

Critical Factors for Selecting a Neutral to Support Alternative Dispute Resolution Methods in the Construction Industry

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Abstract

Alternative dispute resolution methods (ADR) were developed in the construction industry to acquire suitable solutions. These methods are classified based on the role of the third party (neutral). Third-parties can play multiple roles in the ADR process including a facilitative, advisory, determinative or combined. The authorities of the third-party in the types of ADR techniques are different. Despite the importance of a third party in the ADR process, previous studies are not clearly identified factors for selecting them. The purpose of this research is to provide critical factors for neutral to support ADR methods in the construction industry. This research also, highlights the role of neutral in common ADR techniques. Random sampling was used for quantitative data collection. Of the 200 experts invited to fill in the questionnaire, 112 experts participated. To provide critical factors the factor analysis was used. The research found four critical factors for selecting supporting ADR neutrals in construction including; familiarity with legal and technical issues, being accepted by parties, efficiency and fairness. It can be concluded that selecting neutral party using the critical factors is efficient because the selection of a third-party in ADR is based on many variables is very difficult.

Keywords: Construction Claims; Disputes resolution; Neutral; ADR.

1. Introduction

Construction projects are now reaching megaproject size, therefore the structure of construction parties is becoming increasingly complicated and the level of disputes more serious [1, 2]. The success of a construction project depends on the coordinated efforts of the project team members. This is especially crucial when a project is in dispute and therefore the achievement of a satisfactory resolution in the projects is fundamental to the success of the project [3]. Some studies have identified that the inadequate resolution of a dispute will jeopardize the project's success [4]. In the last two decades, the construction industry has been notorious for investigating the nature and growing number of disputes [5] and is known for its continuous efforts in developing more efficient methods for dispute resolution [6]. The large amounts of time and money spent by all parties involved in litigation [7] have led to the innovation of other dispute resolution methods [8 and 9], called Alternative Dispute Resolution (ADR) techniques [10]. The main purpose of ADR techniques is to resolve disputes with the least possible intervention by an outside neutral [11]. In recent years ADR has emerged as a popular means to resolve both public and private disputes [12, 13]. However, the use of ADR is still at its embryonic stage in the many countries [14].

Figure 1. illustrates a continuum of dispute resolution procedures with control over the outcome which is compared with an assumed escalating degree of resolution costs and hostilities. An increase in Neutral authority control of the outcome reduces and increase hostilities.

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Neutrals can play facilitative, advisory, determinative or combined, roles in ADR methods. The authority of the neutrals in ADR methods is different. Despite the importance of the neutral in ADR, studies on the matter of using a defined criterion for the selection process are insufficient. This research provides critical factors for neutral in ADR in construction. This research also, highlights neutrals roles in common ADR techniques in the construction industry.

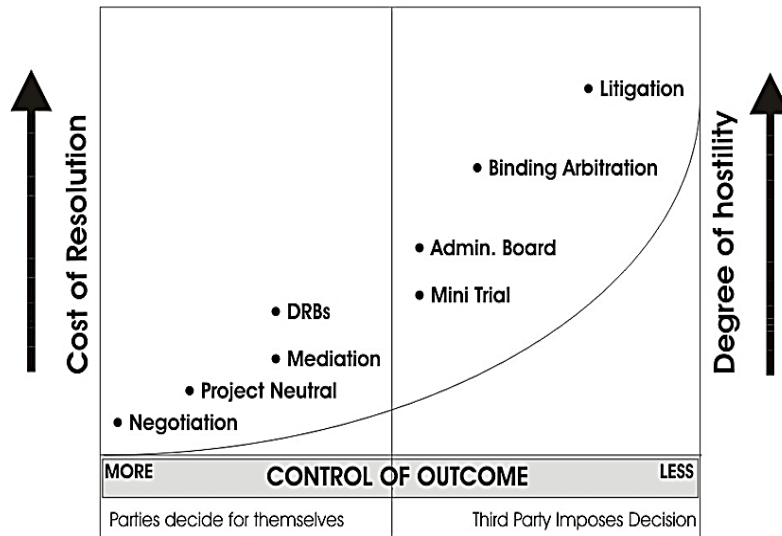


Figure 1. Dispute resolution continuum [15]

2. Alternative Dispute Resolution

Despite the Civil arbitration goes back to ancient times [16, 17], the "Alternative Dispute Resolution" term is fairly new and it was not until the 1970s that ADR emerged as a field of study in law [18]. ADR covers all legally permissible processes of dispute resolution other than litigation [19-21]. Now ADR methods are used widely in order to resolve disputes more efficiently, confidentially and at a lower cost than litigation. They can also help parties find practical, commercial solutions to disputes, allowing them to maintain on-going business relationships [22]. Figure 2. shows common Alternative Dispute Resolution methods in the construction industry.

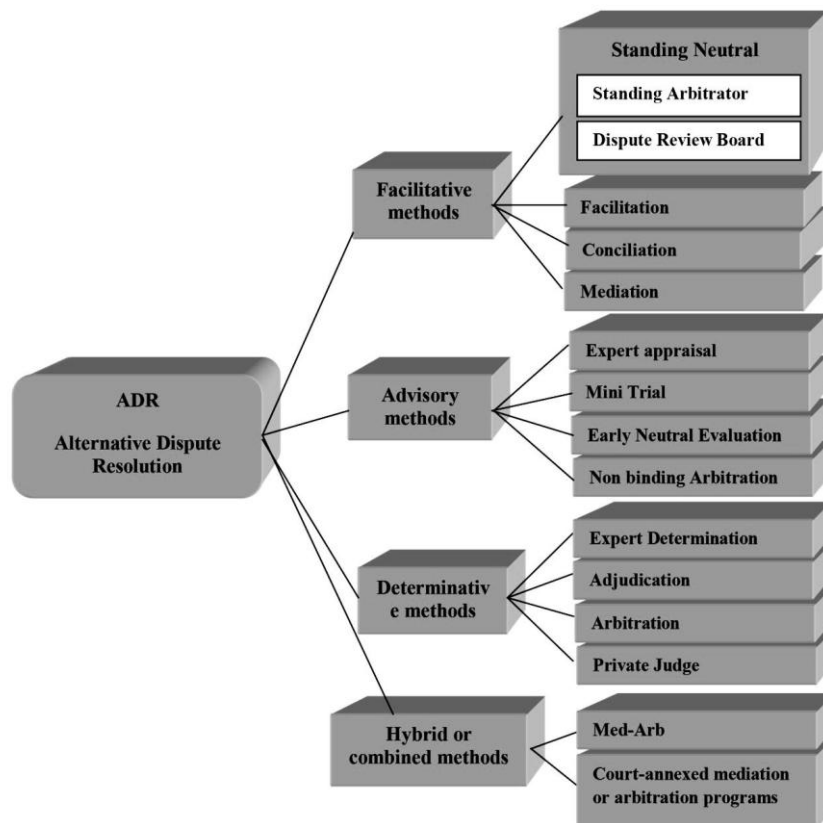


Figure 2. Alternative Dispute Resolution methods in construction industry

2.1. Neutral's Roles in Alternative Dispute Resolution Methods

The National Alternative Dispute Resolution Advisory Council (NADRAC) classified ADR methods by the role and authority of the neutral. The neutral plays facilitative, advisory, determinative or combined, roles in ADR methods [23]. Neutral roles in the various types of ADR techniques were summarized in Table 1.

Table 1. Neutral's roles in ADR techniques

| ADR methods | ADR techniques | Neutral's role in ADR techniques |
|----------------------------|---------------------------|---|
| Facilitative | Standing Neutral | Investigating win-win solutions to develop an agreeable resolution [24- 26]. |
| | Facilitation | Identify problems to be solved, tasks to be accomplished or disputed issues to be resolved. Assist the parties to develop options [23]. |
| | Conciliation | Develop options, consider alternatives and endeavour to reach an agreement. A conciliator may have an advisory role on the content of the dispute or the outcome of its resolution. [23]. |
| | Mediation | To guide the parties toward the resolution of the dispute. Works together with the parties as a partner to assist them in finding the best solution to further their interests [27-29]. |
| Advisory | Expert appraisal | Investigates the dispute and provides advice on the facts with possible, desirable outcomes and the means whereby these may be achieved [23 and 30]. |
| | Mini Trial | Assess the situation, and make non-binding conclusions regarding the outcomes and the means whereby these may be achieved [31-33]. |
| | Early Neutral Evaluation | Evaluate the dispute and issue a non-binding assessment. [34-36]. |
| | Nonbinding Arbitration | Issue an advisory award or a prediction of the likely award [37and 38]. |
| Determinative | Expert Determination | Investigate the dispute and make a decision [23and39]. |
| | Adjudication | Investigate the dispute and make a decision [40-42]. |
| | Arbitration | Investigate the dispute and make a final decision [43-45]. |
| | Private Judge | Investigate the dispute and make a determination by their opinion as to what decision would be made if the matter was judicially determined [23and 46]. |
| Combined or Hybrid methods | Med-Arb | Play a mediator's role then play an arbitrator's role [36, 47and 48]. |
| | Court-annexed mediation | Like mediator's role [49 and 50]. |
| | Court-annexed arbitration | Like arbitrator's role [49 and 50]. |

2.2. Neutral's Critical Characteristics for ADR Methods in Construction Industry

Neutral's intervention has found strong expression in the field of dispute resolution, and yet there remains significant potential for improvement in both theory and practice. (51) The literature above shows of the role neutral in ADR methods. The Iranian Parliament Strategic Research Center emphasized the importance of selecting a neutral for ADR [52], however, there are few studies on this issue. ASCE [26] described the third-party for Standing Neutral as an experienced and trusted construction professional with appropriate technical background. According to Pena-Mora et al., the standing arbitrator is chosen by the project participants based on his/her experience with the particular type of construction (37). NADRAC described the third-party for Expert Determination technique as an experienced in the subject matter of the dispute [23]. Evans [53] conducted comprehensive research on the characteristics of a neutral for ADR in construction. But he had used descriptive statistics and reflected the frequency of a large number of effective variables in selection neutral for resolving construction disputes His findings are as follows.

- The personal characteristics of third-parties in ADR for construction in order of importance are as follows: Honest, No conflict of interest, Has integrity, Non-biased, Fair, Impartial, Uses good judgment, Open minded, Good listener, Good communicator, Patient, Has cool or low-keyed temperament, judicious temperament, Mature and Humble.
- They must have experience with the type of dispute.
- Their technical competence is more important than professional reputation.
- Their experiences of the neutral are more important than their knowledge.
- Their technical qualifications are more important than personal characteristics.

3. Research Methodology

Quantitative data were collected via survey. Surveys provide a numeric description of the trends within or opinions of a population by systematically studying a sample of that population and then generalizing the results on the whole population. Survey researches go through questionnaires for data collecting [54]. Random sampling approach was

followed for quantitative data collection. Probability sampling is the most popular approach in survey-based research strategies [55]. The questionnaire was extracted from a study by Evans [53]. The questionnaire was reviewed by 12 experts for pilot testing and gauges their level of understanding of the questions. A copy of the translated questionnaire can be found in the Appendix I. In this study to analyze quantitative data, descriptive statistical techniques and factor analysis were used by applying SPSS software version 20.

3.1. Research Population and Sample

Iranian Construction Official Experts of grade E1 were defined as the most specialized group of experts. They had backgrounds as owners, contractors and consultants. Those official experts in the construction industry who are qualified to express their opinions regarding disputes between contractors, consultants and owners represent the best group upon which to undertake a quantitative survey, for the following reasons.

- They are always involved in construction disputes.
- They are professional group in this scope.
- They have university degrees in construction-related majors, with their knowledge further evaluated via the entrance exam and interview.
- They are familiar with legal system.
- They have oath and are supposed to be neutral.
- They have experience as contractors, consultants or owners as such experiences are mandatory to get qualified.

Those official experts in the construction industry who are certified to express their opinion regarding disputes between contractors, consultants and owners may have either of three grades namely E1 (highest) to E3 (lowest). They were selected as a sample in the population for this research. Of the 200 experts invited to fill in the questionnaire, 112 experts participated in the research. All participants had more than 10 years of experience as an official expert. Figure 3. also shows their years of experience as owners, contractors or consultants. 59.82% had more than 15 years and 91.96% had more than 10 years of working experience.

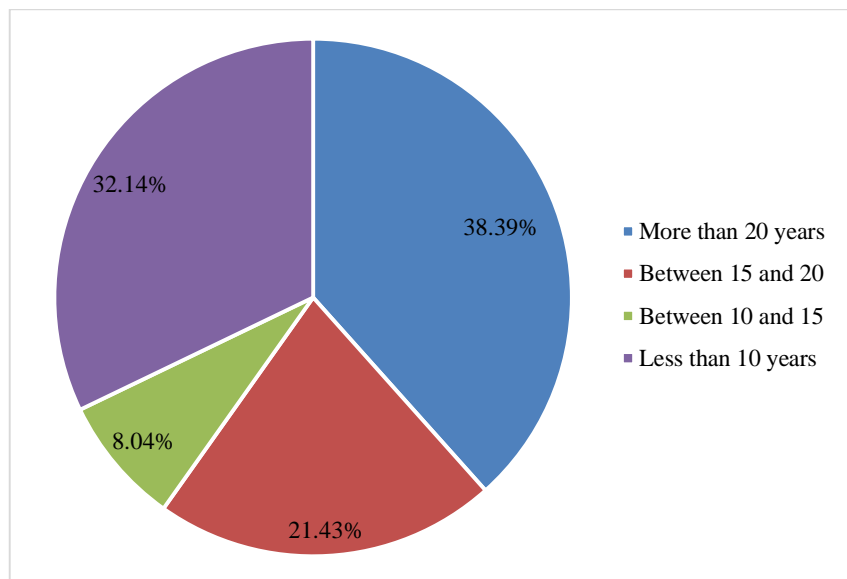


Figure 3. Experience of respondents

3.2. Proportionality Test of Data for Factor Analysis

The Kaiser-Meyer-Olkin measure was calculated to determine to what extent variables should be grouped and are appropriate for a factor analysis (56). In the current study, the Kaiser-Meyer-Olkin measure was 0.795 (Table 3) that greater than 0.70 was recommended for factor analysis (57).

Bartlett's test of sphericity determines whether or not the correlation matrix is an identity matrix that would deem a factor analysis inappropriate. Bartlett's Test of Sphericity found the approximate chi-square to be 1889.582 ($df = 276$, significance 0.000), testifying to the appropriateness of the analysis and the reliability of the solution. Bartlett's test of the null hypothesis states that the variables in the correlation matrix are not related. As the value of the test increases [in this study, 1889.582] and associated significance decreases [in this study 0.000], the results indicate that the null hypothesis can be rejected (Table 2).

Table 2. KMO and Bartlett's Test

| | | |
|---|--------------------|----------|
| KMO and Bartlett's Test | | |
| Kaiser-Meyer-Olkin Measure of Sampling Adequacy | | 0.795 |
| Bartlett's Test of Sphericity | Approx. Chi-Square | 1889.582 |
| | <i>df</i> | 276 |
| | Sig. | 0.000 |

4. Results and discussion

In following collected data from the respondents were analyzed and discussed.

4.1. Importance of the Third-Party in Dispute Resolution

The third-party's presence in dispute resolution processes is essential for achieve rapid solution. The importance of neutrals in helping dispute resolution corresponding to construction industry based on the interval measurement from 1 to 5 was investigated in the questionnaire. Figure 4. shows the obtained results after converting interval measurement to ordinal measurement. 77.68% assessed presence of the third party as important.

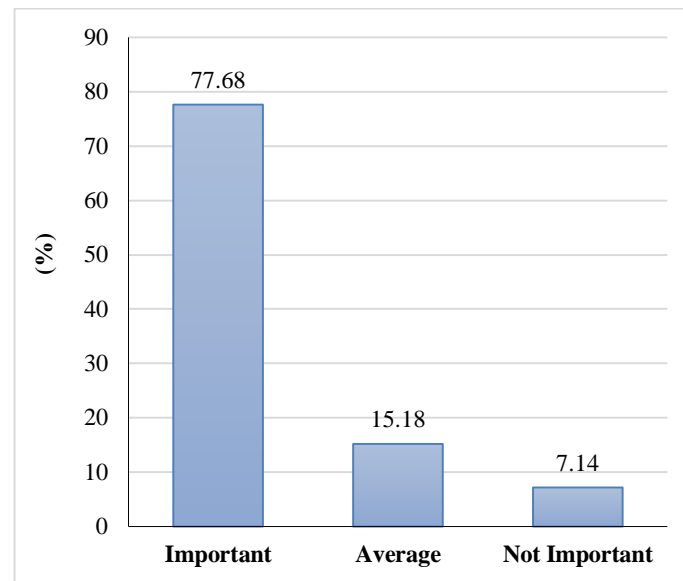


Figure 4. The importance of a third-party to resolving disputes

4.2. Factors for Selecting Third-parties in ADR in the Construction Industry

The selection of a third-party in ADR is based on many variables is very difficult, therefore, in this research the important factors are extracted using factor analysis to provide critical factors for neutral to supporting ADR methods in the construction industry. It used to identify the determinants third party factors from the 24 variables including; Experience in construction, Experience in construction disputes, Employed by project consultant, Employed by one of parties, Experience in similar project, Knowledge in similar construction, Experience in interpreting contract documents, Experience in contracting, Experience in similar dispute, Knowledge of construction disputes resolution, Non-biases, Patient, Good listener, Good communication skill, No emotional, Honest, Humble, Open-minded, Reliable, Judicious temperament, Uses good judgment, Fair, Don't give opinion without evidence, and No interest of conflict.

The factor analysis simplifies complex sets of data and is used to identify underlying constructs (factors) that explain correlations among a set of data. Essentially, they summarize a large number of items with a smaller number of derived items. The resultant factor loadings represent the correlation between each of the items (answers to a question) with each of the derived factors.

4.2.1. Extraction of Factors

A factor analysis was performed using a principal component extraction with a Varimax rotation. List wise deletion was used to handle missing values in the factor analysis. Factors selected for rotation had eigenvalues greater than 1. Items with factor loadings equal to or greater than .30 were acceptable, greater than .40 were considered significant, and loadings of .50 or greater were considered very significant [58 and 59]. Scales were interpreted by identifying those items with their highest factor loading on the same factor. Eighty-seven percent of the loaded items were very considered significant and others were considered significant and acceptable.

Initially, an exploratory factor analysis was used. Only factors with an eigenvalue greater than 1 were considered for further analysis, which resulted in 6 factors. On the basis of eigenvalues and implications from the scree-test, 4 of the 6 factors were chosen. As can be seen in Table 3 the 4 factors represent 58% of the total variance in responses after varimax rotation. A scree plot indicated that 4 factors constituted an appropriate solution [60]. The first, second, and third factors accounted for 28%, 13%, and 10% of the variance, respectively. Table 3. details the 4 factors and the percent of variance each explains.

Table 3. The extracted factors

| Factor | Total | % of variance | Cumulative % |
|--------|-------|---------------|--------------|
| 1 | 6.748 | 28.116 | 28.116 |
| 2 | 3.169 | 13.205 | 41.321 |
| 3 | 2.456 | 10.233 | 51.554 |
| 4 | 1.596 | 6.649 | 58.204 |

A principal component factor analysis with a varimax rotation was run. A varimax rotation was selected for the analysis because it is the most commonly used rotation and because it is relatively easy to interpret and use. Table 4. shows a summary of items and factors.

Table 4. Summary of items and factors

| Q | Variable | F1 | F2 | F3 | F4 |
|----|---|--------|--------|-------|--------|
| 1 | Experience in construction | 0.434 | | | 0.136 |
| 2 | Experience in construction disputes. | 0.916 | 0.175 | | |
| 3 | Employed by project consultant. | | -0.450 | 0.166 | -0.510 |
| 4 | Employed by one of parties. | -0.374 | -0.576 | | -0.112 |
| 5 | Experience in similar project | 0.944 | 0.153 | | 0.109 |
| 6 | Knowledge in similar construction | 0.407 | | | 0.120 |
| 7 | Experience in interpreting contract documents | 0.724 | | 0.101 | |
| 8 | Experience in contracting | 0.868 | 0.161 | | 0.148 |
| 9 | Experience in similar dispute | 0.945 | 0.131 | | |
| 10 | Knowledge of construction disputes resolution | 0.278 | 0.325 | 0.414 | 0.186 |
| 11 | Non-biases | 0.156 | | | 0.907 |
| 12 | Patient | 0.258 | 0.302 | 0.378 | |
| 13 | Good listener | | 0.797 | 0.172 | |
| 14 | Good communication skill | 0.403 | 0.495 | | |
| 15 | No emotional | | | 0.740 | -0.146 |
| 16 | Honest | 0.344 | 0.595 | 0.300 | |
| 17 | Humble | 0.365 | | 0.782 | |
| 18 | Open-minded | -0.120 | | 0.730 | |
| 19 | Reliable | 0.286 | 0.496 | 0.435 | |
| 20 | Judicious temperament | 0.117 | | | -0.196 |
| 21 | Uses good judgment | 0.104 | 0.139 | 0.349 | 0.118 |
| 22 | Fair | | -0.135 | | 0.888 |
| 23 | Don't give opinion without evidence | | 0.782 | | |
| 24 | No interest of conflict. | | 0.736 | | |

4.2.2. Naming and meanings of the factors

Naming should be done with respect to common meaning of the variables in which the factors have significant weight. I.e. this name should provide an appropriate meaning and concept for those variables. Albeit, it is natural that variables with higher factor loading are more important in naming [61]. Naming and meanings of the 4 factors were interpreted as follows:

Factor 1, familiarity with legal and technical issues: This factor shows that the third party selected for dispute resolution in the construction industry should have enough familiarity with both the legal and technical aspects of construction industry to identify the roots of the dispute and have an accurate deduction concerning technical and legal contract documents. This factor consisted of 7 items (positively worded) with loads greater than .407. Higher scores

indicate stronger beliefs in the experience in similar project and experience in similar disputes. All Factor 1 items were very significant or significant.

Factor 2, being accepted by both parties: He/she should be independent and his/her opinions should be documented and can respond with reason to parties. This factor consisted of 7 items (6 positively worded and 1 negatively worded) with loads greater than .495. The negatively worded items were reverse scored. Higher scores indicate stronger beliefs in the good listener and don't give opinion without evidence. All Factor 2 items were very significant or significant.

Factor 3, efficiency: The third-party must have essential knowledge and character for making peace and settlements. He/she must be familiar with dispute resolution techniques and for achieving settlements. They must also be patient and not overly sensitive. This factor consisted of 6 items (positively worded) with loads greater than .349. Higher scores indicate stronger beliefs in humble and no emotional. With the exception of two items, all Factor 3 items were very significant or significant.

Factor 4, fairness: They must be completely neutral, fair and not raise skepticism. This factor consisted of 3 items (2 positively worded and 1 negatively worded) with loads greater than .510. The negatively worded items were reverse scored. Higher scores indicate stronger beliefs Neutral and Fair. All Factor 4 items were very significant.

Evans [53] had used descriptive statistics and reflected the frequency of effective variables in selection neutral for resolving construction disputes. In the Evans research; 'Honest, No conflict of interest, Fair, Integrity, Non biased and Uses good judgments' are the most frequency. Evans also found experience of neutrals was more important than their knowledge and technical qualifications were more important than personal characteristics for neutrals supporting ADR. The obtained factors in this research cover all introduced variables by Evens and converge with his findings.

5. Conclusion

The time and money spent by all parties involved in a dispute have led to the rise of alternative methods of dispute resolution, called Alternative Dispute Resolution (ADR) methods. The use of third-party in the ADR methods is important. These methods are classified based on the role of the third party. Third-parties can play multiple roles in the ADR process including a facilitative, advisory, determinative or combined. The authorities of the third-party in the types of ADR techniques are different. It can be concluded that selecting the third-party based on tested factors is important for the success of ADR techniques. The research identified four critical factors for selecting ADR third-parties in construction which are as follows.

Factor 1, familiarity with legal and technical issues: This factor shows that the third party selected for dispute resolution in the construction industry should have enough familiarity with both the legal and technical aspects of construction industry to identify the roots of the dispute and have an accurate deduction concerning technical and legal contract documents.

Factor 2, being accepted by both parties: He/she should be independent and his/her opinions should be documented and can respond with reason to parties.

Factor 3, efficiency: The third-party must have essential knowledge and character for making peace and settlements. He/she must be familiar with dispute resolution techniques for achieving settlements. They must also be patient and not overly sensitive.

Factor 4, fairness; they must be completely neutral, fair and not raise skepticism.

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Appendix I: Questionnaire

Neutral in Construction Dispute Resolution methods

1. What kind of below license do you have?

Check all that apply.

- ☐ a. Court official expert
- ☐ b. Civil (of construction engineering organization)
- ☐ c. Architecture (of construction engineering organization)

2. What kind of following experience do you have in construction industry?

Check all that apply.

- ☐ a. Contractor
- ☐ b. Consultant
- ☐ c. Private owner
- ☐ d. Public owner
- ☐ Other: _____

3. How long do you have experience for question 2?

Mark only one oval.

- ☐ a. Less than 10 years
- ☐ b. Between 10 and 15
- ☐ c. Between 15 and 20
- ☐ d. More than 20 years

4. Do you currently active in a companies or organizations of construction industry?

Mark only one oval.

- ☐ a. Yes, contractor
- ☐ b. Yes, Consultant
- ☐ c. Yes, public owner
- ☐ d. Yes, private owner
- ☐ e. No

5. How important is a neutral person to reach a settlement in construction disputes?

Mark only one oval.

| | | | | | | |
|----------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|---------------|
| | 1 | 2 | 3 | 4 | 5 | |
| Very important | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | Not important |

6. If you are responsible for selecting a neutral for resolving owner and contractor dispute what effect does the employment of the neutral have on your consideration:

Please choose applicable responses for each part
Mark only one oval per row.

| | Strongly agree | Agree | No opinion | disagree | Strongly disagree |
|---|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| a. neutral should has experience in construction | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| b. The neutral should has experience in field of construction disputes. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| c. The neutral can be employed by project consultant. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| d. The neutral can be employed by one of parties. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

7. How important are the following experience-related technical qualifications for neutrals supporting out of court (ADR) methods for contractor and owner disputes? (For each qualification, choose your level of importance).

Please select number 1 for very important and number 5 for not important
Mark only one oval per row.

| | 1 | 2 | 3 | 4 | 5 |
|--|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| a. Experience in similar project | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| b. Knowledge in similar construction | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| c. Experience in interpreting contract documents | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| d. Experience in contracting | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| e. Experience in similar dispute | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| f. Knowledge of dispute resolution methods | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

8. How important do you perceive the following personal characteristics to be neutral supporting out of court (ADR) methods for contractor and owner: (for each characteristic, select your level of importance).

Please select number 1 for very important and number 5 for not important
Mark only one oval per row.

| | 1 | 2 | 3 | 4 | 5 |
|---|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| a. Non-biases | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| b. Patient | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| c. Good listener | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| d. Good communicator | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| e. No emotional | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| f. Honest | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| g. Humble | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| h. Open-minded | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| i. Reliable | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| j. Judicious temperament | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| k. Uses good judgment | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| l. Fair | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| m. Don't give opinion without evidence and document | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| n. No interest of conflict. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

9. What kind of out-of-court dispute resolution (ADR) methods are you familiar?

10. This page is an open invitation for any additional comments. Please write your comments.

11. If you want to know the results of this research, please write your email address.
