Scholarly Paper

Cost Control of Arbitration in Construction Projects

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Abstract: Arbitration has been the alternative dispute resolution to litigation in many contractual agreements and among many construction projects. It was promoted as a better alternative dispute resolution method to the litigation process due to the presumed decrease in both time and expense. However, over the last decades, arbitration proceedings have become longer, more expensive, and almost comparable to litigation. Despite having many other alternative dispute resolution methods, arbitration is still the most prevalent method in many contractual agreements. Therefore, arbitration cost and time overrun issues have to be addressed in order to understand the reasons behind the cost overruns and to allow the discovery of different opportunities to mitigate arbitration costs while maintaining the arbitration process efficiency. This research study identifies the root causes for arbitration cost overruns and analyzes the different scenarios that lead to these overruns. The study also analyzes the different control and mitigation strategies that can be utilized to better control arbitration costs. **DOI: 10.1061/(ASCE)LA.1943-4170.0000530.**

Background and Literature Review

Claims and Disputes Resolution Methods

Claims and disputes have been an expensive issue in the construction industry, averaging $19 million per claim in 2019 (ARCADIS 2020). These average values increased from 2018 to 2019 and are expected to further increase due to impacts of COVID-19 (ARCADIS 2020). In 2019, North America had the second-lowest average dispute value ($18.8 billion) yet the highest length of dispute (17.6 months) as compared with other continents (ARCADIS 2020). Therefore, rising concerns about the cost and time investment for dispute resolution calls for an intricate yet comprehensive assessment of these issues (Sameer et al. 2016). Claims and dispute resolution methods including negotiation, mediation, arbitration, and litigation were used to resolve about 82% of the total disputes in North America in the past few years (ARCADIS 2017; California Courts 2019; Esmaili and Gilkis 2017).

The negotiation approach implores the interested parties to convene and reach a consensus regarding a particular conflict or claim, thus saving the total expenditure (Cheung 1999; Esmaili and Gilkis 2017; Goldberg et al. 2014). Mediation is a pragmatic and cost-effective approach, but it is nonbinding and requires the willingness of participation from engaged parties (California Courts 2019; Chau 1992; Kansas Bar Association 2019). Litigation is a public court-based procedure that is regulated by various federal rules and contains a plethora of dynamic processes, and thus predicting accurate time and expenses is very difficult (Budde 2019; Cornell Law School 2019). The last dispute resolution measure in consideration is arbitration, which is the main focus of this research. Arbitration is a "simplified version of a trial involving limited discovery and simplified rules of evidence" (Esmaili and Gilkis 2017).

Arbitration

The American Bar Association (2019) defines arbitration as "a private process where disputing parties agree that one or several individuals can make a decision about the dispute after receiving evidence and hearing arguments." In this process, a neutral arbitrator analyzes the arguments of disputing parties and the outcome could be binding or nonbinding (California Courts 2019). Disputing parties waive their right to trial and agree with the arbitrator's decision under binding arbitration, whereas the disputing parties can request trial under nonbinding arbitration (California Courts 2019; Schultz 2002). Arbitration is especially beneficial in cases when traditional court proceedings can be time-consuming and expensive, the arbitrators have greater expertise in the dispute area, privacy and confidentiality are paramount, or the parties want to pursue binding arbitration (LawFirms 2019). Pitofsky (1969) suggested that arbitration provides an accelerated disposition toward complicated disputes that would traditionally pursue litigation, a claim backed by research conducted on alternative dispute resolution measures in 1997 (Mix 1996).

Arbitration as a Norm

Arbitration has become the epitome of dispute resolution, galvanized by the Federal Arbitration Act (FAA) of 1925 (Shimabukuro and Staman 2017), to ensure a shorter and more cost-effective verdict as compared to litigation (Berardo and Clemens 2011). FAA's strong policy promoting arbitration states that "an agreement to submit to arbitration an existing controversy arising out of such a contract, transaction, or refusal, shall be valid, irrevocable, and enforceable, save upon such grounds as exist at law or in equity for the revocation of any contract" (GPO 2012). Due to the relatively lesser cost, less hostile environment, accelerated resolution, flexible timing, and confidentiality, arbitration has been favored over litigation in multiple instances (Cotney 2019). Additionally, "trial judges loathe construction lawsuits and spare no effort to divert such cases to any available form of alternative dispute

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resolution" (Mix 1996) such as arbitration. Several examples of cases favoring arbitration over litigation can be found in *Diamond Waterproofing Sys. v. 55 Liberty Owners Corp*; *Tong v. S.A.C. Capital Mgt., LLC*; and *Carlton Hobbs Real Estate, LLC, v. Sweeney & Conroy, Inc*. In the case of *Diamond Waterproofing Sys. v. 55 Liberty Owners Corp*, "the court held that since the contract had an effect upon interstate commerce, the FAA governed the parties' dispute in a breach of contract dispute arising out of a construction project." In *Tong v. S.A.C. Capital Mgt., LLC* and in *Carlton Hobbs Real Estate, LLC, v. Sweeney & Conroy, Inc.* the "appellate division held that where the construction project involved retention of out-of-state subcontractors, the FAA applied, affirming the lower court's order compelling arbitration was affirmed" (Berardo and Clemens 2011).

The states of New Jersey and New York have strongly favored arbitration in different construction disputes, for example, *People v. Coventry Fist LLC*; *Prinze v. Jonas*; *Angrisani v. Fin. Tech. Ventures, L.P.*; and *Alfano v. BDO Seidman, LLP.* The previous examples illustrate the necessity of a detailed arbitration clause during contract formation and bolster the courts' commonplace support of the industry's use of arbitration (Berardo and Clemens 2011). In the recent past, courts have preferred to have the cases arbitrated if the contract language is vague regarding the dispute resolution methods (JDSUPRA 2018), for example, *Avr Davis Raleigh v. Triangle Constr. Co., 818 S.E.2d 184*, and *Matrix N. Am. Constr., Inc. v. SNC Lavalin Construction, Inc*. In *Pinnacle Museum Tower Association v. Pinnacle Market Development (US) LLC*, the Supreme Court supported the civil code provision of prioritizing arbitration over litigation (Tinnelly 2012). Additionally, the contracts based on American Institute of Architects (AIA) documentation require arbitration as the preferred dispute resolution measure, the results of which can be converted to legal court judgments (Wolf Slatkin & Madison PC 2019). Cheung and Suen (2002) surveyed dispute resolution experts and concluded that confidentiality was ranked highest by most survey participants, which is an essential element of arbitration. As can be seen from the previous cases, arbitration has been consistently ranked second, only to party-to-party negotiation, as the most common method of dispute resolution (ARCADIS 2017). Globally, the Fédération Internationale des Ingénieurs-Conseils (FIDIC) contracts, as an international standard, were also predicated on the principle that disputes should be settled via arbitration (FIDIC 2017). Finally, the confidentiality clause and the ease of results' conversion to legal judgements have bolstered the adoption of arbitration as the norm in the construction industry.

Arbitration Costs

This section details the various cost centers across the different phases of the arbitration process. These cost centers comprise the total arbitration cost, namely arbitrators' fees, administrative costs, expert fees, legal costs, and witness management and logistical costs (AAA 2019; González et al. 2014; Martin 2012).Understanding these costs are the key to controlling and minimizing these costs:

- Arbitrators' fees: This fee is decided by the arbitrator's organization or solely by the arbitrator based on the dispute amount, time obligation, and dispute complexity. Some countries like the UK have capped the total arbitration amount; however, in the US, the arbitrators are compensated hourly with a prevailing rate set by the arbitrator. All miscellaneous expenses such as travel, food, and accommodation are added to this cost center.
- Administrative costs: This constitutes all administrative documentation fees combined with a nonrefundable claimant deposit of $3,000 [for International Chamber of Commerce (ICC) arbitrations]. The American Arbitration Association (AAA) has constituted an initial fee based on the case amount (ranging from $775 to $12,800) for all new cases and counterclaims. A hearing fee (also known as final fees) of $200 to $6,000 has to be paid, which is refundable contingent on no hearing.
- Expert fees: Experts in the area of dispute have been strongly recommended due to the complex nature of construction disputes, and to ensure that the outcome is a fair resolution. Their fees in US dollars can range from a few thousand to millions (depending on the case or project magnitude, and the expert's experience), to be shared by the disputing parties. This fee accounts for expert reports, testifying at arbitration hearings, and all other miscellaneous expenses (travel, food, and accommodation).
- Legal costs: Attorney fees are required to be paid to the lawyers hired by the disputing parties, which may or may not be recovered after the dispute resolution from the losing party.
- Witness management and logistical costs: All costs pertaining to witnesses used by the disputing parties are included in this cost center combined with logistical costs for translation services, food, beverages, photocopying, and courier services.

A plot of the number of cases filed and closed in the past 17 years is shown in Fig. 1 (FINRA 2019), which shows a lagged trend of cases being closed from their respective filing date. Fig. 1 also shows that the arbitration cases that are filed are consistently closed (evident from the peaks and troughs of filed and closed cases) inferring a great success for cases that were arbitrated. About 57% of the total cases were resolved by a direct settlement between parties after arbitration (FINRA 2019).

As previously indicated, it is evident that arbitration is replacing litigation as the norm in the construction industry and even though arbitration could be arguably cheaper than litigation, its rising cost trend raises concerns among the construction industry.

Need for Arbitration Cost Control

Generally, differing opinions about arbitration costs have been observed in statements from senators and the public. Senator Jeff Sessions stated, "Arbitration is one of the most cost-effective means of resolving disputes." Echoing a similar thought, Lewis Maltby of the National Workrights Institute stated that "the greatest strength of arbitration is that the average person can afford it" (Drahozal 2006). In contrast, Joan Claybrook of the Public Citizen stated, "For people who are victims of consumer rip-offs and workplace injustices, arbitration costs much more than litigation; so much more that it becomes impossible to vindicate your rights" (Drahozal 2007). Alleyne (2003) stated that "even when arbitration costs less than litigation, the timing of some required arbitration costs, such as upfront fees for the arbitrator, can make it likely that the arbitration-plaintiff will be unable to proceed in that forum." Drahozal (2006, 2007) tried to make a counter-case for arbitration to have a higher upfront expense as compared to any other dispute resolution measure and agreed that more empirical research is needed on arbitration cost. Drahozal (2007) further clarified that arbitration costs could be higher in most instances due to higher administrative costs and arbitrators' fees, which are highly subsidized in litigation. He also suggested that by entering into a contingent fee contract, the claimants would be able to defer the attorneys' fees and all the upfront costs of arbitration to their lawyer. Arbitration being a private service, is not subsidized as court proceedings, thereby reflecting a need for arbitration cost control (Blumm and Wood 2015). Another reason for controlling the arbitration costs is that the disputing parties pay fees to the arbitrators instead of the government. This is contrary to litigation wherein the

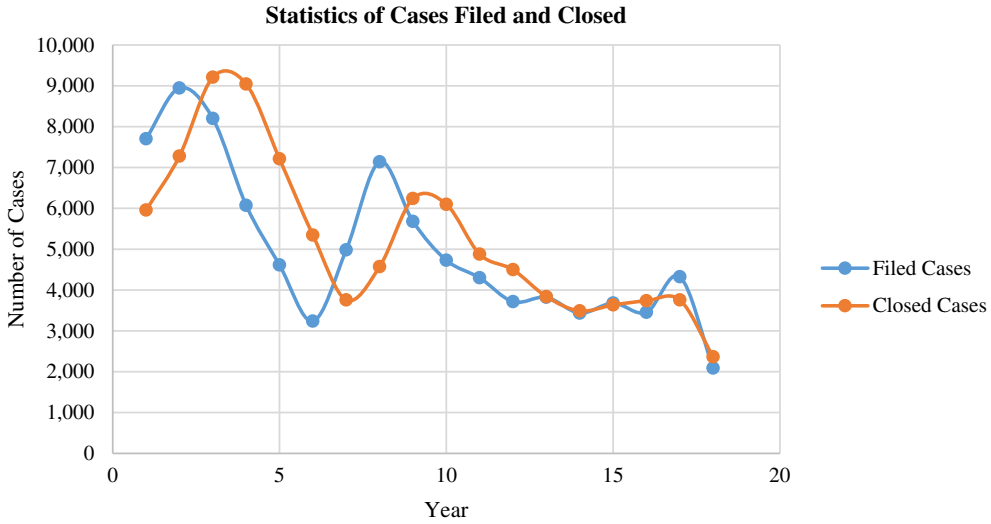

Fig. 1. Statistics of arbitration cases filed and closed. (Data from FINRA 2019.)

parties pay fees to the government (Drahozal 2007). In a survey conducted by Cheung and Suen (2002), the overall duration and relative cost were identified as the most important dispute resolution criteria by 76.9% of the experts, emphasizing the need for arbitration cost control. These higher costs for arbitration could be offset by recovered attorney fees from the losing party (after dispute resolution). Several other strategies are discussed in the next section.

Based on the aforementioned literature, many research studies and professional organizations emphasized the need for arbitration cost control in the construction industry. In many construction arbitration cases, it has been observed that in the absence of a limit on the discovery, the total cost of arbitration becomes at least equal to litigation. Furthermore, the involvement of the American Arbitration Association and the Judicial Arbitration and Mediation Services (JAMS) increases the cost of arbitration (Strickland 2018). McDonald (2019) echoed a similar thought on the continuous increase the construction arbitration costs and the need for arbitration cost control. The past few decades have seen an abnormal increase in the arbitration costs in the construction industry, and being proactive and creative through the arbitration process while working cooperatively amid adversities have been suggested as the key to drive strategies for cost control (Isacoff 2015). Concurrent to this inference, Fuller (2016) observed arbitration costs "getting out of control" in many construction disputes. Therefore, various techniques and suggestions for controlling the arbitration cost are detailed in the next section.

Potential Cost-Mitigation Strategies for Arbitration

The disputing parties could potentially lower the arbitration cost using the following approaches: (1) control the arbitration tribunal size; (2) select arbitral institution having fixed administrative costs for higher cost disputes (instead of the dispute amount driving the administrative costs); (3) opt for an ad hoc arbitration, which eliminates the administrative costs with the caveat of local court intervention that could lead to a delayed dispute resolution; (4) control the number of experts by having a dispute-specific arbitral panel; (5) hire an experienced arbitrator (arbitration lawyer, construction professional, etc.) to facilitate the anticipation of cost escalations; (6) diligently document all processes and preparing reports efficiently; and (7) choose a cost-effective location for all arbitration meetings or using videoconferencing for preliminary hearings and expert witnesses (González et al. 2014). Additionally, according to Rule 49 in AAA (2013), "the AAA may, in event of extreme hardship on the part of any party, defer or reduce the administrative fees" though reserving the "right to deny or grant a request based on the information given by the requesting party." Several cost- and time-controlling protocols, as suggested by Thorpe and Hinchey (2011), are as follows: (1) be deliberate and proactive, (2) control discovery, (3) control motion practice, and (4) and control the schedule. With growing concerns of arbitration cost control, "the International Court of Arbitration formed a task force to evaluate the time and cost impacts of arbitration procedures" (Gebken and Gibson 2006). This task force has been charged with "ensuring proper application of the rules, assisting parties in overcoming obstacles, and introducing innovative tools and procedures for arbitration" among other responsibilities (ICC 2017). Arbitration's mean cost was similar to that of mediation with an added benefit of a binding agreement in arbitration (Gebken and Gibson 2006).

As shown in the literature, the construction industry arbitration cost growth has been a legitimate concern. Therefore, there is a need to identify the reasons behind that cost growth in order to understand the different ways to mitigate and control said cost. Although few literature sources have recommended cost mitigation strategies, experts on this subject matter can provide insight on effective arbitration cost control strategies. Therefore, the current study will answer the following questions:

- What are the reasons for arbitration cost growth?
- What are the most effective strategies to mitigate arbitration cost growth?

Methodology

This study will adopt a mixed research methodology using quantitative descriptive statistics and qualitative content analysis to answer the aforementioned research questions. Moreover, several objectives have been formulated in order to sufficiently collect and analyze the required data to answer the research questions. These objectives can be summarized as follows:

- Identify the current arbitration procedure, its advantages, and its pitfalls.
- Identify the reasons for the growth of arbitration costs.

- Identify and recommend effective cost control strategies, as recommended by industry experts.

The study methodology is further explained in Fig. 2. As shown in Fig. 2, a literature review was conducted to identify the different arbitration cost components, cost growth documented in the current literature, and the overall recommendations by individual experts or institutions, such as the AAA. Accordingly, these components of the literature review have informed the data collection tool in the form of a survey to collect experts' opinions regarding current arbitration performance, pitfalls, and challenges, as well as arbitration cost-control issues. After the data collection process, the data were analyzed using quantitative descriptive analysis and qualitative content analysis to arrive at the research study results.

Data Collection and Analysis

The data collection tool was created in the form of a web-based survey questionnaire in order to address the different research objectives and to arrive at the results that would answer the research questions. The survey was divided into five different sections. The first section recorded the qualifications of the responding experts and collected demographic information of the survey respondents. The second section collected data about current arbitration statistics, including but not limited to the average construction arbitration duration, the favorability of sole arbitrators versus arbitration panels, and the leading causes of arbitration cases. The third section focused on the advantages and disadvantages, or challenges, of arbitration. The fourth section primarily focused on identifying the reasons for growing arbitration costs and the best-practice strategies for arbitration cost control. Most of these questions were quantitative multiple choice, or ordering and ranking questions; however, there were some reasoning follow-up questions that reflected the expert opinions and validation of the proposed responses. The final section was comprised of open-ended questions wherein the experts were able to provide their opinion on general and specific approaches for arbitration cost control and mitigation, such as

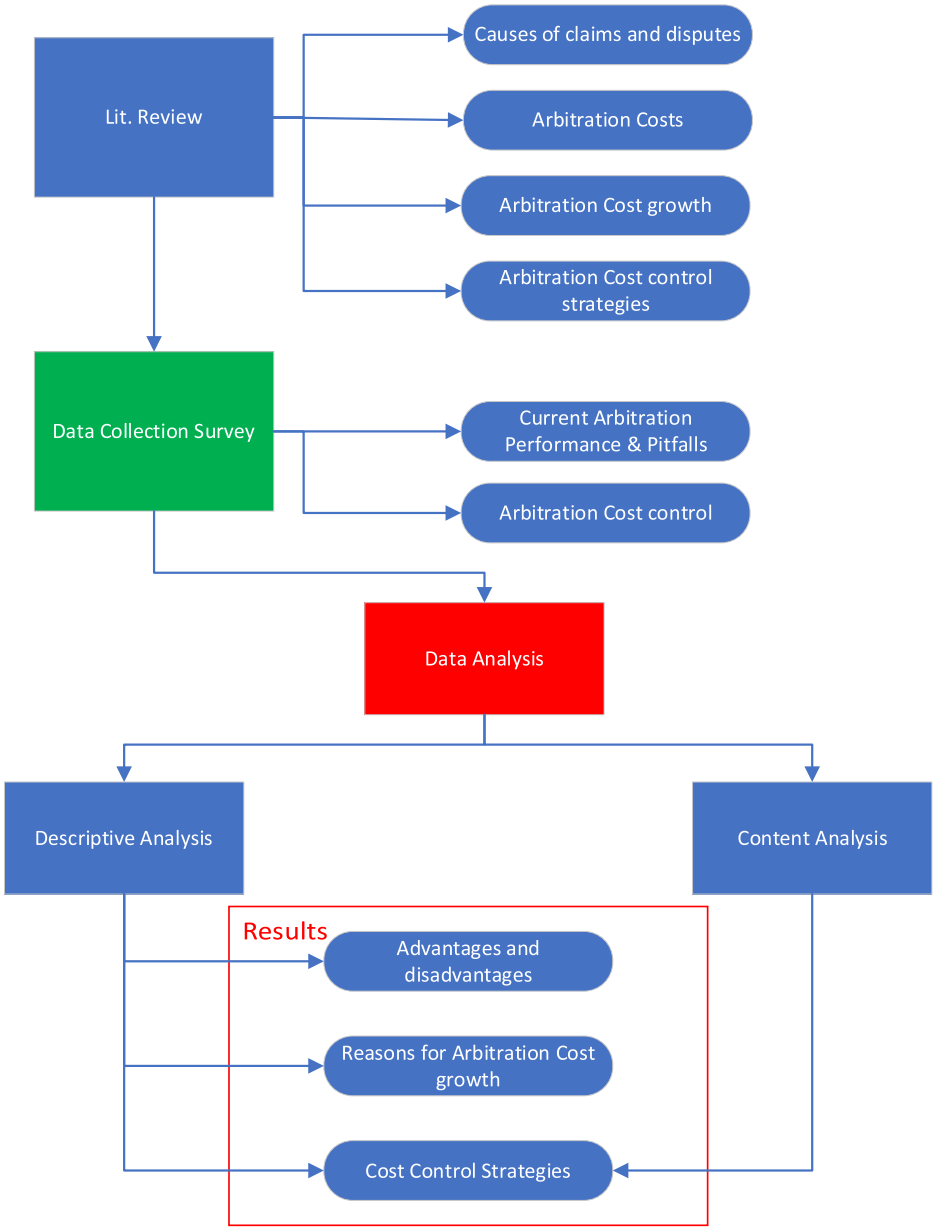

Fig. 2. Research study methodology.

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lowering administrative costs for arbitration, minimizing the involvement of experts and witnesses during the arbitration process, and many others.

Data Analysis and Results

The data analysis used both descriptive quantitative analysis and content analysis. The descriptive analysis was used to understand the data trends, tendencies, variability, and to provide insight into the formulated objectives. The content analysis was primarily conducted to address the open-ended questions in order to detect the general common themes between the experts' qualitative answers to these open-ended questions or the reasoning behind their answers or selections. The descriptive and content analysis was analyzed and reported in this section in the same sequence mentioned in the data collection section in order to match the aforementioned study objectives.

Survey Respondents Overview and Qualifications

Before conducting the survey, the research team qualified the target sample by qualifying only the respondents who had more than 5 years of construction experience, experience in dispute resolution, and experience in several arbitration cases. There were 44 survey respondents who identified their role or job title as managerial. Most respondents were principals, managing partners, and attorneys. Almost half (47%) of the respondents identified the discipline that best described their organizational area of expertise as consultants, while only 9% were contractors, and 3% identified as owners or design firms. The remaining parties (38%) identified as other, e.g., attorneys or individual arbitrators. Note the majority of the qualified respondents were in the consultants' category since they predominantly have more dispute resolution and arbitration experience through their careers based on the nature of their work, especially when compared with other experienced contractors or designers. In terms of experience, none of the respondents had less than 11 years of construction experience, with 90% having more than 20 years, and all of the respondents had experience in both dispute resolution and arbitration.

Arbitration Performance, Advantages, and Disadvantages

Based on the survey response, the results indicated that the average arbitration duration is between 1 and 2 years, with 56.25% of the experts supporting that average duration, while 31.25% thought that 6 to 11 months was the average duration. These findings are strongly supported by the existing literature. For a smaller claim value (usually less than $500,000), the arbitration duration was seen to be less than 16 months, and for larger claims (above $1 million), the arbitration duration was seen to range between 1 to 2 years (AAA 2018; Cahill 2018). Only 12.5% of the respondents supported an average duration of less than 6 months. The respondents were split almost evenly between the favorability of resolving disputes using a sole arbitrator (47%) and using an arbitration panel (53%). Both of the respondents' groups supported their choice with their reasoning behind their opinions, which were analyzed using content analysis. The respondents supporting the sole arbitrator model were mainly referring to the advantages of this method being cheaper and faster compared to an arbitration panel, while the respondents supporting the arbitration panel model argued that most of the time project complexity requires diverse points of view and expertise, which can result in a fairer and less lopsided arbitration decision.

Moreover, the respondents ranked delays as the leading cause behind most of the arbitration cases followed by cost overruns, change orders, and contractual inconsistencies. Hendershot Cowart PC (2020) validates this result through their case study, which concluded that construction delays are the leading cause behind most arbitration cases. The majority of other leading causes were validated by previous studies (Gwyn and Schenck 2017; Hewitt 1991).

As for the advantages and disadvantages of arbitration, the survey results ranked them as shown in Table 1. More arbitration advantages and disadvantages were also analyzed based on the content that the expert respondents shared beyond the choices provided previously. The other advantages listed by the respondents revolved around the ability of the parties to seek, in their arbiters, construction knowledge and expertise. A skillset presence in this judging role provided an improved process over litigation, which would employ a trier of fact with less specific industry knowledge. Another advantage is the ability to craft a process that fits the nature of the disputes and the parties involved. A significant disadvantage listed by the respondents was the inability to appeal arbitration decisions and the frequent failure to grant dispositive motions.

Arbitration Cost Control

As shown in Fig. 3, the survey results showed that lack of cooperation between the disputing parties, mostly in the form of working with arbitrators and each other to develop efficient discovery and hearing protocols (38%), as the major cause of growing arbitration costs, followed by the lack of regulations to control the administration costs (19%), the excess use of experts beyond what is reasonably required (10%), and the private nature of the arbitration as a dispute resolution method (7%). Other reasons (26%) for growing arbitration costs were provided by the respondents and the content was analyzed. Of these other reasons, most of the responses were focused on two themes, the first being costly and overly extensive discovery and hearing durations, and the second was the attorneys' treatment of the arbitration cases in the same manner as litigation procedures, which resulted in a lack of cooperation.

Table 1. Ranking of arbitration advantages and disadvantages

Rank	Advantages	Disadvantages
1	Avoiding specific legal court systems or avoiding litigation altogether	Higher upfront costs
2	Speed	Lack of insight into arbitrator's efficiency
3	Ability to select arbitrators	Delayed verdict due to increasing complexity of cases
4	Cost-effectiveness	Delays due to unavailability of arbitrators
5	Recovery of expenses in awards	Lack of flexibility (e.g., appealing decisions)
6	Confidentiality and privacy	
7	Enforceability of awards	

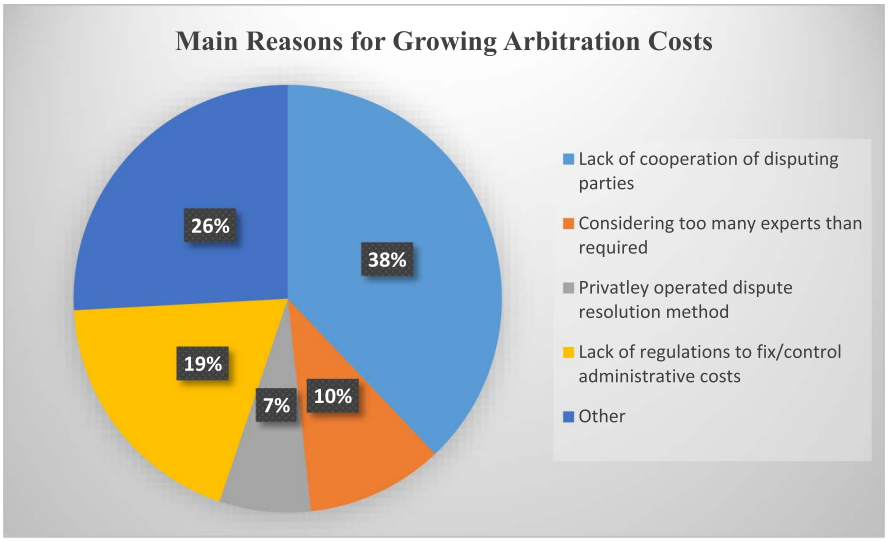

Fig. 3. Main reasons for growing arbitration costs.

Similar to the experts' opinion on the arbitrator makeup (sole versus panel) model, the experts' opinions were split almost evenly regarding the progress payment model as it unrolled through the duration of the arbitration. Survey results indicated that 53% supported the progress payment model, and 47% opposed it. Both of the respondent groups supported their choice qualitatively and their opinions were analyzed utilizing content analysis. The respondents supporting the progress payment model stated that this payment method minimized cash flow impacts, while the other group stated that paying the full upfront costs was effective in encouraging the parties to be more invested in making the arbitration process work.

In terms of the arbitrators' fees, the majority of the respondents (61%) favored fees in the range of 5% to 10% of the dispute amount, while 39% of respondents supported a higher fee of 10%–15% of the dispute amount. Regarding the compensation method for arbitrators, the survey results favored the use of hourly rates (53.5%), followed by progress payments (25%), and lump sum agreements (21.5%).

Finally, the respondents ranked the strategies for arbitration cost control from most cost-efficient to the least cost-efficient, as shown in Table 2.

More content analysis was completed for the open-ended questions that addressed the different ways to control and/or mitigate the arbitration cost. The respondents mainly agreed that the most proactive approaches for decreasing arbitration costs are limiting discovery and hearing time, using strict scheduling with limited deviation allowance, and establishing shared expert procedures. These expert procedures are also referred to as concurrent expert evidence or expert "hot tubbing." Finally, as the discovery and excessive expert use was a prevalent issue, the respondents also recommended, as a cost control procedure, the implementation of clauses in the prebid special provisions of construction contracts that limit the number of experts and witnesses involved in arbitration proceedings.

Table 2. Arbitration cost control strategies ranked from most to the least cost efficient

Rank	Arbitration cost control strategies
1	Controlling the discovery of evidence during the arbitration process—unbounded evidence discovery could lead to delayed verdict
2	Arbitration schedule control
3	Use of electronic documentation throughout the arbitration process
4	Capping the total arbitrator's fee
5	Hourly payments for the arbitrator rather than the conventional mode of lump sum payment
6	Progress payments for the arbitrators rather than the conventional mode of lump sum payment
7	Affordable payment plan for the disputing parties
8	Group interviews of experts and witnesses instead of personal interviews
9	Hiring a lawyer without a retainer by the disputing parties

Conclusion

Although there have been numerous dispute resolution methods including mediation and dispute resolution boards (DRBs), arbitration is still one of the most common binding dispute resolution methods as a direct substitute for litigation. This study intended to investigate (1) the advantages and disadvantages of arbitration; (2) the reasons for arbitration cost growth; and (3) more importantly, the most effective strategies to mitigate arbitration cost growth. The data were collected using a web-based survey questionnaire that was distributed and collected from dispute resolution and arbitration experts.

Advantages and Disadvantages of Arbitration

The study identified, affirmed, and ranked the advantages and disadvantages of arbitration, with a major highlight on the viability of arbitration as a better alternative to litigation. Arbitration allows the choosing of a trier(s) of fact who possesses judging expertise from a technical as well as a legal point of view. This method often facilitates the matter's conclusion in a more reasonable time frame. The study highlighted the primary disadvantages of higher, and increasing, upfront costs, and the inability to appeal binding decisions if a party deems the decision as unfair. Although it has its own disadvantages, arbitration remains a great substitute to litigation in most cases as it provides agreed upon expertise for dispute resolution. Therefore, parties should assess the risks of arbitration provision in contracts in order to mitigate some of these disadvantages and capitalize on its benefits.

Reasons for Arbitration Cost Growth

Second, the study ranked and analyzed the different reasons behind arbitration cost growth. The primary reason stated by respondents was focused on the lack of cooperation between the disputing parties due to legal counsels' handling of the process in a similar fashion to that of a litigation court case. This naturally resulted in extensive and unreasonable discovery and hearing times, which in turn increased the costs of the arbitration process as well as the administrative costs. Therefore, the parties in conflict have to cooperatively work with arbitrators to develop efficient discovery and hearing protocols before the arbitration proceedings in order to proactively mitigate the cost of arbitration.

Effective Strategies for Cost Control

Although this study identified and ranked several arbitration cost-control strategies, the majority of the experts stated that shortening the discovery process and the minimizing the number of expert witnesses were the two most effective means of reducing arbitration costs. As a result, it was highly recommended to contractually include prebid special provisions that limit the number of experts and witnesses involved in the process, and to establish a strict scheduling basis for the overall process. Note that these provisions aim to limit the number of experts and should not be interpreted as setting a general threshold on the experts since the project dispute scope and size can greatly vary between the different projects. From the results, we deduce that effective arbitration cost control starts prebid, and continues through the dispositions and into the hearing process. In addition to the aforementioned prebid special provisions, the parties should be reasonably limited in the number and length of dispositions without proof of "extraordinary circumstances" as defined by the AAA. Moreover, expert dispositions should be only permitted when the facts are hard to verify from written communication or work products, both of which are far less expensive alternatives. Experts also should be used to target complex aspects of the dispute within the scope of the project dispute. Finally, during the hearing process the resolution of order of proof should be enforced in the arbitration process, where the parties have to provide the proposed order of parties and order of witnesses within a reasonable time period in order to effectively manage the discovery time and its associated expenses; this can be one of the most expensive components of the arbitration process according to the study results.

Note that although this study supplements the body of knowledge by achieving all these objectives, more empirical studies are needed in the future to validate these results across a bigger sample size, which is challenging since this area of research requires highly qualified expert personnel, which limits the sample size pool. Moreover, quantitative studies that can accurately measure the cost increasing increments due to the identified reasons behind the arbitration cost growth can help in the cost control mitigation process. Finally, more case studies should be conducted while implementing these recommended cost-control strategies to gauge their effectiveness on a single and aggregate project basis across different project delivery systems or within different contractual contexts.

Data Availability Statement

All data, models, or code that support the findings of this study are available from the corresponding author upon reasonable request.

Acknowledgments

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References

List of Cases

Diamond Waterproofing Systems, v. 55 Liberty Owners Corp. (2005). https://case-law.vlex.com/vid/4-n-3d-247-627591539.

Tong v. S.A.C. Capital Management, LLC (2008). https://www.leagle.com/decision/200843852ad3d3862236.

Carlton Hobbs Real Estate, LLC v Sweeney & Conroy, Inc. (2007). https://law.justia.com/cases/new-york/appellate-division-first-department/2007/2007-05322.html.

People v Coventry First LLC (2009). https://law.justia.com/cases/new-york/court-of-appeals/2009/2009-05368.html

Prinze v Jonas (1976). https://law.justia.com/cases/new-york/court-of-appeals/1976/38-n-y-2d-570-2.html.

Angrisani v. Financial Technology Ventures (2008). https://caselaw.findlaw.com/nj-superior-court-appellate-division/1457430.html.

Alfano v BDO Seidman LLP (2007). https://caselaw.findlaw.com/nj-superior-court-appellate-division/1363513.html.

AVR Davis Raleigh, LLC v. Triangle Constr. Co., Inc. (2018). https://www.nccourts.gov/documents/appellate-court-opinions/avr-davis-raleigh-llc-v-triangle-constr-co-inc.

Matrix N. Am. Constr., Inc. v. SNC Lavalin Constructors, Inc. (2018). https://casetext.com/case/matrix-n-am-constr-inc-v-snc-lavalin-constructors-inc.

Pinnacle Museum Tower Association v. Pinnacle Market Development Us LLC (2012). https://caselaw.findlaw.com/ca-supreme-court/1609518.html.

Works Cited

AAA (American Arbitration Association). 2013. "Commercial arbitration rules and mediation procedures (including procedures for large, complex commercial disputes)." Accessed August 13, 2019. https://www.adr.org/sites/default/files/Commercial%20Arbitration%20Rules%20and%20Mediation%20Procedures%20Oct%20.21%2C%202011.pdf.

AAA (American Arbitration Association). 2018. "The plans aren't drawn as you may think: Debunking 6 myths about construction arbitration." Accessed June 13, 2019. https://www.adr.org/sites/default/files/document_repository/Debunking%206%20Myths%20about%20Construction%20Arbitration.pdf.

AAA (American Arbitration Association). 2019. "Costs of arbitration." Accessed October 13, 2019. https://www.adr.org/sites/default/files/document_repository/AAA228_Costs_of_Arbitration.pdf.

ABA (American Bar Association). 2019. "Arbitration." Accessed October 13, 2019. https://www.americanbar.org/groups/dispute_resolution/resources/disputeresolutionprocesses/arbitration/.

Alleyne, R. 2003. "Arbitrators' fees: The dagger in the heart of mandatory arbitration for statutory discrimination claims." *Penn Law J.* 6 (1): 1.

ARCADIS. 2017. "Global construction disputes report 2017." Accessed August 13, 2019. https://images.arcadis.com/media/D/B/0/%7BDB0605C1-66EE-4648-A6F1-7451A34A881E%7DGlobal%20Construction%20Disputes2017-Online.pdf?_ga=2.50163302.1140975172.1521226570-1138402966.1520955598.

ARCADIS. 2020. "Global construction disputes report." Accessed June 10, 2021. file:///C:/Users/skumar15/Downloads/ME%20Global%20Construction%20Disputes%20Report%202020.pdf.

Berardo, J., and J. Clemens. 2011. "Binding or not: Arbitration clauses in construction contracts." Accessed October 13, 2019. http://clmmag.theclm.org/home/article/Arbitration-Clauses-in-Construction-Contracts.

Blumm, M. C., and M. C. Wood. 2015. "Preface and Chap. 2: The foundation cases." In *The public trust doctrine in environmental and natural resources law*. 2nd ed. Durham, NC: Carolina Academic Press.

Budde, N. 2019. "Collections, arbitration, or litigation? How to resolve construction payment disputes." Accessed October 15, 2019. https://www.levelset.com/blog/collections-arbitration-or-litigation-how-to-resolve-construction-payment-disputes/.
Cahill, G. J. 2018. "Benefits (and detriments) of construction arbitration." Accessed June 10, 20211. http://constructionexec.com/article/benefits-and-detriments-of-construction-arbitration#:~:text=An%20eight%20to%2010%20day,as%20six%20to%2012%20months.
California Courts. 2019. "ADR types and benefits." Accessed July 31, 2019. https://www.courts.ca.gov/3074.htm.
Chau, K.-W. 1992. "Resolving construction disputes by mediation: Hong Kong experience." *J. Manage. Eng.* 8 (4): 384–393. https://doi.org/10.1061/(ASCE)9742-597X(1992)8:4(384).
Cheung, S.-O. 1999. "Critical factors affecting the use of alternative dispute resolution processes in construction." *Int. J. Project Manage.* 17 (3): 189–194. https://doi.org/10.1016/S0263-7863(98)00027-1.
Cheung, S.-O., and H. C. Suen. 2002. "A multi-attribute utility model for dispute resolution strategy selection." *Construct. Manage. Econ.* 20 (7): 557–568. https://doi.org/10.1080/01446190210157568.
Cornell Law School. 2019. "Litigation." Accessed October 13, 2019. https://www.law.cornell.edu/wex/litigation#targetText=Overview,through%20the%20public%20court%20system.&targetText=These%20are%20supplemented%20by%20the,the%20standing%20orders%20of%20judges.
Cotney, T. 2019. "The pros and cons of arbitration." Accessed June 4, 2021. https://www.cotneycl.com/the-pros-and-cons-of-arbitration/.
Drahozal, C. R. 2006. "Arbitration costs and contingent fee contracts." *Vanderbilt Law Rev.* 59 (3): 727.
Drahozal, C. R. 2007. "Arbitration costs and form accessibility: Empirical evidence." *Univ. Michigan J. Law Reform* 41 (4): 813.
Esmaili, T., and K. Gilkis. 2017. *Alternative dispute resolution*. Ithaca, NY: Legal Information Institute.
FIDIC (Fédération Internationale des Ingénieurs-Conseils). 2017. *EPC/Turnkey contract (2017 Silver Book)*. 2nd ed. Geneva: World Trade Center II.
FINRA (Financial Industry Regulatory Authority). 2019. "Dispute resolution statistics." Accessed October 13, 2019. https://www.finra.org/arbitration-mediation/dispute-resolution-statistics.
Fuller, M. 2016. "A more streamlined, cost-effective, tightly managed arbitration procedure? The 2015 amendments to the AAA construction arbitration rules." Accessed July 22, 2019. https://www.louisianalawblog.com/construction-law/a-more-streamlined-cost-effective-tightly-managed-arbitration-procedure-the-2015-amendments-to-the-aaa-construction-arbitration-rules/.
Gebken, R. J., and G. E. Gibson. 2006. "Quantification of costs for dispute resolution procedures in the construction industry." *J. Civ. Eng. Educ.* 132 (3): 264–271https://ascelibrary.org/doi/pdf/10.1061/(ASCE)1052-3928(2006)132%3A3(264).
Goldberg, S. B., F. E. Sander, N. H. Rogers, and S. R. Cole. 2014. *Dispute resolution: Negotiation, mediation and other processes*. New York: Wolters Kluwer Law & Business.
González, D., M. C. Carmona, and R. Potts. 2014. "Controlling the rising costs of arbitration." Accessed October 13, 2019. https://www.financierworldwide.com/controlling-the-rising-costs-of-arbitration#.XXuxCihKguU.
GPO (US Government Publishing Office) 2012. "United States Code, 2006 Edition, Supplement 5, Title 9: Arbitration." Accessed June 10, 2019. https://www.govinfo.gov/app/details/USCODE-2011-title9/USCODE-2011-title9-chap1-sec2/summary.
Gwyn, A. H., and C. G. Schenck. 2017. "Arbitration of construction disputes." Accessed October 13, 2019. https://www.ccarbitrators.org/wp-content/uploads/2021/05/Construction-Disputes.pdf.
Hendershot Cowart PC. 2020. "Case study: Construction delay arbitration." Accessed June 10, 2021. https://www.hchlawyers.com/blog/2020/september/case-study-construction-delay-arbitration/.
Hewitt, R. 1991. *Winning contract disputes: Strategic planning for major litigation*. London: Ernst & Young.
ICC (International Chamber of Commerce). 2017. "ICC international court of arbitration." Accessed June 4, 2021. https://iccwbo.org/dispute-resolution-services/icc-international-court-arbitration/.
Isacoff, A. L. 2015. "How to keep construction arbitration economical and efficient." Accessed July 22, 2021. https://www.lorman.com/resources/how-to-keep-construction-arbitration-economical-and-efficient-16008.
JD Supra. 2018. "Courts favor arbitration in two recent construction dispute cases." Accessed October 3, 2019. https://www.jdsupra.com/legalnews/courts-favor-arbitration-in-two-recent-40810/.
Kansas Bar Association. 2019. "Methods of dispute resolution." Accessed August 1, 2019. https://www.ksbar.org/page/settle_dispute.
Martin, C. 2012. "Costs of arbitration and the options for controlling those costs." *DePaul Bus. Commer. Law J.* 11 (4): 471.
McDonald, P. 2019. "Controlling the costs of construction arbitration." Accessed July 22, 2019. https://www.pinsentmasons.com/out-law/analysis/controlling-the-costs-of-construction-arbitration.
Mix, D. M. 1996. "ADR in the construction industry: Continuing the development of a more efficient dispute resolution mechanism." *Ohio State J. Disp. Resolut.* 12 (2): 463.
Nolo. 2019. "When arbitration is appropriate?" Accessed August 12, 2019. https://www.lawfirms.com/resources/lawsuits-and-disputes/arbitration/when-arbitration-appropriate.htm.
Pitofsky, R. 1969. "Arbitration and antitrust enforcement." *NYUL Rev.* 44 (1): 1072.
Sameer, S., R. Magar, and F. Parkar. 2016. "Claims and disputes in construction projects." *Int. J. Res. Appl. Sci. Eng. Technol.* 4 (11): 251–257.
Schultz, T. 2002. "Online arbitration: Binding or non-binding?" Accessed June 12, 2002. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=898622.
Shimabukuro, J., and J. Staman. 2017. "Mandatory arbitration and the federal arbitration act." Accessed October 3, 2019. https://fas.org/sgp/crs/misc/R44960.pdf.
Strickland, J. 2018. "Construction arbitration: The pros and cons." Accessed July 22, 2021. https://www.wardandsmith.com/articles/construction-arbitration-vs-lawsuits.
Thorpe, R., and J. Hinchey. 2011. "Controlling time and cost in arbitration." Accessed October 3, 2019. https://www.jamsadr.com/pdf-viewer.aspx?pdf=/files/uploads/documents/articles/daily_report-adr-thorpe_hinchey-1-11.pdf.
Tinnelly, S. 2012. "Arbitration provisions rise again in construction defect disputes." Accessed October 3, 2019. https://hoalaw.tinnellylaw.com/arbitration-provisions-rise-ag/.
Wolf Slatkin & Madison PC. 2019. "Arbitration of construction disputes." Accessed October 9, 2019. http://www.wolfslatkin.com/Construction-Law-Briefs/Arbitration-of-Construction-Disputes.shtml.