# Modern Dispute Resolution Roadmap for Construction Project

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***Abstract***
*Construction projects involve an array of activities with several participants and as such makes the industry prone to disputes. This in turn increases the cost of project through implementation costs associated with dispute resolution. Most projects operate on tight budgets and as such cost-effective dispute resolution plays an important role in the success of a construction project. Thus, this study is aimed at developing a roadmap for effective modern dispute resolutions. A quantitative approach was adopted for the study. The questionnaire sought the perception of the respondents in construction firms in Abuja and Kaduna. 41% response rate was achieved and analysed using mean value analysis, and 24 causes of dispute were also identified. Thus, the most effective modern dispute resolution techniques have been assessed. The research identified dispute adjudication board as the resolution techniques with the highest level of effectiveness on 17 causes of dispute identified. The study concludes the roadmap is a valuable tool that helps dispute resolution more effectively because of how easy and effective, the selection of an accurate technique would become in Nigerian construction industry, also among the ADRs, modern dispute resolution techniques are the most effective especially in cost optimization. Similar research to be carried out in other part of the country since the research covers only few states'.*

**KEYWORDS** : Alternative Dispute Resolution, Construction Dispute, Construction Industry, Modern Dispute Resolution, and Roadmap.

## INTRODUCTION

Dispute arises naturally from the construction process largely due to the complexity of the project where players involved must coordinate their work in all stages of design and development. Given the nature of the construction industry, there has been a clear trend toward finding alternative methods of settlement of disputes to arrive at cost effective solutions that are flexible and time-efficient (Cheung, 1999). Skills in dispute resolution should be part of the tool kit of any practitioner in a managerial position. In fact, construction disputes are the most common among arbitration proceedings (Alexander & Partner, 2015). The prevalence of construction disputes indicates that the current approach to dispute resolution is not effective enough. According to Alexander & Partner (2015) dispute resolution methods can be effectively combined into more comprehensive dispute prevention and resolution processes, where the benefits of synergy can be exploited to successfully prevent or resolve the dispute, which may include; Risk assessment and allocation, including detailed project scope definition; Partnering, including creating a set of common project goals; and, Contract clauses that outline a flexible framework for dispute resolution.

The modern mechanisms are particularly employed to resolve any dispute that may arise during the pendency of construction project while on site to avoid the cost of arbitration or litigation as the case may be. They are cost-effective, simple, user-friendly, effective and speedy. The construction professionals are charged with this responsibility as the prime service providers for these mechanisms thereby allowing the experts in the relevant areas to

efficiently resolve disputes with the lowest possible costs and within minimal time. While the conventional mechanisms are used at the post- completion stage of the projects for disputes that have become complex and require more attention from the experts (Raji, 2016).
However, no research seems to have been documented on the effectiveness of modern dispute resolution techniques to construction industry using a roadmap. Hence this study developed a roadmap for effective modern dispute resolutions, to save time and optimize cost in the event of dispute during construction project. The study intends to identify the common causes of dispute in construction industry, to assess the effectiveness of modern dispute resolution techniques adopted in construction industry, and to develop a roadmap of modern dispute resolution techniques for construction industry.

## 'LITERATURE REVIEW'

### *Construction Dispute Concept*

The construction industry is a complex and competitive environment in which participants with different views, talents and levels of knowledge of the construction process work together. In this complex environment, participants from various professions, each has its own goals and each expects to make the most of its own benefits. In the construction industry, since differences in perceptions among the participants of the projects, conflicts are inevitable. If conflicts are not well managed, they quickly turn into disputes. Disputes are one of the main factors which prevent the successfully completion of the construction project.
Thus, it is important to be aware of the causes of disputes in order to complete the construction project in the desired time, budget and quality. Resolving construction disputes using an adversarial approach is considered to be in opposition to the maintenance of a harmonious relationship between two parties. In modern days, construction projects have become more and more complex and intriguing. One source of the complexity arises from the large number of parties involved.

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This is especially the case for large scale construction projects. Because of such complexity, disputes are almost inevitable and implementation costs associated with dispute resolution have become increasingly expensive.
According to the studies carried out by Reid and Ellis (2007) in a paper entitled 'Common sense applied to the definition of a dispute' make the argument that there is no definitive meaning of "dispute" and the existence of a dispute in construction adjudication is a subjective issue requiring a practical common-sense approach relying on the facts, the law and policy considerations. Reid and Ellis cite the Halki Principle (which is applicable in the UK, but also relevant to Australia and can be summarised along the lines that a dispute does not exist until a claim has been submitted and rejected; a claim being a request for compensation for damages incurred by any party to the contract). Reid and Ellis make the point that, although the Halki Principle may appear to be clear cut, a strict application of Halki may cause a breach of natural justice in some cases "whereas a common-sense application of the Halki test, taking cognisance of time-related issues and the original intent of construction adjudication, offers scope to establish a universal policy".

Construction Disputes can be defined as a request by either party to the contract, usually the Contractor, for compensation for damages caused by failure of the other party to fulfill his part of obligation as specified in the contract (Mohit & Gupta, 2017). The compensation is usually in the form of the additional payment or an Extension of Time (EOT). Construction disputes are measured by many project participants to be one of the most worrying and unlikable events of a project. International projects provide opportunities for developing countries to gain access to construction expertise, efficiently develop infrastructure, and advance the quality of life for citizens. Construction Disputes can be defined as a request by either party to the contract, usually the Contractor, for compensation for damages caused by failure of the other party to fulfill his part of obligation as specified in the contract. The compensation is usually in the form of the additional payment or an extension of time (EOT).

**Causes of Dispute**

According to Mohit & Gupta (2017) there are different kinds of conflicts happen in construction industry between the parties which is mostly converts into the disputes. After taking the opinion of experts like experienced or professional Designers, Arbitrator, contractor, client, Professors of the construction sector as well as after reviewing different literatures related to construction disputes, the causes of disputes are; Delay provisional payment from client, Extension of time, Inadequate scope definition, Incomplete drawings and specification, Poorly written contracts clauses, Inaccurate estimating, Error of pricing or costing, Quality of technical specifications, Planning errors accelerations, Change in Work Orders, Inappropriate contractor selection, Inadequate risk identification/allocation, Contradictory and erroneous information in the mass of documents, Cooperation and communication nature among project team, Conflicting goals & objectives of project parties, No trust between the parties, Negotiations lacked experience, Lack of team work spirit, Site limitation, considering storage, access, Changes in environmental regulations, Late supply of equipment and materials, Poor labor productivity, Variation in quantities, Inadequate site Condition, and Contractual Dispute.

**Method of Dispute Resolution**

In general, there has been a remarkable shift towards means and bodies of extra-judicial (alternative) dispute resolution (ADR) in many countries. In addition, ADR may provide a relatively quick and cheap process of dispute resolution. Alternative Dispute Resolution (ADR) techniques such as negotiation, mediation, and arbitration are being widely adopted in large-scale construction projects to resolve disputes in more effective and cost-saving ways.
The diverse range of methods of dispute resolution practiced makes it difficult to discuss the universal applications. Not only are the traditional processes constantly evolving but there are also hybrid processes being utilised by various organisations and industries.

a. Negotiation
b. Conciliation, Facilitation and mediation
c. Arbitration
d. Litigation

***Benefit of Advantages of ADR***

The study by Treacy 1995; Levin 1998; Harmon 2003; Richbell 2008) includes some advantages of ADR, which are;Speed, Economy, Amicable business relationship, Impartial neutrals, Informality, Privacy, and Finality. while **Disadvantages of ADR Practice includes;** Suitability, Lack of court protections, Lack of enforceability, Disclosure of information, Cost of ADR, Delay, Fairness, Inequality, and Delaying tactics.

**Effect of Dispute on Construction Industry**

Disputes in construction sometimes by their very nature, usually complex and can be very expensive with costs in millions of naira. Even apart from cost, the time involved in the dispute process in the construction field is also very long. Disputes both inlocally and international construction typically occur for reasons such as parties' lack of knowledge and experience in construction law (such as conflicts of laws and jurisdictional problems), differing project management practices (local versus foreign), and differences in parties' expectations of cost, duration, scope, and risk. Many studies confirmed that the differences in those factors have an effect on the causation and resolution of construction. Disputes are virtually inevitable in construction environs. It may not be incorrect to suggest that it is not very uncommon to have dispute free construction. This is mainly attributed the fragmented and complex nature of construction.

## RESEARCH METHODS

The appropriate choice of methodology is a key factor for a successful research work. The study adopted a quantitative approach because of the nature of the research problem the study seeks to answer, "what are the appropriate dispute resolution techniques for settling project disputes". In obtaining the population of the stakeholders across the country, the database of the registered contractors and consultants involved in Nigerian construction industries was obtained from the Corporate Affairs Commission's (CAC). According to the database the total registered contractors and consultants in Nigeria are 62,955.The total population of contractors, consultants and clients calculated to be 17,768.A cluster sample of Northern part of Nigeria (Abuja and Kaduna State) was used in this study. There exists very high number of the stakeholders in Abuja followed by Kaduna. This is an indicator that stakeholders' availability in Abuja and Kaduna can easily represent the northern part of the country.
For a population sample greater than 10,000, to determine the sample size for study then the following standard formula should be used as established in UNDP (2004) (cited IWSD, 2013).

$$n = \frac{Z^2\ p}{d^2}$$

Where:
n = the desired sample size
z = the standard normal deviate, usually set at 1.96 which corresponds to the 95 percent Confidence level
p = the proportion in the target population estimated to have particular characteristics (Normally set between 0.1 and 0.5)
q = 1.0 – p
d = degree of accuracy desired, usually set at 0.05

However, in this research work there is reasonable estimates which was calculated and realized that the proportion of the population to be tested (respondents from the clustered sampled statesi.e. Abuja and Kaduna state) was about 2,263, out of the 17,768 which is about 13% of the whole population.
Therefore, p is = 0.13
The sample size n = [(1.96)2 x 0.13 x 0.87)/ (0.05)2] = 177
The research therefore made use of the above formula and calculated the sample size to be 177, the questionnaires were self–administered by the researcher, and 82 were returned and used for the analyses. This shows that a response rate of 41% was obtained.

The statistical tool used was the statistical package for social science (SPSS) IBM version 23, thus; frequencies, percentages, mean scores, standard deviation, and cross tabulation as the means to data analysis. The data collection was through questionnaire survey, using Likert scale of 1-5, for the causes of dispute with mapping of the 24 identified suitable modern dispute resolution techniques in the Nigerian Construction Industry.

## RESULTS, DATA PRESENTATION AND ANALYSIS

Table 1 shows the mean score of the respondents for the 24 causes of dispute against the 6 modern dispute resolution techniques. The results show that all the 6 means generated for all the 24 causes dispute resolution were more than 1.00 and higher than 3.00. The least mean score range between 1.23 and 4.44, that is, $1.23 \leq \text{mean} \leq 4.44$.

In order to establish relationships between causes of disputes and modern dispute resolution techniques that can deal with them, appropriate dispute resolutions are mapped to the corresponding cause of dispute. The best three means of each resolution were selected proportionally to the scale used (effective, more effective and most effective).

**Dispute Resolution Techniques**

| ASSESSMENT OF MODERN DISPUTE RESOLUTION TECHNIQUES | | | | | | |
|---|---|---|---|---|---|---|
| **DISPUTE RESOLUTION TECHNIQUES** | Dispute Resolution Advisor | Dispute Review Board | Dispute Adjudication Board | Expert Determination | Statutory Adjudication | Construction Court |
| **CAUSES OF DISPUTE** | | | | | | |
| Delay provisional payment from client | **3.71** | **4.00** | **3.74** | 2.04 | 2.89 | 3.52 |
| Extension of time | **3.77** | 2.24 | **3.81** | **3.74** | 2.36 | 3.50 |
| Inadequate scope definition | **3.5** | 1.57 | **3.66** | **3.58** | 3.27 | 2.44 |
| Incomplete drawings and specification | 3.63 | 3.47 | **3.91** | **4.18** | **3.89** | 2.33 |
| Poorly written contract clauses | **4.05** | **3.70** | **3.65** | 3.31 | 2.34 | 2.76 |
| Inaccurate estimating | 1.33 | 2.23 | **3.57** | **3.78** | 2,44 | **3.66** |
| Error of pricing or costing | 2.34 | 2.76 | **3.43** | **3.55** | 1.23 | **3.56** |
| Quality of technical specifications | **3.88** | 1.39 | 3.61 | **3.71** | 2.34 | **4.00** |
| Planning errors accelerations | **4.03** | 1.89 | **3.78** | 2.62 | 1.32 | **3.37** |
| Change in work order | **3.31** | 2.59 | 1.23 | 1.34 | **3.64** | 2.43 |
| Inappropriate contractor selection | 2.74 | **3.65** | 2.63 | 2.65 | 1.41 | **3.68** |
| Inadequate risk identification/allocation | **3.50** | 2.42 | 2.42 | **3.54** | 2.24 | 1.53 |
| Contradictory and erroneous information in the mass of documents | **3.71** | **4.00** | **3.74** | 2.00 | 2.89 | 1.71 |
| Cooperation and communication nature among project team | 2.74 | **3.61** | 3.59 | **3.79** | **3.90** | 2.86 |
| No trust between the parties | **4.18** | 2.34 | 2.71 | 2.91 | **4.05** | **3.77** |
| Negotiations lacked experience | 2.87 | **3.03** | **3.66** | **4.44** | 2.00 | 2.34 |

| | | | | | | |
|---|---|---|---|---|---|---|
| Lack of team work spirit | **4.19** | 3.42 | **3.66** | **3.82** | 2.81 | 2.83 |
| Site limitation considering storage | 2.61 | **3.88** | **3.40** | 2.78 | **3.89** | 1.89 |
| Changes in environmental regulations | 2.81 | **3.69** | 3.58 | **3.84** | **3.59** | 1.44 |
| Late supply of equipment and materials | 2.21 | **3.76** | **3.58** | 2.54 | **3.74** | 1.77 |
| Poor labour productivity | 1.64 | 2.68 | **3.68** | **3.61** | 1.56 | 1.97 |
| Variation in quantities | **3.41** | 2.55 | **3.52** | **3.58** | 1.67 | 1.68 |
| Inadequate site condition | **3.84** | 2.72 | **3.70** | **3.56** | 1.44 | 1.76 |
| Contractual dispute | **3.91** | **4.30** | 1.59 | **3.55** | 2.65 | 1.59 |

*Table 1: Dispute Resolution Techniques*

*Mapping of Modern Dispute Resolution with Construction Disputes*

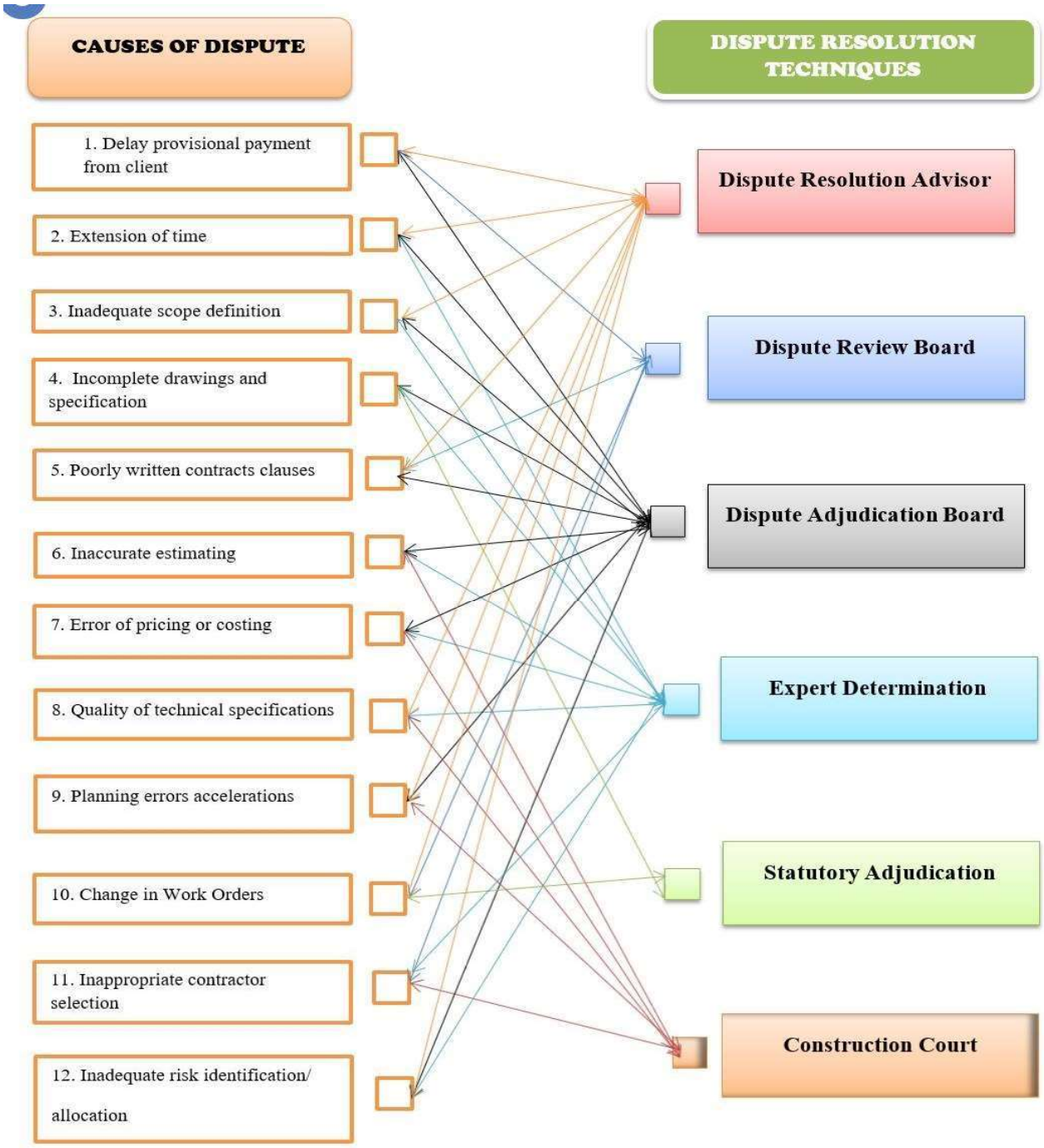


*Figure.1: Modern Dispute Resolution Roadmap*

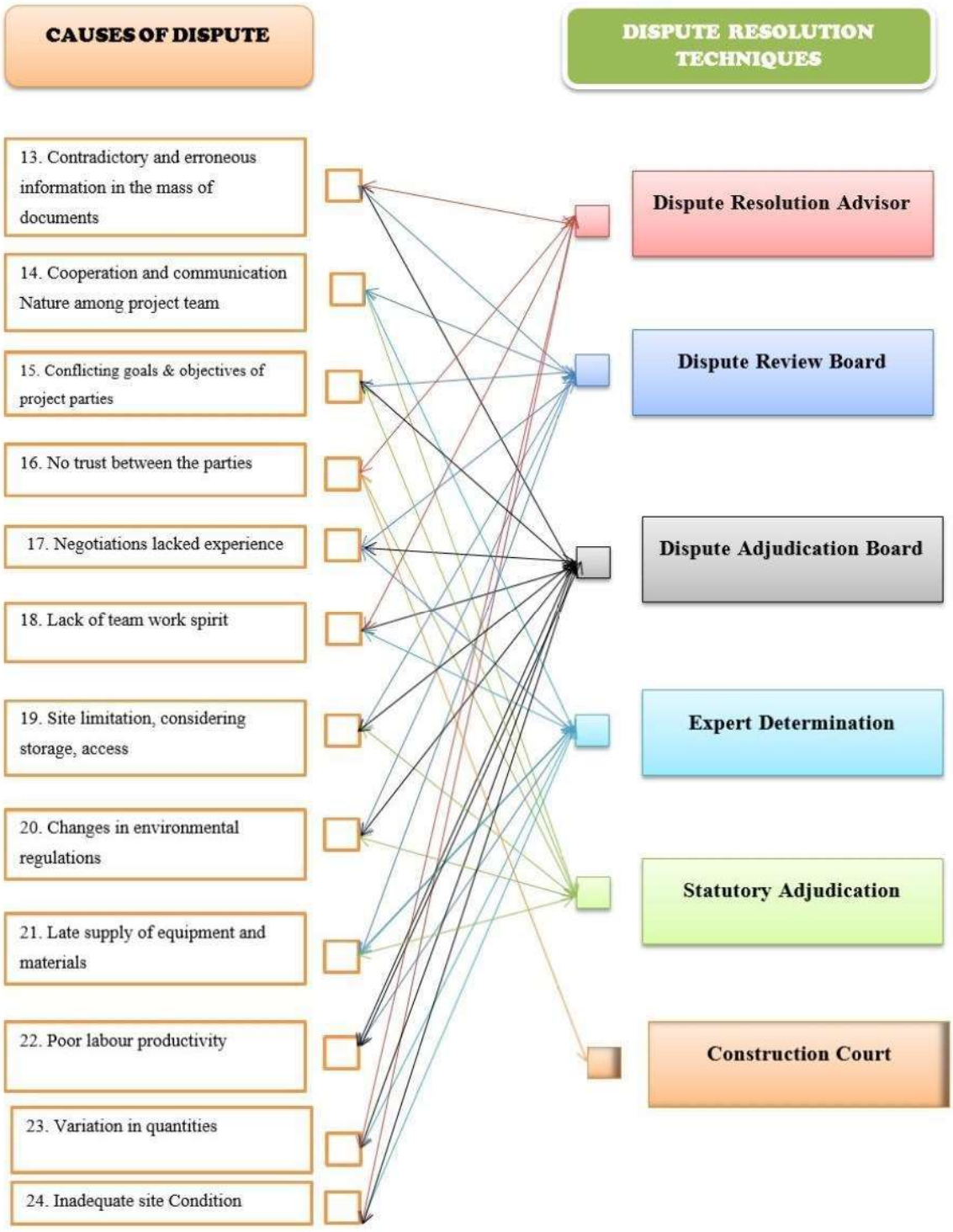


*Figure 2: Modern Dispute Resolution Roadmap*

**Discussion of results Analysis**

The mapping in Figure 1: shows the cause of dispute against the modern dispute resolution techniques that can be used to address them. The most effective techniques for Delay provisional payment from client are; dispute resolution advisor, dispute review board and dispute adjudication board. *Extension of time dispute* also has three (3) techniques which includes; dispute resolution advisor, dispute adjudication board and Expert determination.

The dispute resolution techniques that can be used to resolve inadequate scope definition are; dispute resolution advisor, dispute adjudication board and Expert determination. *Incomplete drawings and specification* can be address by: Dispute Adjudication Board, Expert Determination and Statutory Adjudication, this is also in line with the study carried out by (Mohit & Gupta, 2017).

*Poorly written contract clauses* modern dispute resolution Technique are; Dispute resolution advisor, Dispute review Board, and Dispute Adjudication Board, while *inaccurate estimating* can be address using: Dispute Adjudication Board, Expert Determination, and Construction Court. *Error of pricing or costing Technique* are; Dispute Adjudication Board, Expert Determination, and Construction Court. *Quality of technical specifications* can be address with; Dispute Resolution Advisor, Expert Determination, and Construction Court. The three techniques can also be used to address *Planning errors accelerations* viz; Dispute Resolution Advisor, Dispute Adjudication Board, and Construction Court.

It was affirmed by the study that the 3 techniques can be used to address *Change in work order* are as follows: Dispute Resolution Advisor, Dispute Review Board, and Statutory Adjudication, while *inappropriate contractor selection* Technique are; Dispute Resolution Advisor, Dispute Review Board, and Construction Court.

Figure 2 also shows that Dispute Resolution Advisor, Dispute Adjudication Board, and Expert Determination techniques can be used to overcome *Inadequate risk identification/allocation. Contradictory and erroneous information in the mass of documents* effective techniques includes: Dispute Resolution Advisor, Dispute Review Board, Dispute Adjudication Board. *Cooperation and communication nature among project team* can be address as follows: Dispute Review Board, Dispute Adjudication Board, and Expert Determination. *Conflicting goals and objectives of project parties'* techniques are as follows: Dispute Review Board, Expert Determination, and Statutory Adjudication, this is also in line with the study of (Rajoo, 2014).

The techniques that can be used to overcome *No trust between the parties* includes: Dispute Resolution Advisor, Statutory Adjudication, and Construction Court. Dispute Review Board, Dispute Adjudication Board, and Expert Determination are the 3 strategies can be used to prevail over *Negotiations lacked experience*.

*Lack of team work spirit* Technique includes: Dispute Resolution Advisor, Dispute Review Board and. - Expert Determination. *Site limitation considering storage* technique are as follows: Dispute Review Board, Dispute Adjudication Board, and Statutory Adjudication, while *Changes in environmental regulations* are as Technique includes: Dispute Review Board, Expert Determination, and Statutory Adjudication. It was affirmed that 3 techniques can be used to address *Late supply of equipment and materials* are as follows: Dispute Review Board, Dispute Adjudication Board, and Statutory Adjudication. *Poor labour productivity* techniques include: Dispute Adjudication Board, Expert Determination, Statutory Adjudication. *Variation in quantities* technique are: Dispute Resolution Advisor, Dispute Adjudication Board, and Expert Determination, while Dispute Resolution Advisor, Dispute Adjudication Board, and Expert Determination can be used to overcome *Contractual dispute*.

## CONCLUSION AND RECOMMENDATION

This study was carried out to assess the efficacy of modern dispute resolution techniques in Nigerian Construction Industry. The causes of dispute were mapped against the appropriate modern dispute resolution techniques for overcoming the challenges of the most effective dispute resolution to adopt when preparing the contract document. The outcome of the mapping analysis was expressed as roadmap for modern dispute resolution.

Seventeen causes of dispute can be overcome by Dispute Adjudication, sixteen causes of dispute can be settled by Dispute Resolution Advisor, fifteen causes of dispute can be resolved using Expert Determination, thirteen causes of dispute can be overcome by Dispute Review Board, Construction Court can settle eight causes of dispute and Statutory Adjudication can resolve seven causes of dispute. This research shows that even among the ADRs, modern dispute resolution techniques are the most effective especially in cost optimization; this is also in line with the study carried out by (Mohit & Gupta, 2017).

However**,** it is recommended that further research should be conducted on how improper selection of dispute resolution techniques can affect the projects, also similar research to be carried out in other part of the country since the research covers only few states.

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