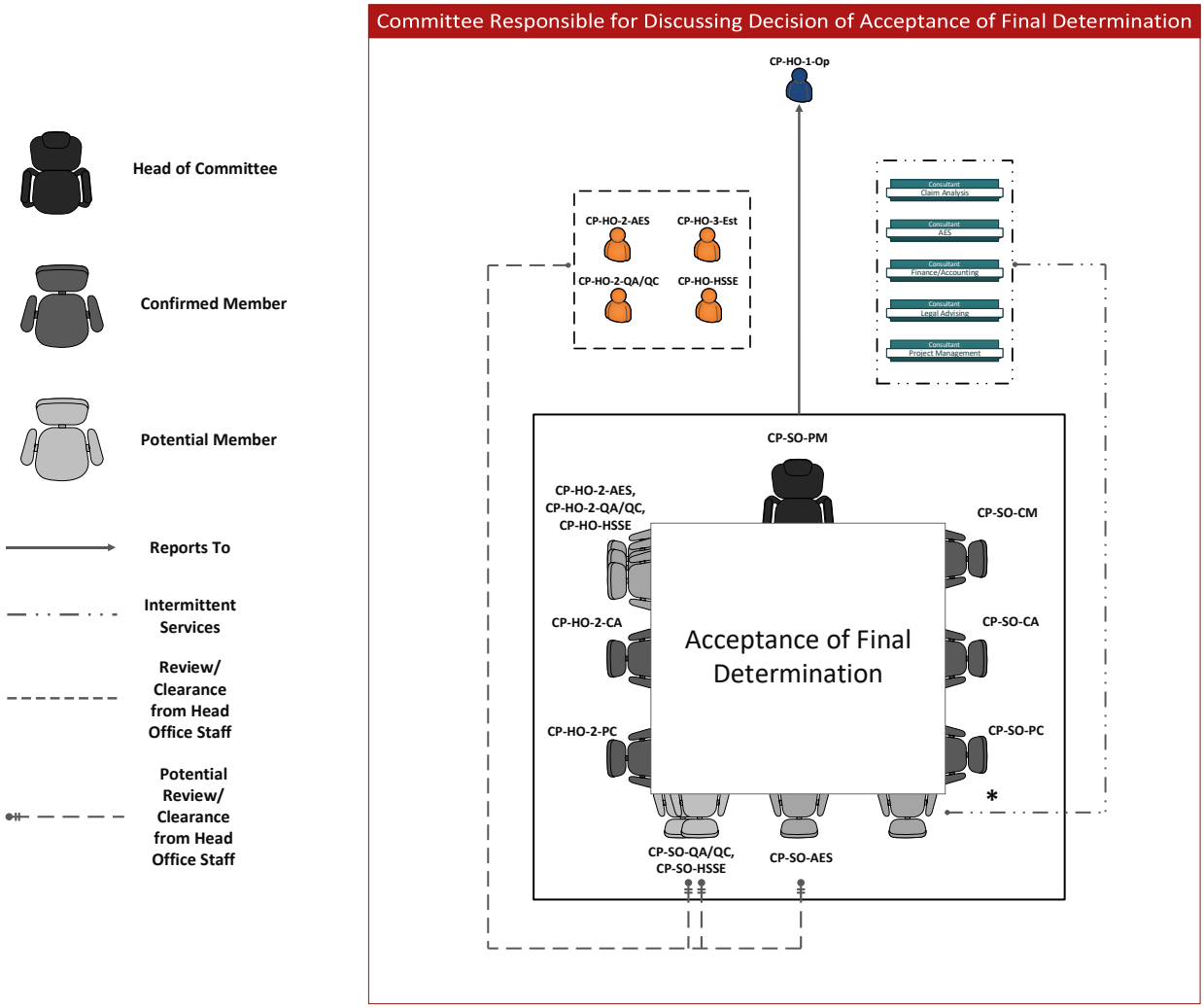
The second remarkable idea at the second decision station is the existence of CP-HO-2-CA and CP-HO-2-PC both in the list of review/clearance members and at the table while there is still a connection between the list and CP-SO-CA & CP-SO-PC. A different connection line has been used actually for these two members since the existence of HO-2-CA and HO-2-PC is only potential at the table. So, the connection line to their site office counterparts can't be the same as that of table 1 and yet can't be omitted completely since the counterparts will need review/clearance in the case that the aforementioned members don't end up appearing at the table.

As for the rest of the members at the table, there has been no change in the choice of these members from the first table. This is primarily due to the fact that these members have a role that requires continuity in the decision making process. Moreover, one might

add members to this table from the head office, but any omission of one of these members means that valuable information is being lost at the table.

5.3.3. Acceptance of Final Determination

The third committee is concerned with making a decision on the acceptance of The Engineer's final determination and is mostly comprised of site office personnel, but for this committee there will be confirmed members intervening from the head office since this station is a more critical one than the previous stations. The detailed illustration of the committee responsible for discussing the decision of acceptance of The Engineer's final determination is shown in figure 15 below.



***: In the scenario of securing external assistance**

Figure 15: Illustration of the Committee Responsible for Voting on the Decision of Acceptance of Final Determination

The explanation for the seat potentially occupied by a consultant is that this consultant is most likely to be the same one that was present at the second decision station's table. This mainly has the same explanation as to why the choice of members from the site office remains the same for the first three decision stations' tables.

Moreover, the lines connecting to CP-SO-CA & CP-SO-PC have been removed since their counterparts at the head office are now confirmed members at the table. The potential connection lines are now used for QA/QC, HSSE, and AES since the last white chair is now a light grey one where one or more members may be chosen from the review/clearance list to be present at the table.

5.3.4. Referral of Dispute to DAB for Decision

The fourth committee is concerned with making a decision on the acceptance of The Engineer's final determination is comprised of a mix of the site office personnel that were engaged in the previous committees and head office personnel that were also either informed of the situation or have been engaged in the committees. The detailed illustration of the committee responsible for discussing the decision of referral of dispute to the DAB is shown in figure 16 below.

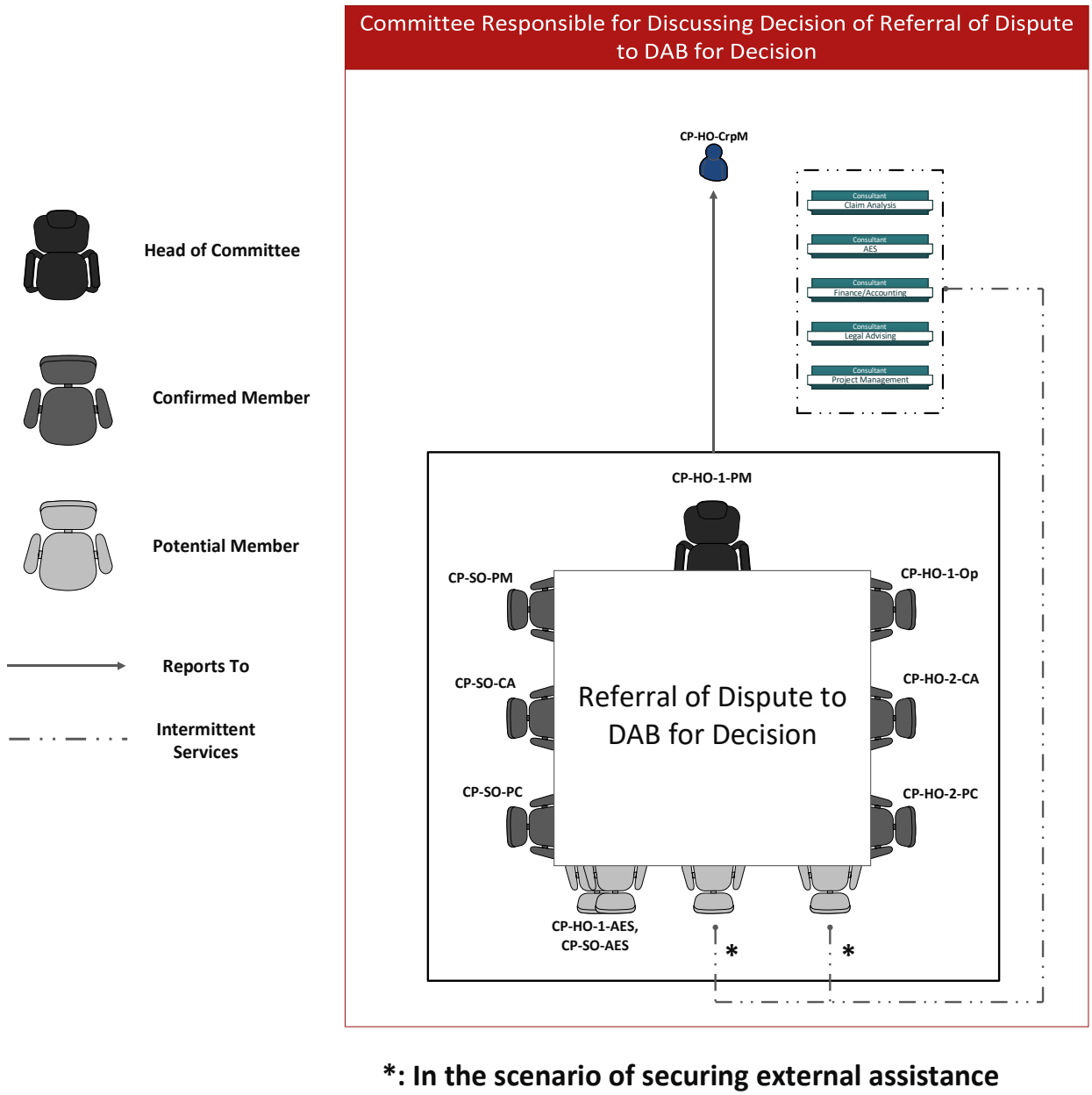


Figure 16: Illustration of the Committee Responsible for Voting on the Decision of Referral of Dispute to DAB for Decision

At this decision station, a major shift starts to occur where the representation of site office members is starting to get dominated by the representation of head office members. This is mainly due to the fact that this decision station is the ignition of a series of events that may jeopardize the contractor's existence in the market as a whole. This is valid since in accordance with FIDIC 1999, after the DAB gives a decision on the matter, the decision

shall be binding on both parties unless a notice of dissatisfaction has been submitted by either party. Also, after this notice has been submitted, both parties have a minimum of 56 days before the start of arbitration with the maximum depending on how long an extension is agreed on. This means that the contractor at the moment of referral of dispute to DAB for decision is being faced with two fates: a binding decision or arbitration. Thus, the intervention of more members of a VP level from the head office is crucial.

It should also be noted that SO-PM, SO-CA, and SO-PC have remained at the table with the difference now that SO-PM is no longer the head of the committee. This implies the need for these members is to fully validate all past incidents as well as extracting all information from these members in order to build a good case to submit to the DAB. Also, CP-HO-1-Op is now at the table as a confirmed member after being the member that was reported to for three decision stations. This also shows how much continuity and previous information is important when taking major decisions at progressive decision stations. On a side note, now the table is reporting to the board/executive members who carry the duty of the corporate's management.

Three more things should be taken into consideration. First, another consultant that is potentially picked from a list is added. This goes as to validate the information earlier on how crucial this decision station is where more intermittent services may be required. Also, the fact that this stage has been reached is enough to show that there is either a right that is not being given to the contractor, or that the site office personnel are not competent enough thus more validating the need for intermittent services. Second, is that at the east and west of the table members of the same occupations but from different office are seated face-to-face. This ensures that these members communicate better in an attempt to be clear at all

front in regards to the event at hand. Third, one of SO-AES or HO-1-AES may be needed at the table in the case where the event at hand might be technically complex and input from the technical units is needed.

5.3.5. Issuance of Notice of Dissatisfaction

The fifth committee is concerned with making a decision on the issuance of notice of dissatisfaction is comprised of a mix of the site office personnel that were engaged in the previous committees and head office personnel that were also either informed of the situation or have been engaged in the committees. The detailed illustration of the committee responsible for discussing the decision of referral of dispute to the DAB is shown in figure 17 below.

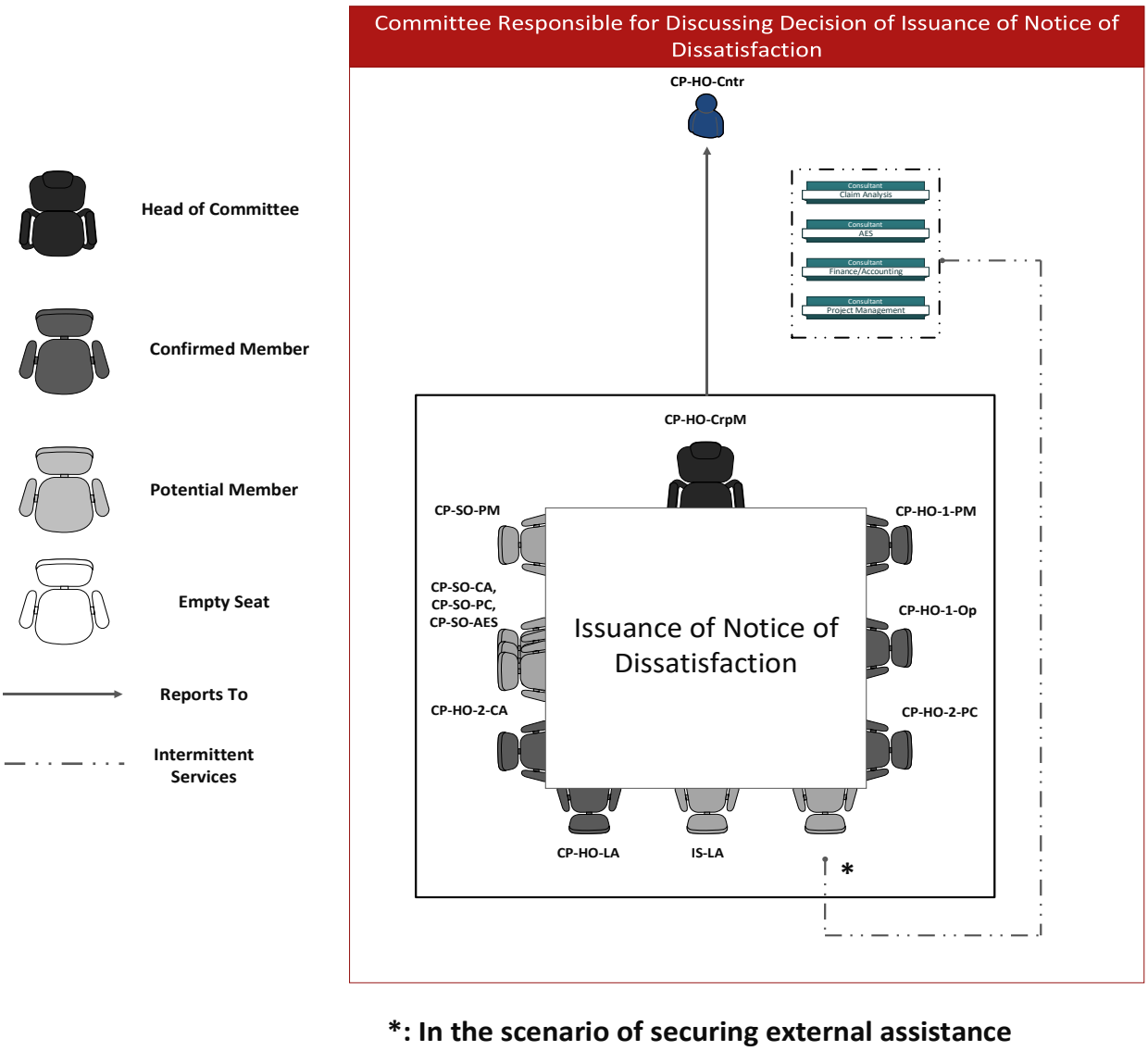


Figure 17: Illustration of the Committee Responsible for Voting on the Decision of Issuance of Notice of Dissatisfaction

The first noticeable change at this table is the head of the committee who is now the corporate's management unit also known as the board/executive members who were being reported to at the previous decision station with the VP for project management now being a confirmed member due to the need for his/her experience and exposure to the matter. Another noticeable change is the fact that now all members from the site office who were previously confirmed (potential in the case of the AES) are now potential members at the table for this decision station. Moreover, only the site office's project manager has a

seat by himself whereas the previous members have their seats overlapping in accordance with what has been aforementioned as to why this representation is used.

As for the consultants, one of the two chair stays the same being occupied potentially by an intermittent service from the list present. More importantly, now the intermittent services for legal advising are being mentioned as a potential member at the table while being excluded from the list of intermittent services. This is mainly done to highlight that this consultant has the specialty that is most needed by the organization since it is starting to get closer to facing arbitration at some point. Yet, this member is a potential member since the contractor's organization may be playing hard ball and fishing for a decent settlement while not actually intending on proceeding with arbitration i.e. if the company is not intending on proceeding with arbitration or litigation then this consultant may most likely not be hired. It should be noted that the company's own legal advising unit is now a confirmed member due to the legal nature of the events that are likely to happen after this major station and is seated next to this consultant for three main reasons:

1) It is most probable that this unit is the one that chooses which consultant is to be hired
2) This unit shares the same occupation with the consultant
3) This seating is easier for coordination

5.3.6. Acceptance of Proposed Settlement

The sixth committee is concerned with making a decision on the acceptance of the proposed settlements which is the result of amicable settlement as explained earlier. The detailed illustration of the committee responsible for discussing the decision of acceptance of the proposed settlement is shown in figure 18 below.

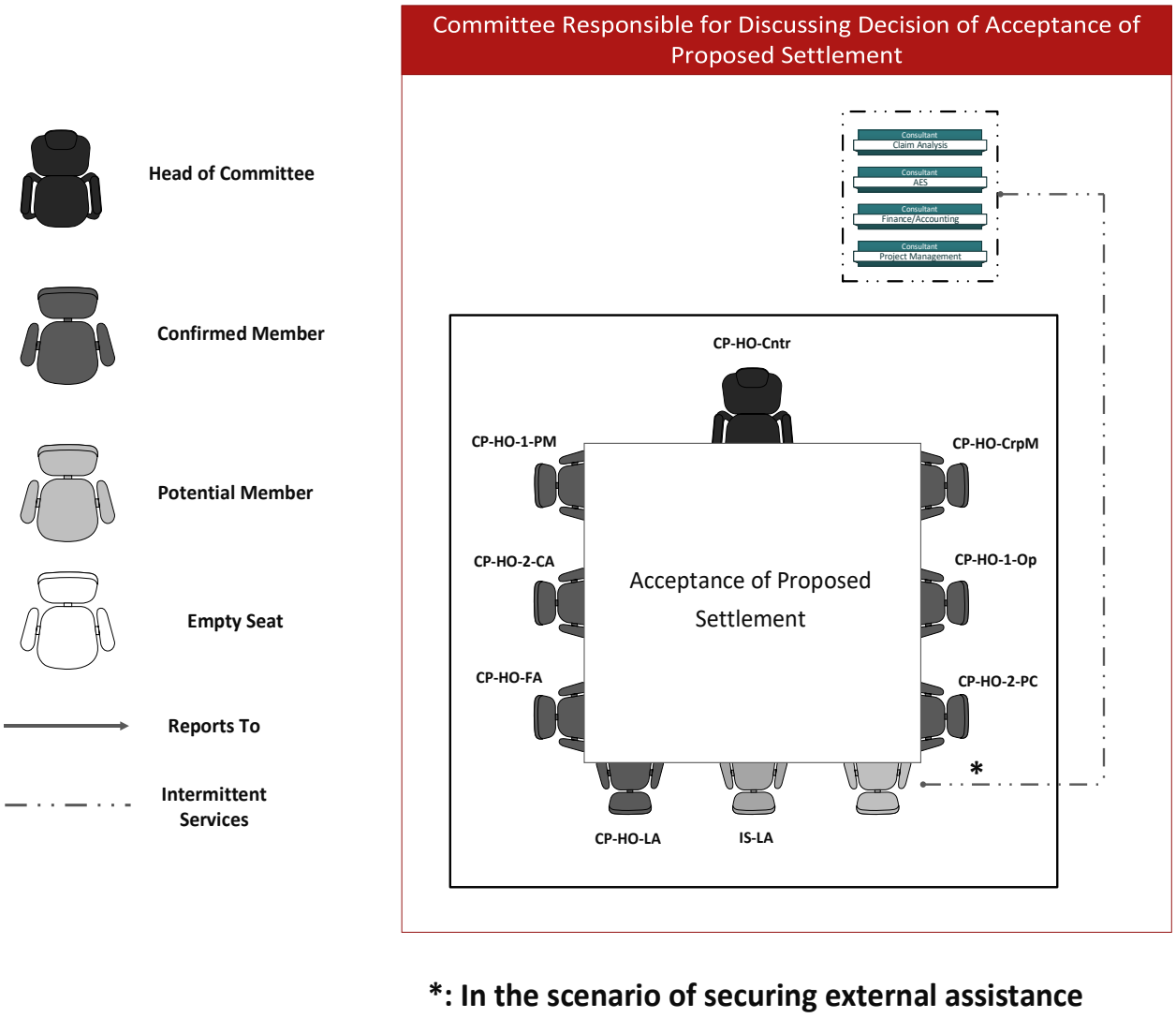


Figure 18: Illustration of the Committee Responsible for Discussing the Acceptance of the Proposed Settlement

The first noticeable change from the previous decision station's table is that this table is now solely dominated by head office representation. Also, another major fact is that now the head of the committee is the member known as chairman of the board (or CEO) who is in charge of the organization's contracting and in most cases is the company's owner himself. This being said, all of the members previously seated at the previous table including the corporate's management are now seated at this table with the addition of the VP for finance/accounting whose role is self-explanatory and is needed at this table in order

to give an assessment and/or analysis on the impact of the project on the company's financial state. Other members' roles are self-explanatory as well and are needed at this table due to being exposed to the dispute's progress and to give the chairman their opinion on which decision is most suitable/optimal for the organization and project's success.

As discussed earlier, most the altered 56-day period has already been consumed and the contractor has to choose between the option of accepting the proposed settlement which is surely not entirely in his favor and the option of proceeding with arbitration which is a costly and risky matter in the sense that there's no guarantee to the contractor that the court's decision will be in his favor. This idea serves the rationale of changing the intermittent services for legal advising to be a potential member not just a potential member from a list of members. The difference is that this representation gives a higher chance for that member to be hired and this difference is backed by the idea mentioned in section 5.3.5. of this member being needed for their legal expertise that may not be existent in the company's own legal advising VP.

5.4. Head Office vs. Site Office Representation

It is of this thesis's interest in relation to governance mechanisms to highlight the fact that there is a difference in representation between the head office and the site office along the claims/disputes timeline and to signify the importance of these representations. This difference serves the idea mentioned earlier in section 5.2.4. in regards to the site office personnel having the privilege of autonomy at the earlier stages of the claims/disputes timeline. What is to be expected from the table that shall illustrate this representation is a decrease in the degree of autonomy as each decision station passes by

and more representation from the head office. This is to be expected for three reasons with the third reasons being one of two possibilities:

1) Behavioral states are dynamic with the increase in tension which thus means the need for more delicate and well-studied decisions by the contractor (Yiu & Cheung, 2007).
2) The organization's existence in the market may be at risk as explained in the contractor's considerations in relation to his own organization in chapter IV.
3) The contractor can no longer trust the site office team since they haven't solved the issue yet. Or, the employer's organization and/or The Engineer are really not being fair in the eyes of the contractor and thus higher management should start taking the matter to their own hands.

To summarize this information, table 5 as shown below has been designed to highlight the participation of each member from the contractor's organization as well as highlighting the pattern of participation of the intermittent services that may be hired.

Table 5: Head Office vs. Site Office Representation within the Committees Voting on a Decision

Representation	Participants	Decision Stations					
		(1)	(2)	(3)	(4)	(5)	(6)
Site Office	CP-SO-PM	H	H	H	C	P	
	CP-SO-CM	C	C	C			
	CP-SO-CA	C	C	C	C	P	
	CP-SO-PC	C	C	C	C	P	
	CP-SO-AES	P	P	P	P	P	
	CP-SO-QA/QC	P	P	P			
	CP-SO-HSSE	P	P	P			
Head Office	CP-HO-Cstr						H
	CP-HO-BEB					H	C
	CP-HO-1-PM				H	C	C
	CP-HO-1-Op				C	C	C
	CP-HO-LA					C	C
	CP-HO-FA						C
	CP-HO-2-CA	R	P/R	P/R	C	C	C
	CP-HO-2-PC	R	P/R	P/R	C	C	C
	CP-HO-1-AES				P		
	CP-HO-2-AES	R	R	P/R			
	CP-HO-3-Est	R	R	P/R			
	CP-HO-2-QA/QC	R	R	P/R			
	CP-HO-HSSE	R	R	P/R			
Intermittent Services	IS-CAns		PL	PL	PL	PL	PL
	IS-AES		PL	PL	PL	PL	PL
	IS-FA		PL	PL	PL	PL	PL
	IS-LA		PL	PL	PL	P	P
	IS-PM		PL	PL	PL	PL	PL

(1): Issuance of Claim Notice
(2): Acceptance of Consultation's Outcomes
(3): Acceptance of Final Determination
(4): Referral of Dispute to DAB for Decision
(5): Issuance of Notice of Dissatisfaction
(6): Acceptance of Proposed Settlement

H: Head of Committee
C: Confirmed Member
P: Potential Member
P/R: Potential Member or Review Member
R: Review and Clearance Member from Head Office
PL: Potential from a List

An analysis of the table shows how the fluctuation of control is being shifted along the claims/disputes timeline. Although not mentioned often in this thesis, the matter of studying how the claims administration process is a dynamic process is very important for the construction industry. One might even argue that nothing is static at all in the construction industry (Williams & Samset, 2010).

Starting at the first three major stations, it is evident that the on-site representative with the occupation of project management is the head of the committees for the first three tables. This idea is sound due to the fact that a project manager should have expertise similar to almost every other member at the site office. Also, the similar occupation shared by the project manager and the VP for Operations helps for good coordination between these two members. Moreover, this fact allows the company's head office to trust the project manager in both being its representative at the site and being in control of the claims administration process. For example, the project manager should have experience in construction management, contract administration, and etc. The other idea to be noticed is that also other members are constantly confirmed or potential along the three stations which shows a certain form of consistency from the site office's practices.

As for the fourth station and onwards, there exists a rise in the level of authority of the member acting as the head of the committee. The start of this rise is explained by the fact that the member that should be continuing from where the site office stopped should be the member that was being reported to at the first three major decision stations. After that, when the dispute is starting to pose a threat to the company's well-being it is only normal that the corporate's management should start being the head of the committee

which is followed by the company's chairman of the board being the head of the committee at the final decision station.

A very crucial point that should be taken into consideration as well is that whenever a committee is formed at the later decision stations, only the highest ranking members from the required occupations are being summoned at the table. This highlights the importance of the decisions being taken as to such high ranking members are participating in the decision-making process. One would argue that the less ranking members are more engaged in the matter since they are being part of the review/clearance group at earlier stations and are keeping hold of the records required. This argument as good as it sounds, is actually used to support the idea that there should be well coordination between the members within the same department. Moreover, this idea goes to further clarify the rationale mentioned in section 5.2.4. of this thesis.

5.5. Modus Operandi for Voting Processes

It's a basic thing to have voting processes organized in a way where limitations exist and certain rules apply. Another basic thing is that when decisions are to be reached through voting, that each committee should have its own procedures a.k.a. modus operandi. These modus operandi take into considerations many factors including the possible impact of the decision on the organization, the number of members voting, etc. Also, from these modus operandi branch rules of order which pertain the conditions for a decision to be reached through voting.

As for the six committees that are being studied, the modus operandi for voting procedures of those committees have some traits in common since in one way or another

major decision stations have many aspects in common as well as the contractor's considerations overlap between decision stations in some points. A major point that should be highlighted is that autonomy given to the site office members plays a huge role in the design of the modus operandi for the major decision stations. This fact is a repercussion of the main idea discussed earlier that the claim/dispute timeline is similar to a chain in a way or another where one decision has an impact on the successive major decision stations. It should also be noted that while some members participate in the decision making process, their participation is an indirect one explained as having an influence on either one of the members voting for a decision or on the committee as a whole as such is the case of consultants

Starting with the rules of order, four rules are chosen for the six major decision stations at hand. It should also be noted that the members should be present at the table to practice their voting rights. The rules go as follows:

1- Veto: Exercising the right to veto by a member entails that a decision that has won votes but got vetoed shall not be proceeded with. Also, this entails that the member being reported to at the head office shall be responsible for giving a decision on the matter. More shall be explained on the mechanics behind such a scenario.
2- Majority[1]: Majority with asterisk "1" entails that the majority rule for voting applies at the decision station with the rule being that a decision wins when half or more of the members present at the table have voted for that decision.
3- Majority[2]: Majority with asterisk "2" entails that the majority rule for voting applies at the decision station with the rule being that a decision wins when two thirds or more of the members present at the table have voted for that decision.

4- Ultimate Decision: This rule of order entails that members having the right to vote exercise this right, but the right given to them at this decision station is just a way to get them to voice out their opinions. The ultimate decision is taken by the member holding this title

All of this information justifies the choices taken for modus of operandi for each decision station as illustrated in table 6 below where the voting rights are assigned for all of the members participating both definitely or potentially in the process.

Representation	Participants	Decision Stations					
		(1)	(2)	(3)	(4)	(5)	(6)
Site Office	CP-SO-PM	R/V	R/V	R/V	R	I	
	CP-SO-CM	R	R	R			
	CP-SO-CA	R	R	R	R	I	
	CP-SO-PC	R	R	R	R	I	
	CP-SO-AES	R	R	R	N	N	
	CP-SO-QA/QC	R	R	R			
	CP-SO-HSSE	R	R	R			
Head Office	CP-HO-Cntr						UD
	CP-HO-CrpM					R/V	R
	CP-HO-1-PM				R/V	R	R
	CP-HO-1-Op				R	R	R
	CP-HO-LA					R	R
	CP-HO-FA						R
	CP-HO-2-CA	IC	R/I	R/I	R	R	R
	CP-HO-2-PC	IC	R/I	R/I	R	R	R
	CP-HO-1-AES				I		
	CP-HO-2-AES	IC	IC	R/I			
	CP-HO-3-Est	N/A	N/A	N/A			
	CP-HO-2-QA/QC	IC	IC	R/I			
	CP-HO-HSSE	IC	IC	R/I			
Intermittent Services	IS-CAns		I	I	I	I	I
	IS-AES		I	I	I	I	I
	IS-FA		I	I	I	I	I
	IS-LA		I	I	I	I	I
	IS-PM		I	I	I	I	I
	Rules of Order	Majority[1]	Majority[1]	Majority[1]	Majority[2]	Majority[2]	Ultimate Decision

(1): Issuance of Claim Notice
(2): Acceptance of Consultation's Outcomes
(3): Acceptance of Final Determination
(4): Referral of Dispute to DAB for Decision
(5): Issuance of Notice of Dissatisfaction
(6): Acceptance of Proposed Settlement

R: Has a voting right*
R/V: R + Veto Holder
UD: Has the ultimate decision
N: No voting right*
I: Influential*
IC: Influential when counterpart is present at the table

[1] Majority is measured when half or more than half of the members agree on a decision

[2] Majority is measured when two thirds or more of the members have agreed on a decision

* These concepts also apply to potential members only when they are present at the table

5.5.1. Analysis

As shown, letters are given to each member at each major decision station. These letters serve to show the roles of the members participating in the voting procedures whether directly or indirectly. It should be also noted that since some of the members holding voting rights are potential to be present at the table, an asterisk has been added to highlight the fact that members can exercise these exact voting rights only when they are present physically or by video call at this exact table. In the case of "IC": this abbreviation means that members from the review/clearance group at the head office shall have influence on the votes of their counterparts only when these counterparts are present at the table. For example, CP-HO-2-CA (Head office's middle management for contraction administration) has an influence on CP-SO-CA (Site office's contract administration) only when CP-SO-CA is present at the table since CP-HO-2-CA is most likely to be most communicative with CP-SO-CA especially since they share the same occupation. As for the case of "I": this abbreviation is used for consultants who don't have voting rights since they are not a part of the organization but have influence on one or more of the members' votes. Another idea that should be highlighted is that some members have both the letters "R" and "I" for some cases mainly due to the fact these members are influential due to being a part of the review/clearance group, but may be present at the table thus automatically gaining voting rights.

The choice of Majority[1] for the first three decision stations is mainly due to the fact that these committees have autonomy to the extent of taking a decision under the review of the head office members mentioned and the VP for Operations. Also, the number of members makes it easy to apply the "half plus one" rule. Moreover, the fact that the matter

at hand has not yet developed to the level of dispute gives more space for "democracy" at the decision station. As for decision stations (4) and (5), it is clearly better to use Majority^2 for the reasons mentioned above. Finally, decision station (6)'s rule of order is self-explanatory since in most cases when the chairman of the board/CEO of a company is participating in the committee voting for a decision, then this person shall have the final say on the matter.

The blue containers shaped as an arrow and a curved rectangle show a remarkable idea where head office intervention starts to appear as voting instead of influence mainly at the decision station (4). Then, this intervention shadows the site office's intervention at decision stations (5) and (6). This stands to show that the higher the claim escalates, the more that the site office loses autonomy and the more the need for intervention from the head office. This also proves that organizations view disputes and arbitration/litigation as a huge threat that should be dealt with while considering financial factors as a main component. The proof to this theory is that there is only an ultimate decision when the VP for finance and accounting is present at the decision-making committee as shall be explained further in the following section where this VP will most often be present at a committee when either the contractor or the corporate's management is available as shall also be illustrated.

5.5.2. Veto Cases

In the case that a veto on a decision that has been voted by majority happens, the contractor will still have to reach a decision on the matter at hand. In such a case, a committee will be formed which includes in principle the member being reported to as well as the vice president for finance/accounting since the expertise of this vice president is

needed in accordance with the considerations mentioned in chapter IV. Moreover, the committee concerned with taking a final decision on the vetoed case is the same for the first three stations and doesn't exist for the final station since the chairman of the board who is the holder of the ultimate decision is present at that table.

It should be also noted that these committees follow the same procedures as those mentioned in section 5.2. but with the difference of having less members present. It should also be noted that the head of this committee is the ultimate decision maker and shall thus be liable for some of the repercussions of this decision if applicable.

In addition, the capacities of the members available at these committees should mirror those of the members that were mentioned in section 5.3. of this thesis and should include members at the top management level. It should also be noted that the Vice President for architecture/engineering/specialties is a potential member at the first two tables due to some claims/disputes lacking technical nature. The committees concerned with a final decision on the veto cases are illustrated in figure 19 below.

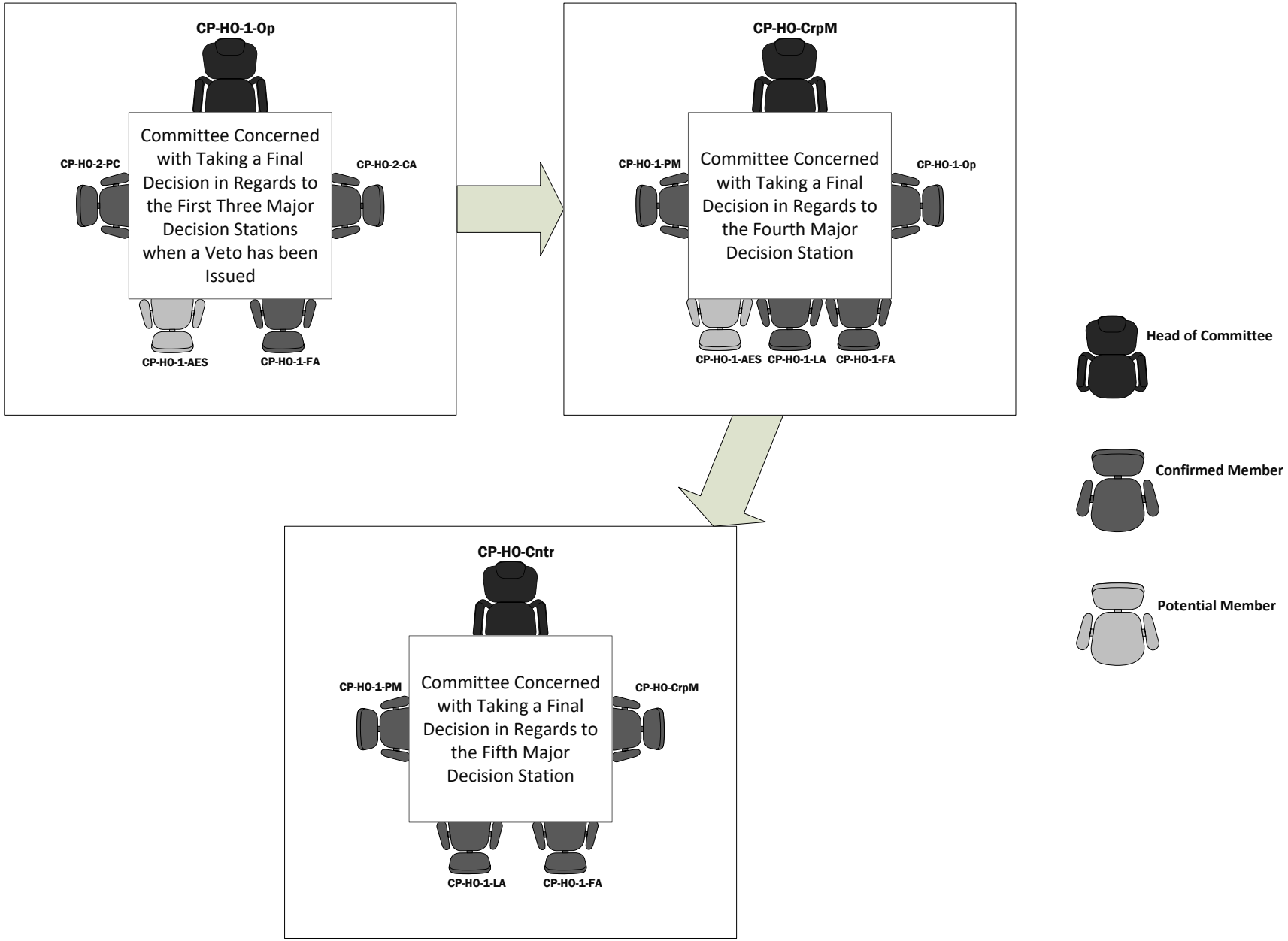


Figure 19: Committees Concerned with Taking Final Decisions along the Claims/Disputes Timeline in Veto Cases

6. SUMMARY AND CONCLUSION

6.1. Summary

The literature review section provided studies on the different aspects relating to claims, disputes, and the management and resolution of both. Moreover, studies were provided on organizational structures and governance mechanisms in an attempt to highlight how crucial it is to achieve project success through sound governance mechanism practices and having a functional organizational structure. Also, project management was defined and its practices were employed to show the effect that project management has on the well-being of the organization in accordance with project success. The aforementioned ideas took into consideration the obstacles that organizations face and some solutions to those obstacles.

A combination of the discoveries in the literature review and the main concepts discussed in this thesis will be summarized in this section. A conclusion will then be presented in an attempt to offer advice to practitioners within the construction industry on dealing with claims and disputes. Moreover, this advice is mainly addressed to the contractor who is more vulnerable in the industry than the employer. A set of recommendations shall then be presented and is based on the thesis's findings. Finally, a list of possible future work to be adopted will be presented to further advance on the ideas mentioned within this thesis.

This thesis as can be inferred from its title, tackled issues that relate to decision-making and governance in accordance with the claims/disputes timeline. It was supported by a thorough reading of the FIDIC 1999 contract conditions and further literature that has

not been utilized in the literature review section. This thesis gave answers to the following questions:

1. Which stations along the claims/disputes timeline require a major decision to be taken by the contractor?
2. What is the rationale behind the composition of the organizational structures of the construction project's participants in a traditional approach?
3. What are the considerations taken into mind by the contractor when wanting to take a final decision on matters relating to claims and disputes?
4. What is the composition of the committees that the contractor utilizes for decision-making purposes along the claims/disputes timeline?
5. What is the nature of the procedures that these committees have to undergo to achieve a decision?

The first question was answered by providing a timeline for the claims and disputes which had time bars deduced from the thorough reading of FIDIC 1999 contract conditions with focus on sub-clauses 20.1 and 20.4 of those conditions. Major decisions were then highlighted and the FIDIC Guide was used to explain concepts pertaining to interim determinations and the decisions underlying the determination cycles. The second question was addressed by the proposal of organizational structures for the project participants, third-party entities, and intermittent services. This proposal was aided by a rationale on the choice of the specific units within those structures. The third question was answered by proposing the considerations that the contractor takes when wanting to make a decision in relation to the matters of claims and disputes with these considerations being mainly deduced from the practice in the construction industry and literature on those practices.

The fourth question was addressed by proposing illustrations for the committees that the contractor may utilize to reach a decision within the major decision stations. In addition, the final question was addressed in accordance with the fourth question by proposing mechanisms pertaining to those committees in regards to the head office vs. site office representation and voting procedures were discussed and analyzed.

6.2. Conclusion

The literature review presented at the start of this thesis presented an insight on the practices regarding claims and disputes within the construction industry in terms of governance and decision-making. The rest of the thesis then complemented the ideas presented by the literature and to a list of conclusions as follows:

- The effective management of claims and disputes is crucial to the success of projects.
- Claims and disputes should be addressed to in a timely manner to avoid further conflicts and achieve more suitable outcomes to all parties.
- Major decision stations along the claims/disputes timeline have huge repercussions on both the project and the organizations of the project participants.
- The study of organizational structures of the parties in important for the companies to realize their goals in regards to effective strategic management.
- The study of governance mechanisms is important by top management within organizations to ensure alignment between the work of the project's teams and the project's portfolio.

- The contractor's consideration in regards to the employer, The Engineer, and his own organization are important in attempts of avoiding drastic repercussions in the future that may arise from poor decision-making skills.
- Disputes should be avoided in the cases where the contractor has the ability to retain existence in the market after compromising.
- Decision-making committees' compositions help in realizing how well the contractor's organization is performing in regards to the management of claims and disputes, and these committees also show the trust given by the head office to the site office in regards to decision making at the earlier stages of the claims/disputes timeline.
- Knowledge management practices within organizations and especially within the contractor's organization helps in achieving more creative solutions to problems and ensuring that the head office is kept in check with the events pertaining to claims.
- The head office being updated with the practices of the site office entails that this site office should be in constant communication with certain members within the head office even if a certain degree of autonomy is given to the site office personnel.
- Consultants play a huge role in the decision-making process along the claims/disputes timeline nowadays.
- Voting procedures within the decision-making committees have a huge impact on the decisions taken at the major decision stations.

6.3. Limitations

The limitations faced by this research started to substantiate at the literature review section of this thesis. It is evident that literature on the construction industry is scarce in relation to project management and even in some cases outdated. Thus, there was a need to delve into the business administration field in matters that relate to management and decision-making mostly. Moreover, there seems to be scarce mention of FIDIC 1999 in the literature as well.

The second limitation would be that showing dynamic processes in a thesis is a tedious task. That being said, decision-making is already a very dynamic process, and it would have been more fruitful to show the contractor's considerations in that manner.

The third limitation would be having to stick with using FIDIC 1999 instead of other forms of conditions of contract would allow for the study of recent cases within the industry.

Finally, the construction market in regards to private projects, is not a market that allows for information to be transferred freely. Privacy concerns make it harder for a researcher to collect data especially in a competitive market where firms are trying to be covert in regards to their strategies and governance mechanisms.

6.4. Recommendations

The analysis presented on the claims/disputes timeline, organizational structures, and the nature of the decision-making process adopted by the contractor paves the way for a list of recommendation to be formulated. These recommendations should be taken into

consideration by practitioners to both benefit the market as a whole and the individual organizations as well. Moreover, these recommendations are also effective in creating opportunities for practitioners in the construction industry to put extra effort in modifying some of the outdated practices.

1) Depending on conditions of contract other than the FIDIC 1999 whereby choosing clauses from different books in order to achieve an optimal construction contract.
2) Giving more attention to the drafting of contract conditions whereby avoiding drafting clauses that may give rise to claims and disputes along the project's lifetime. Giving more attention from the contractor's side to the analysis of the conditions drafted by the employer.
3) Embedding better knowledge management systems in an attempt to ensure more clarity of the organization's visions in the minds of the staff especially at the site office. While it should be also noted that such systems help the organization in achieving growth by benefiting from the experience of the site office team which would be constantly input into the system.
4) Encouraging staff within the organization by using incentives such that these staff receive motivation to be more creative and effective in their daily tasks. This encouragement should also take into consideration that the staff should not feel inclined to take their jobs easy if consultants are being hired.
5) Ensuring proper governance mechanisms are being adopted and updated in accordance with the changes in the market and the external environment.

6) Thorough research on the considerations that should be taken in mind when wanting to reach a decision on the matter. This research should help the contractor update his considerations to accommodate for any external changes.
7) Organizations should be less private about their management processes, and in the case that this privacy cannot be lifted, then these organizations should adopt research and development units specialized in the fields of project management and governance practice.
8) More attention should be given by the contractor towards the choice of the decision-making committees in regards to the members chosen to present at those committees and the voting procedures that these committees follow.

6.5. Future Work

The word "Research" is often accompanied by the word "Development", so this research should be expanded even further. Thankfully, the construction industry is vast and changing, so there is always room for future work to be done. A list of the steps that may be done in the future is as follows:

1) Incorporating case studies that are directly related to the aspects of application of governance mechanisms
2) A thorough analysis on the FIDIC 1999 contract conditions in comparison with other forms of more recent contract conditions
3) Research on how organizations should employ research and development practices to have their own updated forms of contract conditions

4) Creating questionnaires to be filled by project participants where the questions should address two main ideas:
    a. The difference in the practice between the past and the present
    b. Expectations for the possible changes in claims/disputes management in the industry in the near future
    c. In which scenarios are certain considerations deemed more important than others
5) Studying the concepts mentioned in this thesis from the point of view of the employer.

APPENDIX

To avoid repetition in the listing of codes, it is favorable to start with some common codes that are shared by entities within the different organizations and that relate mainly to specialties:

- AES: Architecture/Engineering/Specialties
- CA: Contract Administration
- Est: Estimation
- FA: Finance/Accounting
- HO: Head Office
- HSSE: HSSE
- LA: Legal Advising
- Op: Operations
- PC: Project Controls
- PM: Project Management
- Prc: Procurement
- QA/QC: Quality Assurance/Quality Control
- QS: Quantity Surveying
- SCC: Scheduling and Cost Control
- SO: Site Office

- TC: Technical Control

Starting with the employer's personnel, some codes are unique to this organization and are presented below along with other unique codes for the rest of the entities that potentially participate in the claims/disputes timeline:

1) Employer's Personnel (EMP)
    - AE: Architect/Engineer
    - AIA: Approvals/Inspections/Acceptances
    - PD: Project Development
    - RE: Resident Engineer
2) Contractor's Personnel (CP)
    - CM: Construction Management
    - Cntr: Contracting
    - CrpM: Corporate Management
3) Intermittent Services (IS)
    - CAns: Claim Analysis
4) EDI: The Engineer/DAB Interjections
    - D: Determination
    - DAB: DAB
    - Dec: Decision

- O: Opinion
- R: Recommendation
- TE: The Engineer

5) TPI: Third-Party Interventions

- Fcl: Facilitation
- Ccl: Conciliation
- Med: Mediation

6) : Third-Party Ruling

- Arb: Arbitration
- Lit: Litigation

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