

# Operational Mechanisms and Effectiveness of Adjudication as a Key Step in Construction Dispute Resolution

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**Abstract:** Construction contract conditions that address the administration of claims and disputes are nowadays expected to be designed following a multistep approach. Adjudication, among other alternative dispute resolution (ADR) methods, has long been used as a step in the mechanisms stipulated in three widely used standard contract forms: the Joint Contracts Tribunal, the New Engineering Contract, and the International Federation of Consulting Engineers. The objectives of this paper were (1) examining the operational stipulations adopted for the incorporation of this ADR method in each of these forms and (2) investigating the factors and trends that have been governing the implementation of adjudication in practice. The research methodology includes a thorough comparative review of adjudication's requirements and conditions prescribed in the standard contract forms. It further involved carrying out an analysis of historical data dealing with adjudication in the United Kingdom over the last two decades. The collected data, available in the form of annual reports were published initially by the UK-wide Adjudication Reporting Centre (ARC) at Glasgow Caledonian University (starting in 1999) and later by the Adjudication Society (starting in 2012). The structuring and analysis of these data (inclusive of those furnished in the 2017 annual report) allowed for meaningful inferences as to the practices and outcomes of adjudication during the last 20 years. The findings revealed several indications supporting the acceptance and effectiveness of this ADR technique. To this end, major trends, as well as shifts, were either deduced or clearly highlighted. These were in relation to a number of operational factors, including the membership of adjudication boards, the timing of referral to adjudication, the procedures and steps followed in conducting the adjudication proceedings, and the like. **DOI:** [10.1061/\(ASCE\)LA.1943-4170.0000365](https://doi.org/10.1061/(ASCE)LA.1943-4170.0000365). © 2019 American Society of Civil Engineers.

## Introduction

Despite the emergence of dispute avoidance mechanisms in construction contracts over the years, disputes continue to be inevitable on projects worldwide. Effective management policies related to staffing, quality assurance, and assignment of duties that separate design from contract administration can be effective in decreasing the likelihood of disputes but not in fully eliminating them (Cheung and Yiu 2006). Disputes generally emanate from claims. On the one hand, a claim can be defined as a demand made in accordance with the executed contract to seek a time extension, an extra payment, or any remedy or adjustment in connection with an event occurring during the contract life cycle (Levin 1998). On the other hand, a dispute can be viewed as a more complex situation involving disagreements that surface over the claimant's eligibility for raising such a claim and the quantum of alleged entitlements. Such disagreements can be in connection with acknowledgement of the event allegedly triggering the claim, claim notice validity,

assessment of the event's impacts, and quantification of fair entitlements. Among the numerous steps involved, the claim notice is considered the gateway that allows further proper steps to take place, ideally materializing into an assessment or determination on the matter in question by the initial decision maker (Mewing 2014). Failure to follow the contractual notice requirements may increase the risk of the claim being denied even without looking at its merits (Miletsky 2001). Under certain contract conditions, this notice is stipulated to indeed function as a condition precedent to the establishment of the right to claim (Abdul-Malak and Khalife 2017a; Al Qady et al. 2013). Similar condition precedent requirements are found in construction contract clauses; these set time frames for some actions to be exercised before the right to perform other actions can be established (Lim 2012). Conversely, other contract provisions lack explicit time frames for notices and other actions, and expressions such as "as soon as practicable" or "promptly" are used instead (Abdul-Malak and Khalife 2017b). As the parties may have different interpretations for such qualitative time frames, disagreements may arise as a result (Harris 2018).

Dissatisfaction with the assessment or decision given by the contract's assigned initial decision maker (architect, engineer, contract administrator, or project manager) regarding a claim allows involvement of the claim into a dispute. Referring disputes to formal dispute resolution venues, such as litigation or arbitration, was the norm for decades in the construction industry. However, in reaction to the high costs involved, in terms of both time and money, practices nowadays call for the incorporation of alternative resolution mechanisms that involve a neutral third party, such as mediation and dispute boards (Haugen and Singh 2015).

Mediation is an alternative dispute resolution method that allows disputants to build an enforceable agreement with the help of a neutral third party, the mediator. During mediation sessions, the

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mediator attempts to provide an atmosphere of trust between the parties while tackling the core matter in dispute, in order to achieve agreement using an advanced integrative approach (Senan et al. 2018). Such agreement, if reached and signed, becomes legally binding and compliance can be enforced (Twomey 2006). On the other hand, dispute boards are an alternative dispute resolution technique in which the dispute is referred to either a single neutral third party or an impartial three-member panel. In the case of a panel, the owner and contractor each assign a neutral member, and the two jointly choose the third to act as the board's chairperson. While dispute boards usually follow contract signing, they can be introduced any time in the contract's life span. However, many advantages are proclaimed for engaging the dispute board from the outset owing to the familiarity gained with the project and events taking place during the course of construction (Harmon 2011). In such early appointments, dispute board members conduct site visits and attend meetings in order to facilitate communication between project participants, minimize disagreements, and resolve any dispute in its early stages. This proactive system causes dispute boards to be viewed also as dispute avoidance techniques (Gerber and Ong 2010). The dispute review board (DRB) and the dispute adjudication board (DAB) are the two variants of dispute boards, and they share similar characteristics and procedures. That is, when a dispute is referred to the dispute board, the board arranges for hearings and the submission of statements by the parties. It issues a fair conclusion, which can be in the form of a nonbinding recommendation in the case of a DRB or a binding decision in the case of a DAB (Agdas and Ellis 2013). While the DRB's nonbinding recommendation is used by both parties to gain a sense of what the outcome of arbitration would be, the decision taken by the DAB is considered binding and can become final if neither party expresses dissatisfaction with it. A notice of dissatisfaction, if and when duly served, is usually associated with the intention to escalate the matter to arbitration or litigation. If no such notice is issued, either party can enforce the decision in court based solely on the fact of the decision and without the need to prove the underlying dispute (Marshall 2012).

## Research Scope and Methodology

As discussed previously, adjudication is an alternative dispute resolution technique that is founded on the expertise, good judgment, and fairness of a neutral third-party adjudicator or a panel of adjudicators. Such a process results in a binding decision, which presents the parties with a real opportunity for closure. Closure becomes effective upon either party opting not to express dissatisfaction with the decision within a stipulated time bar, thereby making the decision not only binding but also final. Given this context, the work presented in this paper aimed at (1) examining the operational stipulations adopted for the incorporation of this ADR method in three standard forms of contract: the Joint Contracts Tribunal (hereafter JCT 05), the New Engineering Contract (hereafter NEC3), and the International Federation of Consulting Engineers (hereafter FIDIC), and (2) investigating the factors and trends that have been governing adjudication in practice. The research methodology can be summarized as follows:

1. Conducting a thorough review of the literature focusing on disputes in the construction industry in general and the use of adjudication in dispute resolution in particular;
2. Examining adjudication requirements and stipulations that are prescribed in the three standard contract forms;
3. Carrying out an analysis of historical data dealing with adjudication in the United Kingdom over the last two decades; and

4. Concluding the work with a brief summary of the findings and recommendations.

## Adjudication in Standard Forms of Contract

The presence of a contract between the parties involved in a construction project is essential in order that the rights, responsibilities, duties, obligations, and liabilities are clarified and described. Of the main rights that may be specified in dispute resolution, one is related to the eligibility of either party to refer a matter in dispute to adjudication. To this effect, the FIDIC, NEC3, and JCT 05 forms of standard construction contract use adjudication as an alternative dispute resolution technique before unresolved disputes may be referred to arbitration. While the FIDIC form of contract has gained acceptance worldwide, the other two forms are known to be widely adopted in the United Kingdom, Hong Kong, and Asia Pacific regions.

A dispute needs to exist before an ADR technique is triggered (Dancaster 2008). The FIDIC, NEC3, and JCT 05 standard forms of contract specify different time bars that govern notice, substantiation, and referral requirements pertaining to claims and disputes (Barakat et al. 2018). All three forms require judgment by an initial decision maker (Barakat et al. 2018). They further prescribe that dissatisfaction with the issued decision be subsequently expressed by one of the parties before the matter can be referred to adjudication as a dispute (Barakat et al. 2018). The adjudicator or adjudication board can be named in the contract at the time of contract signature, nominated by the parties after the dispute event, or nominated by an adjudication nominating body (Kennedy 2008).

### Dispute Resolution in the FIDIC Contract Form

The newest edition of the *FIDIC Conditions of Contract for Construction*, also known as the *FIDIC Red Book*, was published in late 2017 (FIDIC 2017). Clause 20, "Employer's and Contractor's Claims," focuses on claims submitted by either of the contracting parties covering the events giving rise to a claim, notice and particulars requirements, and consultation and determination by the engineer. If one of the parties expresses dissatisfaction with a determination, the claim evolves into a dispute and can subsequently be referred to the Dispute Avoidance and Adjudication Board (DAAB), in accordance with Clause 21, "Disputes and Arbitration."

#### Claims in Clause 20

A claim may arise if one of the parties is entitled to money (an additional payment for the contractor or a reduction in the contract price for the employer) or an extension of time (an extension of the construction duration for the contractor or an extension of the defects notification period for the employer). The clause clearly states that the claiming party shall send a notice of claim within 28 days of becoming aware of the event giving rise to the claim, the failure of which discharges the other party from any liability in connection with the raised claim. As can be seen in Fig. 1, the engineer, under these new conditions, is expected to issue a notice (accompanied by reasons) within 14 days of receiving the notice of claim if he or she considers that the notice has not been duly served. Supporting documents required include what helps establish eligibility for the raised claim, on a contractual and/or legal basis, along with a sound quantification of the requested entitlement(s)—similar to a great extent to the requirements of the earlier version of these conditions (Abdul-Malak and Abdulhai 2017; FIDIC 1999). The fully detailed claim is submitted within 84 days of the concerned event, specifically incorporating the contractual and/or legal basis of the claim.

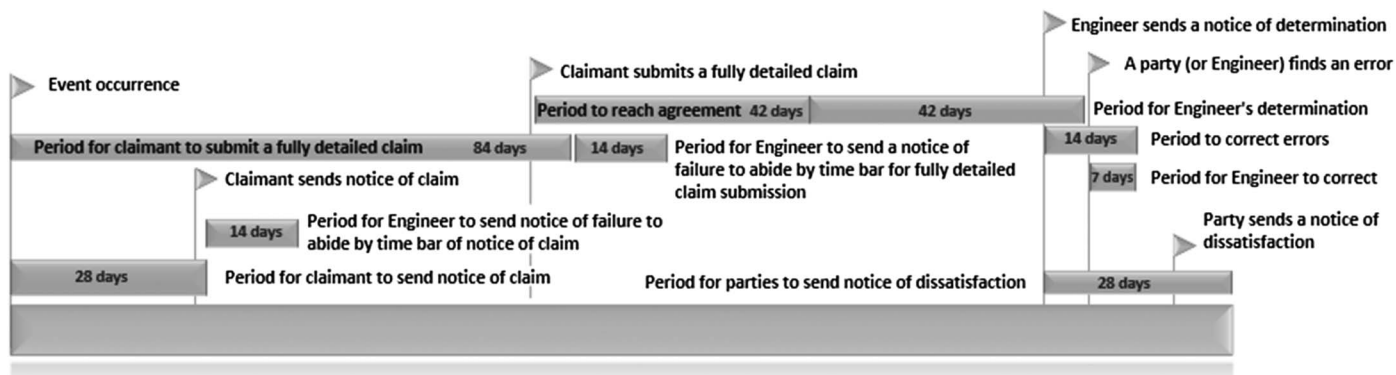


Fig. 1. Claim timeline in the 2017 FIDIC contract form. (Data from FIDIC 2017.)

Failure to satisfy this requirement causes the engineer to issue a notice within 14 days of expiration of the 84-day period, considering the notice of claim to have lapsed and no longer valid.

The engineer, according to the roles specified in Subclause 3.7, consults with both parties in an attempt to reach agreement. If no agreement is reached within 42 days of receiving a fully detailed claim, or if both parties advise the engineer that no agreement will be reached, the engineer is then required to give, within 42 days, a fair determination of the claimed entitlement(s). The parties and the engineer have 14 days to correct a typographical, clerical, or arithmetic error. The engineer is required to send a notice of correction to both parties within 7 days of finding the error, stating the corrected agreement or determination or refusing the correction.

If a party is dissatisfied with the binding determination of the engineer, that party sends a notice of dissatisfaction to the other party and the engineer, accompanied by the reasons underlying it. This notice must be sent within 28 days of receiving the engineer's determination. According to Subclause 3.7.5, the dissatisfaction notice may be issued in connection with only parts of an issued determination, rendering the remaining parts final and binding. If the engineer fails to send a notice of determination within 42 days (or any other agreed time frame), the claim is taken to have been rejected and the dispute can then be referred to the DAAB without a notice of dissatisfaction from the concerned party.

### Disputes in Clause 21

Following referral of the dispute, as explained in the previous subsection, the DAAB is required to issue a binding decision on the matter. The 2017 release of the *FIDIC Red Book* requires the DAAB members (or sole member) to be appointed within 28 days of the contractor's receipt of the letter of acceptance (unless another period is stated in the contract). If the parties do not agree on a sole

DAAB member, and the nomination of this member is not stated in the contract, the DAAB will then comprise three members. Each party chooses a member, and the chosen members agree on the third, who acts as the chairperson. Upon failing to appoint board member(s), or a member replacing a resigned board member, the appointing entity named in the contract, and in consultation with the parties, appoints the member(s). The term of the board, according to Subclause 20.1, expires upon project discharge or within 28 days of issuing a decision on the last dispute, whichever is later. The parties may ask the DAAB to be present at all discussions, site visits, and informal meetings in order to help them settle any issue or disagreement before it evolves into a dispute. This dispute avoidance mechanism can be initiated at any time other than when the engineer is performing in accordance with Subclause 3.7 in preparation for issuing a determination.

As shown in Fig. 2, the referral of a case to the DAAB is to be made within 42 days of issuance of the notice of dissatisfaction with a determination by the engineer, failure of which results in the notice being taken to have lapsed and no longer valid. The parties are required to make all related reports, documents, and sites accessible to the DAAB members. The DAAB must issue a decision within 84 days of receipt of a referred case. The written decision is given to the parties and the engineer, with supporting reasoning. Failure to issue a decision within this period is cause for a notice of dissatisfaction issued by either party. On the other hand, if either party is dissatisfied with a DAAB decision, a notice to that effect must be issued within 28 days of the date of the decision. As with a determination issued by the engineer, the concerned party may be dissatisfied only with parts of a DAAB decision, which makes the remaining parts binding and final upon expiration of the 28-day period. In any case, the notice must state the reasons for the expressed dissatisfaction.

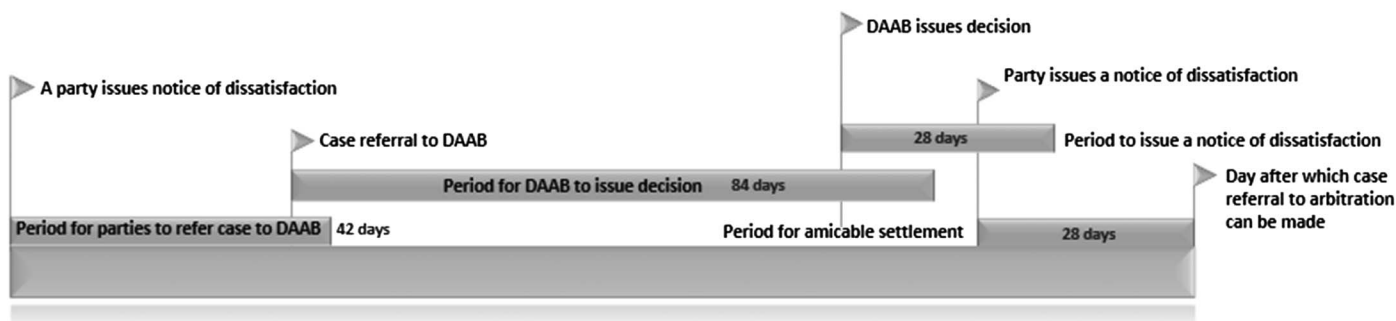


Fig. 2. Dispute timeline in the 2017 FIDIC contract form. (Data from FIDIC 2017.)

After the issuance of a notice of dissatisfaction by either party, the parties are allowed 28 days to attempt amicable settlement, which period can be extended upon the parties' mutual agreement. However, if amicable settlement is not achieved, arbitration can be commenced on or after the 28th day. A party may also refer to arbitration the failure (by the other party) to abide by either a binding DAAB's decision or a DAAB's decision that has turned final in the absence of a dissatisfaction notice.

### Dispute Resolution in the NEC3 Contract Form

The first NEC3 contract was introduced in 1993. In preparation for this release, its drafters opted for simplicity, clarity, and conciseness, as complex and lengthy contracts were thought of as a source of conflict (Thompson et al. 2000). Thus, the roles and responsibilities of the parties were set with the least possible number of words per sentence (ICE 1991). Love et al. (2010) argued that the main issue with traditional contracts was the uncertainties arising from amendments and complex language. The NEC3 contract drafters aimed to produce a clear and flexible contract that would motivate participants to implement effective project management (Murphy et al. 2014).

The NEC3 contract gives the project participants two options for dispute resolution through adjudication: W1 and W2 (NEC 2013). Option W1 can be used on all projects except those falling under the provisions of the UK 1996 Housing Grants, Construction and Regeneration Act, for which Option W2 is provided.

#### Steps Preceding Adjudication

The incorporation in the NEC3 contract of a core clause that identifies and allocates different project risks among the participants (i.e., the eighth core clause) allows the parties to prepare procedures and approaches to mitigate the impacts of such risks. When an issue arises from one of these risks, the NEC3 contract's early notices and warning system (EWS) guides the parties on dealing with it in order to minimize its consequences and decrease the potential of the conflict escalating to a dispute. The EWS urges the parties to hold frequent collaborative on-site meetings in order to reduce risks and manage disputes effectively (Gould 2006). When achieving agreement is not possible through collaborative discussions, the NEC3 contract calls on the project manager or supervisor to issue a fair and rational decision on the matter. A party dissatisfied with a decision can then refer the matter to an adjudicator or adjudication board, which can revise any action or inaction by the project manager.

#### Option W1

Under Option W1, the claimant issues two condition-precedent notices in order to have the right to refer the matter to adjudication, as depicted in Fig. 3. The first is the notice of a dispute, to be sent four weeks from the date the claimant becomes aware of the project manager's action or inaction. The parties are then allowed two weeks to settle the dispute amicably. After the two weeks elapse, another two weeks is prescribed within which the claimant is to issue the second notice, that of referral to adjudication.

If the adjudicator is not named in the contract and the parties request such an appointment from an adjudication nominating body (ANB), the ANB appoints the adjudicator within four days of the date of the request. The parties then have four weeks to submit the case's particulars and copies of supporting documents to the adjudicator. The adjudicator must issue a binding decision within four weeks and may correct any clerical mistake or remove any ambiguity within two weeks of the date of issuance. Any party dissatisfied with the adjudicator's decision can submit to the other party and the adjudicator a notice of referral of the dispute to a tribunal within four weeks of the decision's issuance. The expiration of this four-week period without a dissatisfaction notice being served renders the decision final and binding. These stipulated time bars can be extended if so consented to by the parties and the adjudicator. The parties cannot refer the dispute to a tribunal unless an adjudicator issues a decision on the matter or the stipulated time for issuing a decision elapses without a decision from the adjudicator. The properly constituted tribunal has the power to settle the dispute and reconsider any decision issued by the adjudicator. However, a party cannot call on the adjudicator to serve as a witness in subsequent arbitration proceedings.

#### Option W2

Under Option W2, the parties can refer the dispute to adjudication at any time. The time bars are stated in days that exclude national holidays. As illustrated in Fig. 4, after issuing the notice of adjudication, the concerned party must refer the case to adjudication within 7 days of the notice's issuance, including all the information deemed pertinent. Any further information can be sent within 14 days of case referral. The adjudicator then has 28 days to decide the matter. The 2011 amendments to the NEC3 contract state that, if the decision of the adjudicator is to revise the amount due, payment of the revised amount is to be made not later than 7 days from the date of the adjudicator's decision or the final date for payment of the notified amount (whichever comes later). The period within which the adjudicator can correct any clerical mistake was reduced

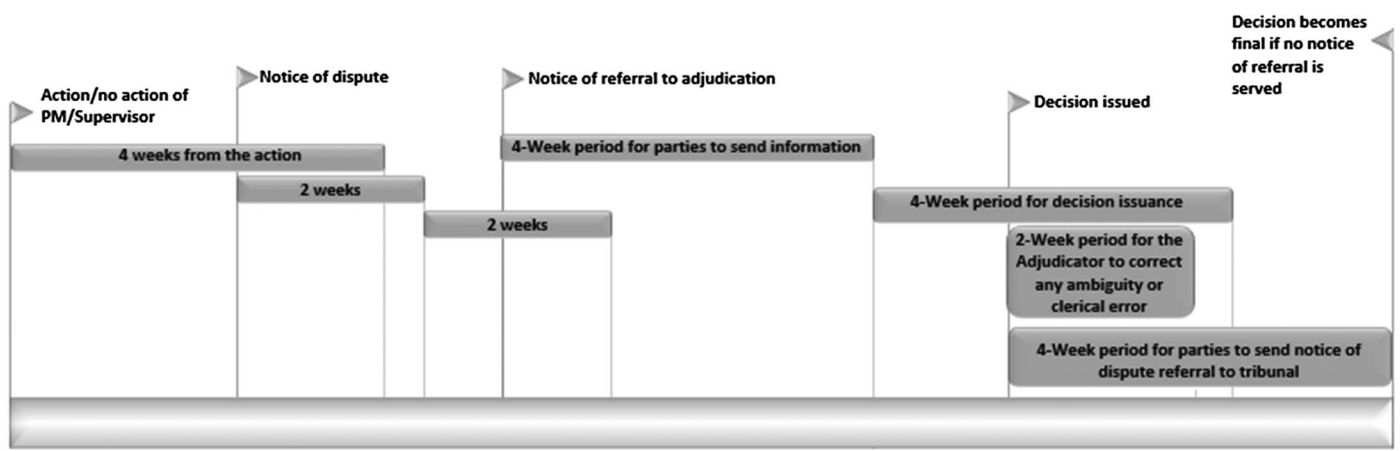


Fig. 3. Timeline for adjudication in the NEC3 contract form: Option W1. (Data from NEC 2013.)

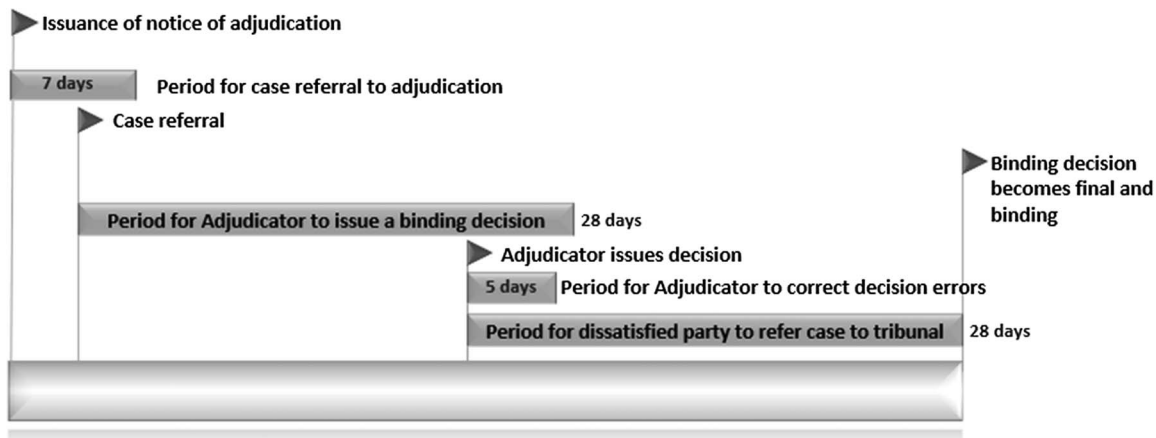


Fig. 4. Timeline for adjudication in the NEC3 contract form: Option W2. (Data from NEC 2013.)

in the 2011 amendments from 14 days to 5 days from the date of the decision. The adjudicator's decision is binding and becomes final if no party notifies the other of its intent to refer the case to the tribunal within 28 days of the date of decision issuance.

### Dispute Resolution in the JCT 05 Contract Form

The JCT, since its establishment in 1931, has published standard forms of contract, guides for project participants, and other standard documents relevant to the construction industry (Taylor 2008). The contract is drafted in sections in order to enhance its usability and make it more user-friendly. Clause 13 of the JCT 05 conditions spells out the procedures and guidelines for correspondences between the architect and the contractor (JCT 2016). According to Subclause 13.2, the contractor is required to notify the initial decision maker (architect or contract administrator) of any loss and/or expense as soon as it is detected. The matters that give rise to entitlement range from late possession of the site, instructions and variations, discrepancies in contract documents and design drawings, and omissions, among others. The contractor must supply enough information and evidence to allow the architect to form an opinion on the case. However, this is done upon request by the decision maker following receipt of a notice. After forming an opinion, the decision maker must notify the contractor of any granted additional money and/or extension of time within the periods shown in Figs. 5 and 6, respectively.

If declined by the decision maker, the claim evolves into a dispute and can then be referred to adjudication. This referral is not regulated time-wise, as illustrated in Fig. 7. The adjudicator is appointed within seven days of the referral notice date. The parties may agree on the nomination of an adjudicator. If they fail to do so, the JCT 05 contract specifies several ANBs, such as the Royal Institute of British Architects (RIBA), the Royal Institution of Chartered Surveyors (RICS), the Construction Confederation, the National Specialist Contractors Council, and the Chartered Institute of Arbitrators (CI Arb), that can nominate the adjudicator. The appointed adjudicator is to issue a decision within 28 days of the referral or any other period that the parties have agreed on in the contract. If the referring party agrees, the adjudicator can extend this period by 14 days. The decision rendered by the adjudicator is binding until the matter is reopened under arbitration.

### Comparison of Standard Adjudication Mechanisms

The previous discussions revealed that standard contract forms exhibit similarities as well as differences among adjudication mechanisms. A comparison of the three mechanisms is presented in Table 1. The similarities can first be noticed in initial assessment, determination, or decision by a third party (e.g., engineer, project manager, architect, and contract administrator) or the lack of action by the third party, being required for triggering the adjudication process. Another similarity is that the three mechanisms require

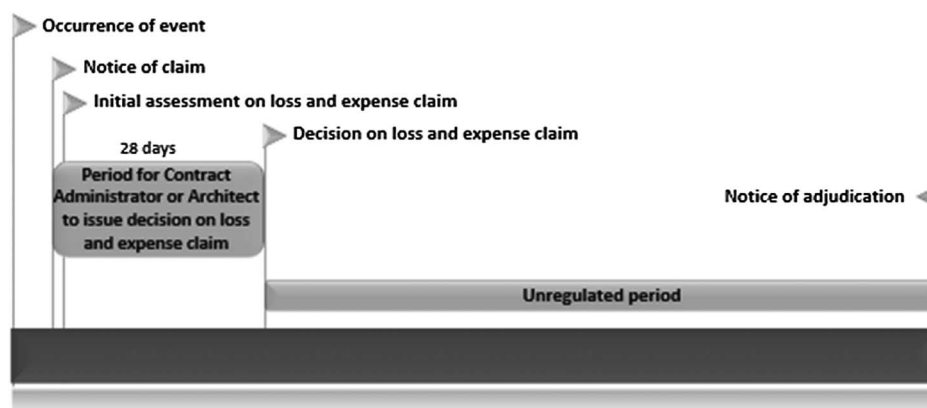


Fig. 5. Timeline for loss and expense claim in the JCT 05 contract form. (Data from JCT 2016.)

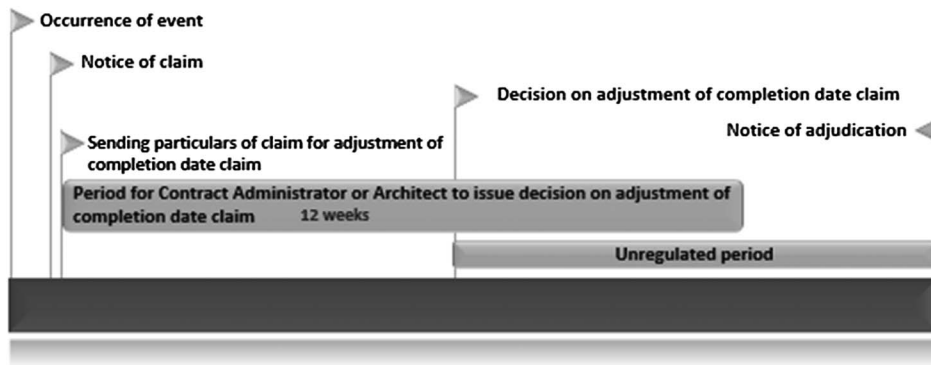


Fig. 6. Timeline for adjustment of completion date claim in the JCT 05 contract form. (Data from JCT 2016.)

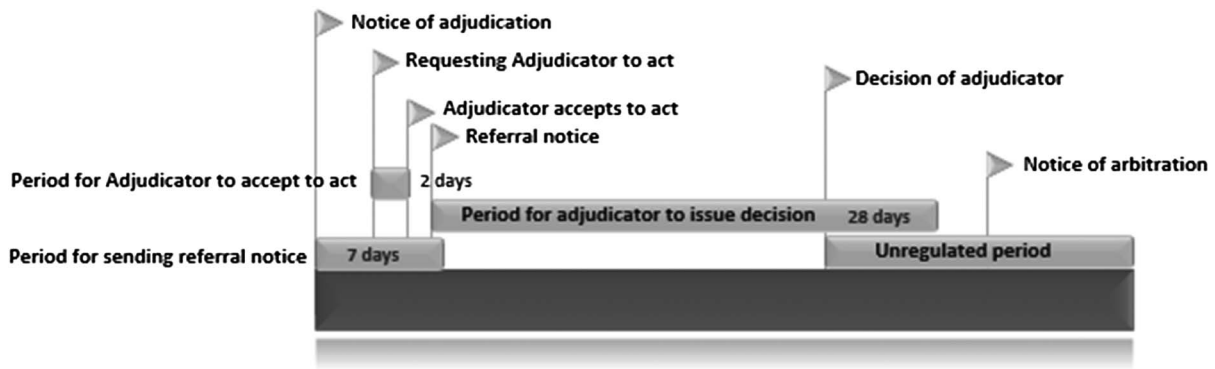


Fig. 7. Adjudication timeline in the JCT 05 contract form. (Data from JCT 2016.)

a notice of dispute by either party to the contract, which has the effect of (1) expressing dissatisfaction with a rendered initial decision and (2) escalating the matter to a dispute. It is noticed that the FIDIC and NEC3 standard forms regulate the timing of this notice issuance, whereas the JCT 05 form does not. However, all three forms deal in a similar way with the referral of the matter to adjudication by requiring such referral to take place within a stipulated period from the date of issuance of the dispute notice [42, 28, 7, and 28 days, for FIDIC, NEC3 (Option W1), NEC3 (Option W2), and JCT 05, respectively]. To be noted is that the FIDIC's stipulations of 28 and 42 days for expressing dissatisfaction with the engineer's determination and referring the dispute to adjudication, respectively, represent a major change from the lack of such requirements in the prior version of these conditions (FIDIC 1999). Furthermore, although the JCT 05's dispute notice is not time-regulated, once issued it triggers the issuance of two successive notices, those dealing with the request of the adjudicator to act and the adjudicator's acceptance to act. These two notices, which have the effect of ruling that the matter in dispute has been duly referred and falls under the jurisdiction or mandate of the adjudicator, are not called for in the FIDIC and NEC3 forms.

Upon proper referral of the dispute to adjudication, adjudication is assigned 84 days in the FIDIC form and 28 days in the NEC3 and JCT 05 forms for yielding a binding decision. The longer stipulation in the FIDIC form is consistent with the 90 days adopted by the International Chamber of Commerce (ICC) in its dispute board rules (ICC 2018). Another distinct characteristic of the FIDIC form is the specification of a notice of dissatisfaction with an adjudication decision, a step that is skipped in the other two

forms. This notice is treated as condition precedent to the triggering of the amicable settlement period that precedes the referral of a dispute to arbitration (FIDIC 2017). To this end, while all three contract forms prescribe arbitration as the ultimate venue for unresolved disputes, only the NEC3 form places a restriction on the timing of such referral, requiring that it be made within 28 days of issuance of an adjudication decision. Finally, despite the arbitration referral notice being unregulated (timewise) in the FIDIC form, the parties are allowed to resort to arbitration even for mere interim abidance with a binding adjudication decision against which a dissatisfaction notice has been issued.

### Adjudication in Practice: UK Adjudication Centers

Arbitration was the preferred dispute resolution technique in the construction industry of the United Kingdom until adjudication was introduced in the Housing Grants Construction and Regeneration Act of 1996 (Dancaster 2008). Following adjudication's introduction in common standard construction contracts, such as JCT 05 and NEC3, the Adjudication Reporting Centre (ARC), established at Glasgow Caledonian University in 2000, began publishing annual reports on data collected from adjudication nominating bodies and a sample of practicing adjudicators (Glasgow Caledonian University Adjudication Reporting Centre 2012). In 2012, the Adjudication Society took over publishing these reports, including the latest one used for the purpose of this work covering 2017 (published in 2018). Adjudication nominating bodies and practicing adjudicators were asked to fill out detailed questionnaires that cover various aspects of implementing this alternative

**Table 1.** Summary of adjudication-related steps for each standard contract form

| Standard contract form | Steps and milestones                           |   |  |   |  |   |  |   |
|------------------------|--|---|--|---|--|---|--|---|
|                        | Step 1   | Step 2  | Step 3                                   | Step 4                                  | Step 5   | Step 6                                    | Step 7   | Step 8  |
| FIDIC 2017             | Determination by engineer                      | Regulated notice of dissatisfaction with engineer's determination | N/A                                      | N/A                                     | Regulated notice of dispute referral to DAAB         | Binding DAAB decision (84 days)           | Regulated notice of dissatisfaction with DAAB decision | Unregulated notice of referral to arbitration for failure to abide by binding DAAB decision |
| NEC3 2013              | Action/no action by project manager/supervisor | Regulated notice of dispute <sup>a</sup>                          | N/A                                      | N/A                                     | Regulated notice of dispute referral to adjudication | Binding Adjudication decision (28 days)   | N/A  | Regulated notice of dispute referral to tribunal  |
| JCT 05 2016            | Decision by architect/contract administrator   | Unregulated notice of adjudication                                | Regulated request for adjudicator to act | Regulated adjudicator acceptance to act | Regulated notice of dispute referral to adjudication | Binding decision of adjudicator (28 days) | N/A  | Unregulated notice of arbitration   |

<sup>a</sup>Only for Option W1.

dispute resolution method. The number of responding adjudication nominating bodies (ANBs) providing adjudication services across the United Kingdom increased from 15 in 1999 to 22 in 2018. The reports, which are publicly available, offered a vast volume of data on adjudication, which allowed meaningful analyses to be carried out as part of this research work. These analyses shed light on practice-related patterns that have prevailed during the last 20 years in connection with the implementation of adjudication, in terms of procedures, process outcomes, and required time frames for issuing decisions, among many other important aspects and effectiveness measures.

### Preparing the Data

The first—and rather challenging—step in this part of the research work was to form a complete data set out of the collected annual reports by connecting the several similar headings from them to construct one holistic table for each aspect of the adjudication process. The resulting data set thus incorporated 16 spreadsheets. The work was primarily manual and so laborious. Accuracy needed to be consistently observed in filtering, filing, and sometimes correcting the available data, which all in all touched on a total of around 28,000 cases. Numerous challenges were carefully addressed while constructing the spreadsheets, which eventually represented platforms for the subsequently performed analyses. The challenges included the numerous headings used for listing the data, the different ways in which the data were represented (e.g., percentages versus whole counts), the different titles adopted for the same subject in different reports, and the unavailability of data on some subjects for the full period spanning over two decades.

### Analysis and Findings

After building a coherent set of data, extensive frequency-type analyses were carried out and various statistics and charts derived. This allowed numerous key observations on several adjudication implementation aspects, as afterwards presented and discussed.

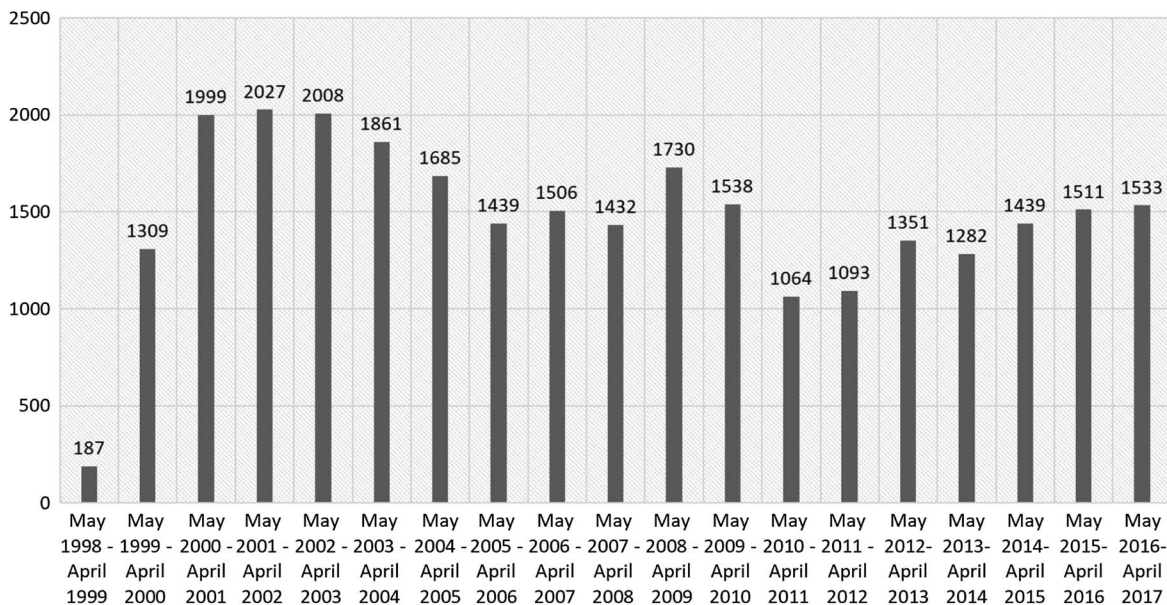
### Referrals

As ANBs are considered trustworthy entities that are equipped with sufficient technical knowledge, disputants solicit their help for nominating adjudicators whose technical expertise and experience match the subjects of disputes. As depicted in Fig. 8, the number of cases referred to ANBs for adjudicator nominations has fluctuated, with figures for the last three reported years being around the 20-year average of 1,474 referrals.

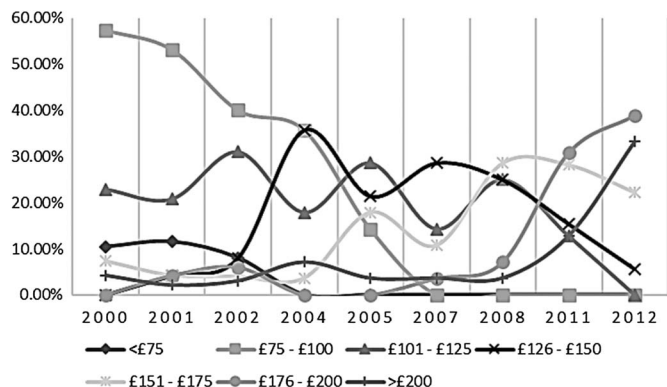
When read in conjunction with the distribution of data available on adjudication fees, presented in Fig. 9, the relatively steady drop (or depression) in case referrals between 2003 and 2011, with the exception of 2008 and 2009, may be associated with the clear trend of increasing adjudication fees. Furthermore, it can be argued that the jump in case referrals experienced in 2008 and 2009 is tied to conflicts that arose as a result of the financial crisis that prevailed during this period. In fact, for almost 89% of the cases referred in 2000, adjudicators charged rates that ranged between £75 and £125 per hour. According to the April 2013 report (covering 2012), no adjudicator charged an hourly fee below £125. In addition, for one-third of the cases referred during 2012, adjudicators charged disputants an hourly fee greater than £200.

### ANB Backgrounds

If adjudicators were neither named in the contract documents nor agreed on between the parties, disputants referred to ANBs for nominating an adjudicator or adjudication board members. To this effect, and in reference to Fig. 10, ANBs were consistently the



**Fig. 8.** Referrals to ANBs across the years.

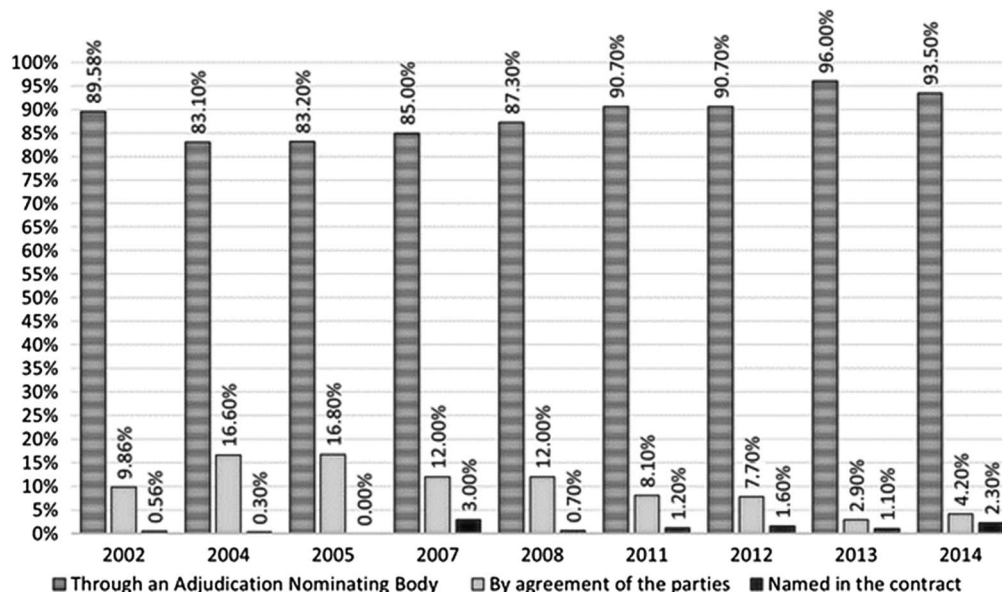


**Fig. 9.** Distribution of hourly fees charged by adjudicators.

source of adjudicator appointments in more than 80% of cases. This highest—and rather consistent—frequency is followed by that of 4% to 17% of parties agreeing on adjudicators, with only up to 3% having adjudicators named in the contract. The high frequency (greater than 80%) of adjudicators nominated by ANBs, as opposed to named in contracts, may hint at ad hoc adjudication as compared with full-term adjudication boards. As for the backgrounds of ANBs, these included architecture and engineering (civil, chemical, electrical, mechanical, and structural), dispute resolution (adjudication, arbitration, and law), and surveying and management. The general breakdown of reported frequencies is shown in Fig. 11.

### Adjudicator Backgrounds

Upon the request of disputants to ANBs to nominate adjudicators, ANBs study the disputes in question and, based on their nature and



**Fig. 10.** Source of adjudicators' appointment.

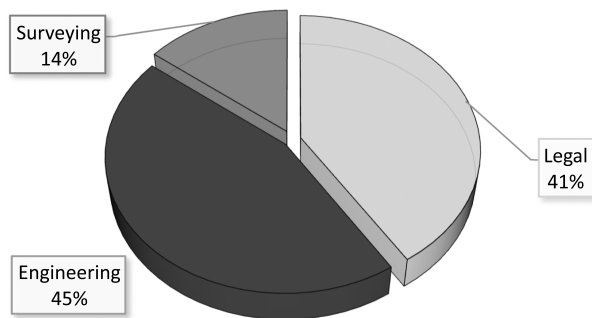


Fig. 11. Background of ANBs during the last 20 Years.

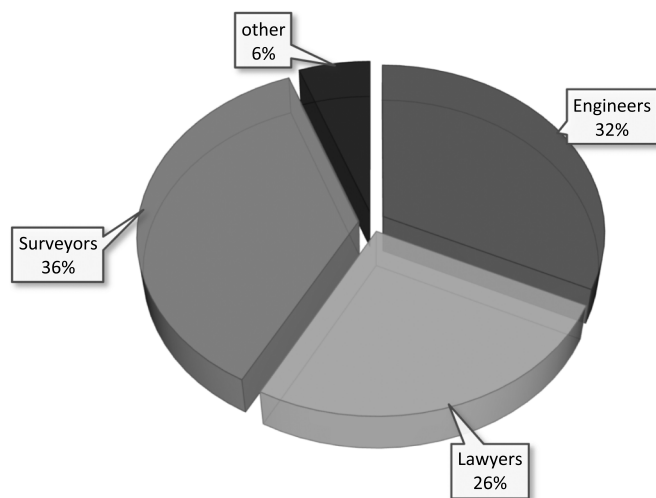


Fig. 13. Main categories of adjudicators' backgrounds.

circumstances, strive to select adjudicators whose profiles most suit the matters in dispute. The available data indicate, as detailed in Fig. 12, that the adjudicators so nominated during the period of analysis of 20 years were of various experience, with titles including quantity and building surveyors, architects, construction and project managers, lawyers, construction consultants, and engineers, among others.

As shown in Fig. 13, adjudicator backgrounds can be further categorized as engineers and architects, lawyers, and surveyors, with a rather balanced distribution of frequencies. However, in referring to Fig. 12, a main observation is that, while the general 20-year percentage for lawyers' nominations (around 26%) is slightly lower than those for engineers and surveyors (around 32% and 36%, respectively), the share of nominations by the lawyers' group has been increasing at a seemingly steady rate. It can be further noted that, during the last 10 years, the increased nomination share of law professionals apparently occurred more at the expense of the engineers' share than that of surveyors.

### Adjudication Initiation Period

A critical observation from the examined data pertained to the timing at which disputants made referrals of disputes to adjudication. It was plainly found that, for almost 81% of referred cases, the referral was made after "practical" (also known as "substantial") completion. As previously discussed, two of the standard forms of contract that stipulate adjudication as an ADR method place time-bar requirements on expressing dissatisfaction with the initial

decision maker's determination and subsequently referring disputes to adjudication. These are the 2017 FIDIC and the 2013 NEC3 forms. Only the 2016 JCT 05 form does not prescribe time barring for such a referral. In fact, and given the time covered by the available data, it is only plausible that the 1999 FIDIC form (as opposed to the 2017 FIDIC form) is the contract form of interest for interpreting the observation made in this subsection. That having been said, it is noted that both the JCT 05 and 1999 FIDIC forms allow referral to adjudication to be deferred in a rather unregulated way, not only past the practical completion stage but probably also past that of final completion (achieved upon expiration of the defect liability period). It can be further noted that the time-barred referral requirements might have also been lifted during the writing of those NEC-based contracts that had partially formed the foundation of the available data, as owners might have opted to do when modifying standard general conditions.

It goes without saying that the referral of disputes to adjudication could have been deferred by disputants who did not want to escalate a disagreement to a dispute while construction was ongoing, thereby avoiding further tension and adversarial attitudes.

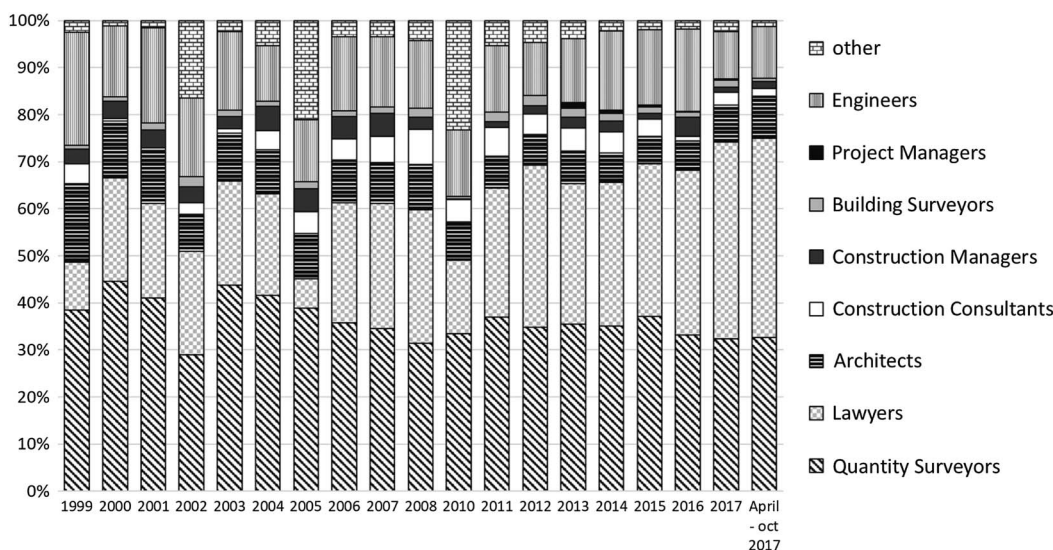


Fig. 12. Background of nominated adjudicators between 1998 and 2017.

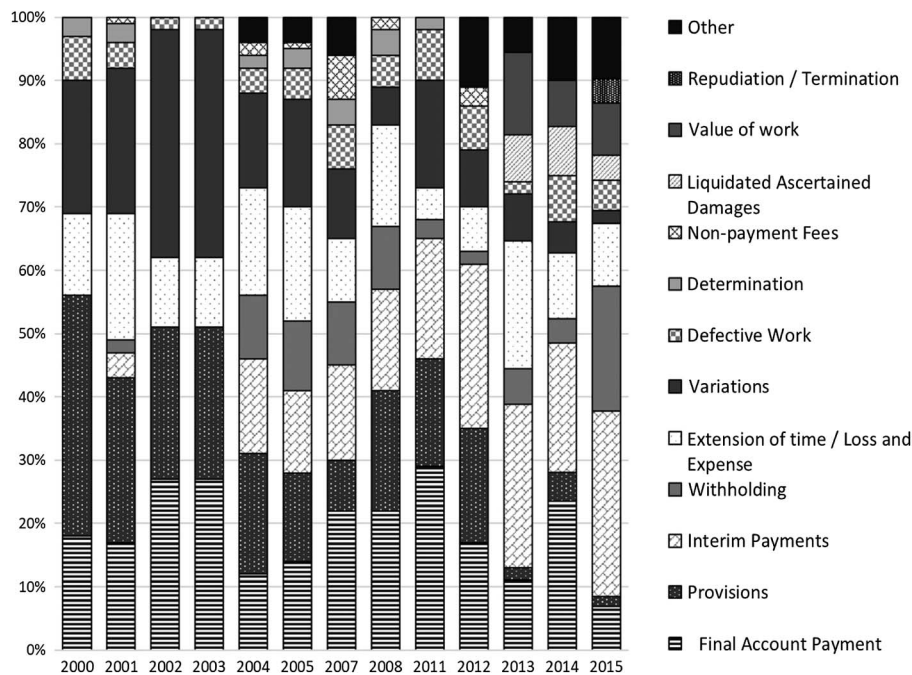


Fig. 14. Primary subjects of referred disputes.

It could have also been that such deferral served to create a collective referral of matters that were not possible to resolve at earlier stages. One may as well conclude that making referrals in such a collective manner caused less distraction to project management teams during construction work, not to mention potential cost savings resulting from disputes adjudicated in bundles.

### Primary Subjects of Dispute

Fig. 14 summarizes the several headings for referred disputes. These can be grouped as payment issues (final account, interim, withholding, value of work, and nonpayment); technical issues (variations and defective work); and contractual issues (extension of time, contract provisions, repudiation and termination, and liquidated damages).

A number of indications arise from the frequency patterns observed in Fig. 14, including (1) a noticeable decreasing trend in the number of disputes over contract provisions and variations; (2) a remarkable increasing trend in the number of disputes over interim payments, particularly in conjunction with patterns seen for disputes over withholding and value of work; and (3) a persistent frequency of time-extension disputes, ranging between about 10% and approximately 20%.

### Parties Involved in Disputes

The distribution of referred disputes, in terms of the party making a referral, revealed that about 95% of adjudicated disputes were raised by contracting-industry participants. This can be inferred from the detailed percentage breakdown illustrated in Fig. 15. It can also be unmistakably concluded that close to 55% of disputes were related to subcontracts and sub-subcontracts. In fact, the number of disputes raised by subcontractors against main contractors was about one and a half times the number raised by main contractors against clients (owners), representing 48.7% and 31.83% of referred disputes, respectively. It follows that the combined frequency of disputes filed by a lower-tier participant against a higher-tier participant (93.05%) far outweighed the combined frequency of disputes filed by a higher-tier participant against a lower-tier participant (4.75%).

### Procedures Adopted during Adjudication

It was seen in a previous section that adjudication is called for under standard contract conditions to be conducted according to a timetable and following agreed procedures. The average frequencies observed for adopted procedures indicated that adjudicators, for the purpose of rendering adjudication decisions, relied solely on documents submitted by the disputants in about 65% of the referred disputes across the years. Other methods of inquiry were also reported to have been used, whose average frequencies are as shown in Fig. 16. These included one- and two-party meetings, hearings, conference calls, legal and contractual rebuttals, and site visits, among others. It can be seen that the average frequency corresponding to reliance on site visits is very low, between 2% and 3%, because the overwhelming majority of disputes were reported to have been referred to adjudication after practical completion of the work.

### Duration of Adjudication

Although standard contracts stipulate the duration of adjudication, amended standard conditions and bespoke contracts may allow more flexibility. Fig. 17 shows that adjudication in more than half of referred cases was concluded within 28 days (55%), which is the duration for adjudication set in the JCT 05 and NEC3 standard contract forms widely used in the United Kingdom. The second highest frequency is observed to be adjudication duration between 28 to 42 days; this figure was applicable to around one-third (33%) of referred cases. Only 12% of referred cases required more than 42 days for the adjudication process to be concluded, potentially reflecting requests by adjudicators for additional time to render a decision.

It is evident from Fig. 17 that the percentage of adjudication assignments taking more than 42 days has generally increased in the later years covered by the available data. This may be due to the increased faith of disputants in adjudication and adjudicators' ability to render a fair decision. That is, since the contractually stipulated period might have been increased with the consent of both parties, it could have been that, given the disputants' strengthened commitment to the process, they became more open

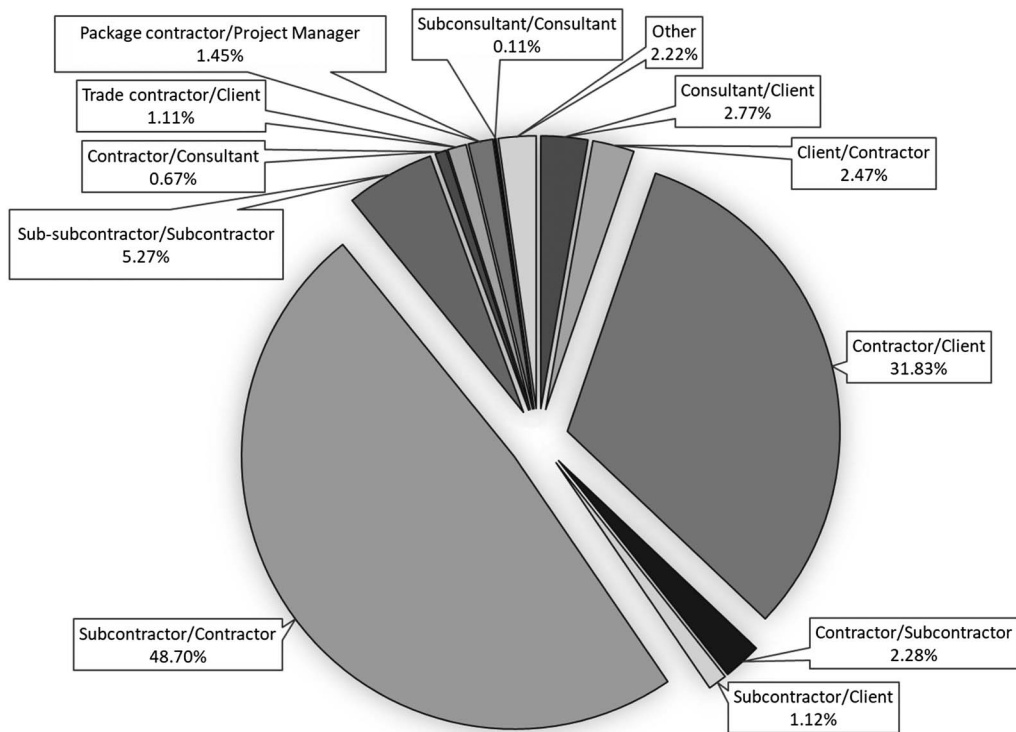


Fig. 15. Parties involved in disputes.

to increasing this duration in order to avoid the consequences of abandoning the process and subsequently escalating the matter to arbitration or litigation. Needless to say, the complexity, size, and value of the dispute could have influenced the time ultimately needed by the adjudicator(s) to achieve a decision.

### Outcomes of Adjudication

Whether or not adjudication is effective in providing disputants with the desired outcome can be directly inferred from the statistics presented in Fig. 18. By taking the average for the years during which such information was reported, it can be observed that adjudication concluded with a decision for two-thirds (66%) of referred disputes. In 19% of cases, the disputants reached settlement on the disputed matters outside of adjudication. The process is shown to have been abandoned in 11% of referred cases, while only 4% of already started adjudications were ongoing during the year in question. When 66% and 19% are taken together, one can

possibly conclude that adjudication was effective in a total of 85% of referred cases, either by allowing a decision to be issued or by encouraging the disputants to amicably settle. As for abandoned processes (11% of cases), the published data revealed four main factors in adjudication not proceeding: contractual, financial, procedural and technical, and/or personal.

### Adjudication Outcome Success

The final point of analysis was whether adjudication outcomes could be viewed by claimants and respondents to have allowed them to succeed with their claims or responses to raised claims, respectively. The data in Fig. 19 clearly reveal that about two-thirds (63.75%) of decisions made by adjudicators were in favor of the claimants. In contrast, only one-fifth (around 20%) were in favor of the respondents. Adjudicators issued split decisions in only 16.17% of cases. Records for 2013–2015 show that the percentage of split decisions was almost double the average percentage for all considered years. When the claimant and split decision percentages (63.75% and 16.17%) are read together, one can safely conclude that the decisions, determinations, or assessments made by the initial decision makers (e.g., engineer, project manager, contract administrator) were reversed by adjudication in almost 80% of the referred cases. This confirms that such actions by initial decision makers are generally not made while observing reasonable impartiality (Abdul-Malak and Naeem 2018).

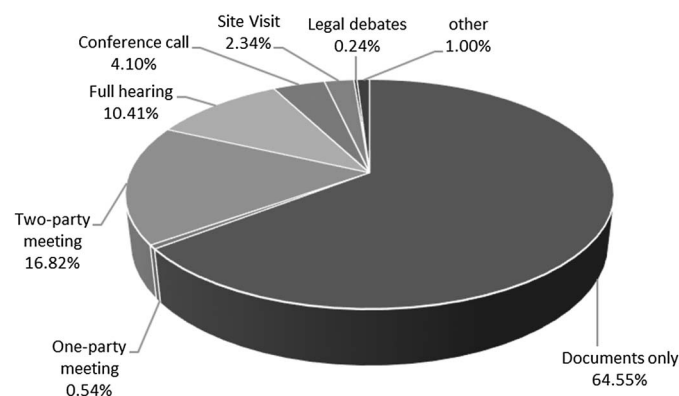


Fig. 16. Average distribution of the procedures adopted by adjudicators (1998–2018).

### Major Observations and Recommendations

This section provides a number of general observations, inferences, and recommendations drawn from analyses of three standard adjudication mechanisms and the data available on implementation and outcomes of adjudication in practice. The analyzed data reflect UK adjudication practices used for about 28,000 adjudicated disputes over the last two decades. The observations and trends can be of critical significance to the future adoption and practice of

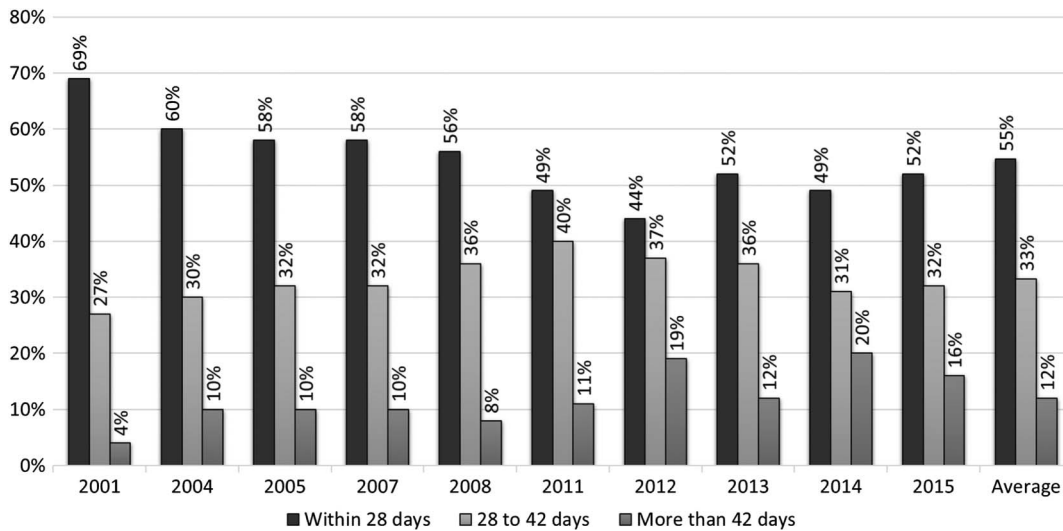


Fig. 17. Time needed to conclude the adjudication process.

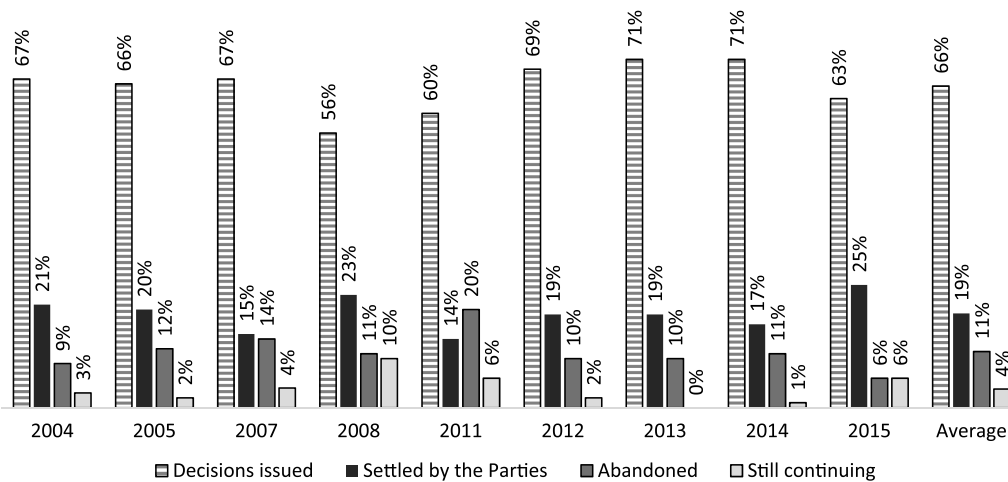


Fig. 18. Distribution of adjudication outcomes.

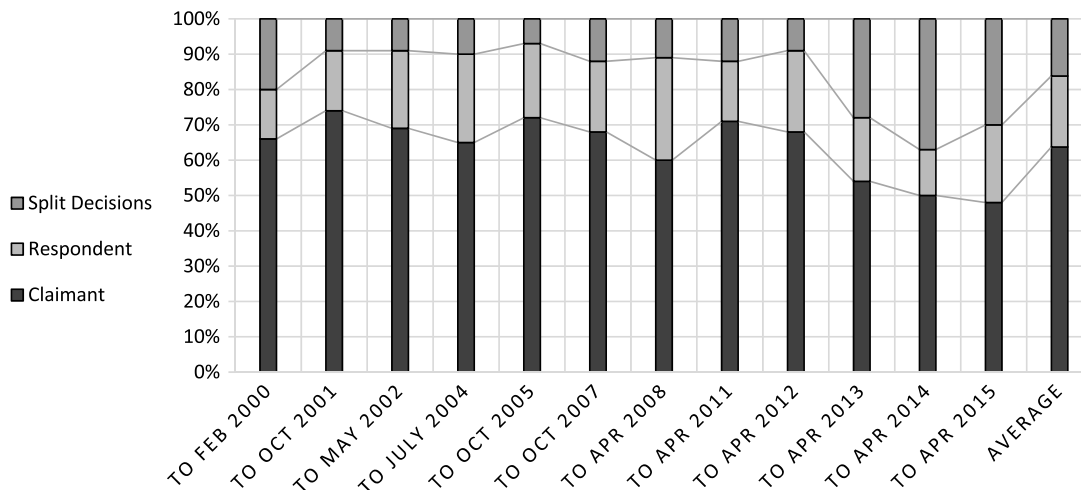


Fig. 19. Percentage of success with decisions by each party.

adjudication in the construction industry. They are as such generally relevant at a global level and more particularly relevant to dispute resolution environments that follow standards similar to those in the United Kingdom.

- Referral figures for the last stretch of the observed years seem to support adjudication as still a preferred option for disputants despite the increase in adjudication fees.
- There is a firm belief on the part of disputants that nominations (and subsequent appointments) of adjudicators are best sought through ANBs, believed by the authors to be highly likely owing to preserving or ensuring the neutrality of the professionals to ultimately serve as adjudicators.
- The combined share of technical bodies (engineering and surveying) being named as ANBs (about 85%) outweighs by about six times that enjoyed by law-related bodies (14%), a fact that warrants such technical bodies and organizations to have in place streamlined processes for properly and adequately responding to nomination requests.
- The increase in appointments of adjudicators with law backgrounds can be viewed as better ensuring that adjudication decisions are well reasoned not only according to the facts but also according to the laws governing the contract in question. This is particularly relevant given that binding adjudication decisions become final when not challenged by the disputants.
- Despite project owners being at liberty to modify standard general conditions or designing their own bespoke contracts, the change introduced by the FIDIC in its 2017 release, in terms of time-barring referral of disputes to adjudication, discourages deferral of dispute referral to adjudication. Such a change has the effect of a binding decision by an impartial intermediary or board superseding that made by the engineer much earlier in the claim/dispute resolution timeline than traditionally practiced.
- The indications are very strong that practices pertaining to interim payments need to be revisited or streamlined, owing to the clear trend of disputes over interim payments remarkably increasing over the period covered by the available data.
- It may be justifiable to state that subcontracting practices should be revisited given that about 54% of referred disputes involved subcontractors or sub-subcontractors.
- It can be concluded that attention needs to be given to the quality of information and documentation furnished to adjudicators, as about 65% of referred disputes were ruled solely on the disputants' submitted documents.
- Based on observed practice trends, it appears that the 84 days under the FIDIC conditions for adjudication is considerably more than the less than 42 days required for about 90% of actual referred disputes.
- Indications are very strong that adjudication was effective in achieving decisions or amicable resolutions in 85% of referred cases.
- With about 80% of cases having involved adjudication decisions wholly or partially reversing initial assessments made by professionals appointed by project owners, there is a clear indication that much needs to be done before these professionals can be expected to render assessments with reasonable impartiality or neutrality.

## Concluding Remarks

This paper has attempted to shed light on the effective adoption and practice of adjudication as an ADR construction dispute resolution mechanism. For that purpose, the three standard contract forms, FIDIC, NEC, and JCT, were examined. In addition, collected data

on 28,000 adjudicated dispute cases available in annual reports published in the last two decades [initially by the UK-wide Adjudication Reporting Centre (ARC) at Glasgow Caledonian University, starting in 2000, and later by the Adjudication Society (2018), starting in 2012], were structured and analyzed.

Major observations, inferences, and recommendations were offered which touched on several practice-related aspects of adjudication, including the volume of dispute referrals to adjudication; the backgrounds of adjudication nomination bodies and adjudicators; the timing of adjudication initiation; the primary matters referred to adjudication as disputes; the parties involved in referred disputes; the procedures adopted by adjudicators for conducting adjudication; the time taken to yield adjudication decisions; the outcomes of adjudication; and the disputants' outcome success rates. The observations, inferences, and recommendations from the study can be instrumental to participants in claim/dispute resolution cycles, whether in specifying adjudication-related contract terms or in exercising their decision-making and case-documentation roles.

## Data Availability Statement

Some or all data, models, or code used during the study were provided by a third party (adjudication practice-related annual reports). Direct requests for these materials may be made to the provider as indicated in the Acknowledgements.

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