Enhancing Efficiency in Complex Construction Arbitrations With a Focus on the MENA Region

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1. Due to the acceleration of infrastructure projects in the MENA region,[1] construction disputes rank first among the disputes arbitrated before arbitral institutions. Construction arbitrations are known to be complex and thus costly and time-consuming. Given the importance of the construction industry in the MENA region, this article will examine the various mechanisms, which can be used either in the pre-arbitration phase or during the arbitration procedure itself, to streamline the arbitration process and help manage the time and costs of such disputes.

2. This article will also focus on the tools that have been developed through arbitration practice and by the arbitration centres in the MENA region.

1. Pre-arbitral mechanisms: filtering the issues prior to the commencement of arbitration:

3. In construction projects, parties have helped to elaborate a series of dispute prevention and resolution measures, such as expertise,[2] arbitration,[3] expedited

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1. Recent infrastructure projects include Qatar's 2022 World Cup and Dubai World Expo 2020, Egypt New Administrative Capital City, mega power generation plants, the Grand Egyptian Museum, and Egypt's Rod al-Farag Axis Bridge, ranked as the world's widest cable-stayed bridge.
2. See, for example, the ICC Expertise Rules.
3. Scholars define arbitration as "*the institution by which a third party settles a dispute between two or more parties by exercising the jurisdictional mission entrusted to it by those parties*" (*unofficial translation*). See Charles Jarrosson, La notion d'arbitrage, LGDJ, 1987, n°785, p. 372.

arbitration,[4] fast-track arbitration[5] and mediation,[6] insofar as commercial imperatives command that disputes be resolved rapidly, efficiently and cost-effectively.

4. In the MENA region, while arbitration remains the preferred method of resolving construction disputes, practice shows that it is used as the last resort: parties have a number of means at their disposal to avoid bringing their dispute before State courts and may rely on, for example, (i) a dispute board that may assist the parties in settling the issue before it becomes a dispute or (ii) mediation.

5. For instance, the Dubai Court of Cassation in Case No. 204/2008 ruled that "*contractually prescribed amicable dispute resolution procedures must be completed before arbitration can be commenced*".[7] These procedures include notably "*mediation and or adjudication*".[8]

6. Another example can be found in the *Captain Ossama Al-Sharif* cases,[9] which relate to three disputes arising out of three investment contracts concluded between Jordanian investor Captain Ossama Al-Sharif and the Egyptian State. The first contract related to the development of the Port of North El Sokhna, the storage of petroleum products and their circulation. The second contract dealt with the establishment and development of an automated customs system, and the third one with the development of a bulk liquids terminal in East Port Said.[10] Following alleged breaches by the Egyptian administrative

4. Expedited arbitration is defined as an "*arbitration whereby the parties agree to have disputes under a contract resolved pursuant to the set of expedited arbitration rules of an institution*". See Benjamin G. Davis, Odette Lagacé and Michael Volkovitsch "When Doctrines Meet – Fast-Track Arbitration and the ICC Experience", *Journal of International Arbitration*, Kluwer Law International 1993, Vol. 10, Issue 4, pp. 69-96, footnote 2 in Yas Banifatemi, "Chapter 1: Expedited Proceedings in International Arbitration", in Laurent Lévy and Michael Polkinghorne (eds), Expedited Procedures in International Arbitration, Dossiers of the ICC Institute of World Business Law, Volume 16 (Kluwer Law International; International Chamber of Commerce (ICC) 2017), pp. 9-10.
5. Fast-track arbitration is defined as an arbitration whereby the parties select a subset of disputes from the universe of potential disputes and agree that, if a dispute in this category arises, it will be resolved within a non-extendable time-limit. See Eva Müller, "Fast-Track Arbitration: Meeting the Demands of the Next Millennium", *Journal of International Arbitration*, Kluwer Law International, 1998, Vol. 15, Issue 3, pp. 5- 18.
6. Scholars state that the purpose of mediation is "*to bring the conflict to a settlement that is acceptable to both sides and consistent with the third party's interests*". See S. Touval and W. Zartman, 'International Mediation in the Post-Cold War Era', in C. A. Crocker, F. Osler Hampson and P. Aall (eds), *Turbulent Peace - The Challenges of Managing International Conflict* (Washington, D.C., United States Institute of Peace Press, 2001), 427-443, at 427.
7. Adrian Cole, "Winning Construction Arbitration in the Gulf: Some Strategic Considerations", in Nassib Ziadé (ed), *BCDR International Arbitration Review*, 2017, Volume 4, Issue 1, p. 119.
8. *Ibid.*, p.119.
9. ICSID Case No. ARB/13/3, ICSID Case No. ARB/13/4, and ICSID Case No. ARB/13/5.
10. Houssam Mohamad Gamaleddine, "Mediation as a Mechanism for Resolving Disputes in Egypt with a Focus on Investment Disputes", *International Journal of Arab Arbitration*, 2016, Volume 8, Issue 2, 29-30.

authorities, the investor initiated three ICSID investment arbitrations against Egypt. Upon the initiative of the Egyptian mediation committees, the parties decided to attempt to resolve their disputes through mediation, which led to a successful settlement and the discontinuance of the three claims in mid-2015.[11]

7. The scope of available means for the effective resolution of construction and infrastructure disputes in the MENA region "*has never been more varied, nor has there ever been a better opportunity to apply innovative and creative techniques*".[12]

8. For example, the FIDIC contracts,[13] and in particular the FIDIC Red, Yellow and Silver Books issued in 2017, highlight the role of dispute boards and recommend the use of Dispute Avoidance and Adjudication Boards (DAABs):

   "*these contracts all provide for disputes to be referred to a DAAB, which issues a binding decision. The DAAB can also offer informal advice and assistance during the project with the aim of resolving issues before they become disputes. The DAAB process is the first stage in a multi-tiered dispute resolution procedure. If a party is dissatisfied with a DAAB decision, it can refer the dispute to amicable settlement and ultimately arbitration, provided it complies with contractual time limits*".[14]

9. Most construction contracts used in Gulf are based on the FIDIC standard form and the DAB process has been adopted and embraced by the government of Abu Dhabi in their contracts.[15]

10. It should be recalled that dispute boards will not replace arbitration, insofar as the latter remains the mechanism through which the legal and factual issues are dealt with in the most exhaustive manner. Instead, dispute boards "*act as a filter, refining and clarifying the issues that need to be resolved through arbitration*".[16]

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11. David Lutran and Joséphine Hage Chahine, "Mediation: a Culturally Well-Established Dispute Resolution Mechanism in the MENA Region Gaining in Momentum", *International Journal of Arab Arbitration,* 2020, Volume 12, Issue 1, p. 35. See also Luke Eric Peterson, "Despite Egypt's reported desire to settle disputes, two tribunals are finalized in ICSID cases", *IAReporter*, 25 November 2014.
12. Michael Patchett-Joyce, "Specialist Techniques for Construction Dispute Resolution: How Many Ways Can the Cat Be Skinned?", in Nassib Ziadé (ed), *BCDR International Arbitration Review*, 2017, Volume 4, Issue 1, p. 98.
13. FIDIC contracts have been drafted by the International Federation of Consulting Engineers (commonly known as FIDIC, acronym for its French name *Fédération internationale des ingénieurs-conseils*) to be used as standard form contracts in the construction and infrastructure field worldwide.
14. "FIDIC contracts 2017-Dispute Avoidance/Adjudication Boards", Construction Practice Note, LexisNexis.
15. Stephen Hibbert, "Dispute Resolution in Abu Dhabi (Part 3) - A Lot Now Rides on Success of the DAB System", *Kluwer Arbitration Blog*, 22 April 2010.
16. "ICC Commission seeks to improve efficiency of construction arbitration", Out-Law Analysis, Pinsent Masons, 10 September 2019.

11. Therefore, resorting to dispute boards may help not only to settle certain issues of the dispute but also to "*ensure that only the most intractable disputes are dealt with at the arbitration stage,*"[17] which may inevitably lead to more controlled and efficient construction arbitration proceedings to follow.

12. For example, in speaking about the construction of Qatar's railway metro, one of the largest infrastructure developments in the Middle East, the general counsel for Qatar Railways Company (commonly referred to as Qatar Rail) stated in February 2017,that despite Qatar Rail having a "*huge volume of contracts with several companies, there is not a single case of arbitration so far', noting that Qatar Rail 'has a policy and mechanisms to settle any dispute before it reaches arbitration stage*".[18]

13. Even if the practice of relying on dispute boards is still rare in the MENA region, this is changing due to the influence of international practices in construction arbitration. Indeed, parties to construction and infrastructure contracts in the MENA region have as much interest in avoiding or resolving disputes quickly, cheaply and efficiently as parties anywhere else in the world.

2. Institutional rules: an efficient and time-saving framework:

14. Flexibility is a must when it comes to construction disputes. Specifically, it is essential that the parties and the arbitral tribunal are afforded enough flexibility to manage the production of evidence. Arbitration, specifically as provided for in the rules of arbitral institutions, offers a degree of flexibility that does not exist in state courts.

15. First, for the administration of large-scale construction disputes and arbitrations in the MENA region, parties most commonly chose the International Chamber of Commerce (ICC) and the London Court of International Arbitration (LCIA).[19]

16. Other notable regional arbitral institutions include the Cairo Regional Centre for International Commercial Arbitration (CRCICA), the Dubai International Financial Centre-London Court of International Arbitration (DIFC-LCIA), the Dubai International

17. "ICC Commission seeks to improve efficiency of construction arbitration", Out-Law Analysis, Pinsent Masons, 10 September 2019.
18. *See* news report in the *Qatar Tribune* (24 February 2017); and also Michael Patchett-Joyce, "Specialist Techniques for Construction Dispute Resolution: How Many Ways Can the Cat Be Skinned?", in Nassib Ziadé (ed), *BCDR International Arbitration Review*, 2017, Volume 4, Issue 1, p. 84.
19. Mohamed S Abdel Wahab, "Construction Arbitration in the MENA Region", The Guide to Construction Arbitration, 3rd edition, *Global Arbitration Review*, 4 October 2019.

Arbitration Centre (DIAC), the Abu Dhabi Commercial Conciliation and Arbitration Centre (ADCCAC), the Qatar International Centre for Conciliation and Arbitration (QICCA), the new Casablanca International Mediation and Arbitration Centre (CIMAC), and the Bahrain Chamber for Dispute Resolution (BCDR).

17. In their rules, these arbitration institutions have incorporated provisions to enable the arbitration procedure to be efficient and meet the specific needs of the construction industry. For example, many of them provide for a general principle that allows the tribunal to "*conduct the arbitration in whatever manner it considers appropriate*".[20] This provision is similar to Article 22.1 of the 2017 ICC Rules, which grants the parties and the tribunal discretion to decide how "*to conduct the arbitration in an expeditious and cost-effective manner*".[21]

18. For instance, Article 14 of the 2021 Arbitration Rules of the Dubai International Financial Centre-London Court of International Arbitration (DIFC-LCIA Rules) reads as follows:

> "*14.1 Under the Arbitration Agreement, the Arbitral Tribunal's general duties at all times during the arbitration shall include*:
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> (*i*) *a duty to act fairly and impartially as between all parties, giving each a reasonable opportunity of putting its case and dealing with that of its opponent(s); and*
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> (*ii*) *a duty to adopt procedures suitable to the circumstances of the arbitration, avoiding unnecessary delay and expense, so as to provide a fair, efficient and expeditious means for the final resolution of the parties' dispute.*
>
> *14.2 The Arbitral Tribunal shall have the widest discretion to discharge these general duties, subject to the mandatory provisions of any applicable law or any rules of law the Arbitral Tribunal may decide to be applicable; and at all times the parties shall do everything necessary in good faith for the fair, efficient and expeditious conduct of the arbitration, including the Arbitral Tribunal's discharge of its general duties*".[22]
> (Emphasis added.)

19. The 2013 Procedural Regulations of Arbitration of the Abu Dhabi Commercial Conciliation and Arbitration Centre (ADCCAC Rules) provide at Article 14 that: "*the Arbitration Panel shall apply the arbitration procedures in the way it deems, in its own discretion, to be appropriate, provided that the parties shall be treated on an equal*

20. CRCICA Rules (2011), Article 17.1; QICCA Rules (2012), Article 18.2; SCCA Rules (2016), Article 20.1; BCDR-AAA Rules (2017), Article 16.1.
21. ICC Rules, Article 22.1.
22. DIFC-LCIA Arbitration Rules of 2021, Article 14.

footing and that each Party is given full opportunity throughout the various stages of the proceedings to present its case".[23] (Emphasis added.)

20. Article 21.1 of the 2016 Arbitration Rules of the Saudi Center for Commercial Arbitration (SCCA Rules) states that "[t]*he Tribunal shall manage the exchange of information between the parties with a view to maintaining efficiency and economy. The Tribunal and the parties should endeavor to avoid unnecessary delay and expense while at the same time avoiding surprise, assuring equality of treatment, and safeguarding each party's opportunity to present its claims and defenses fairly*".[24] (Emphasis added.)

21. More specifically, the 2017 Arbitration Rules of the Bahrain Chamber for Dispute Resolution (BCDR-AAA Rules) afford the tribunal broad freedom to direct the "*order of proof*",[25] including directing the parties to focus their submissions on the key issues.

22. It is therefore clear that most institutional rules offer a degree of flexibility to the parties, under the supervision of the tribunal charged with managing the arbitral process. This has led to the emergence of practical tools that have significantly increased the efficiency of the procedure.

3. Tools generated by practice:

3.1. Pre-arbitration tools related to evidentiary documents and ensuring the efficiency of an upcoming construction arbitration:

23. In the construction field, disputes are known to be fact and document heavy, as well as long running.

24. Because of the large quantity of documents[26] an arbitration may require, it is recommended that the parties, before the commencement of an arbitration, agree upon an efficient document management system. Regardless of whether or not a dispute is on the horizon, appropriate records should be compiled and maintained

23. ADCCAC Rules of 2013, Article 14.
24. SCCA Rules of 2016, Article 21.1.
25. BCDR-AAA Rules of 2017, Article 22.8.
26. The IBA Rules on the Taking of Evidence in International Arbitration (the IBA Rules) define a document as "*a writing, communication, picture, drawing, program or data of any kind, whether recorded or maintained on paper or by electronic, audio, visual or any other means.*" The term 'document' relates not only to physical media, but also to any type of electronic media such as emails, text messages, word processing documents, digital images or even metadata.

throughout the course of a construction project in order to ensure a synchronous history of the events that occurred. To this end, practice has generated various tools, such as:

i. Building a "Paper Trail":

25. This is a technique used before the initiation of arbitration proceedings which consists in the compilation of appropriate records throughout the duration of a construction project. In other words, to ensure the efficient organization of an upcoming construction arbitration, the parties should cautiously gather the documents which were used during the life of a construction project, extracting potential evidence from a large and unorganized quantity of documents:

- **Pre-contractual and contractual documentation**: these documents primarily include specifications, drawings, geotechnical data or clarifications of the tender requirements provided by the owner, on one side, and the contractor's calculations, labour productivity assumptions, internal reports and worksheets, on the other side. The use of these documents in the upcoming arbitration is essential insofar as they may establish the parties' intentions and expectations as to the performance of the project as well as their respective obligations.[27]
- **Different versions of the schedules**: this type of document may be used to demonstrate the liability for delays and/or the entitlement to an extension of time.
- **All correspondence between the parties (technical, legal, etc.) and all records** (of every meeting, negotiation and transaction, and follow-up on any oral conversation with e-mails and notes). Such documentation is crucial when signs of a dispute arise. It is also essential to keep all the documentation related to mitigation attempts insofar as a party may need them to demonstrate that it fulfilled its obligation to mitigate losses.
- **Cost documentation**: these include all the invoices, receipts and proofs of payment. They serve to evidence the *quantum* of a potential cost claim.

26. The essential documents listed above should thus be kept and organized in a "*paper trail*" at an early stage of the construction project[28] in order to be used efficiently during a potential arbitration. This way, each party may present its case efficiently and inevitably maximize its chances of success.

27. Tanya Landon and Azal Khan, "Practical Tips for Handling Construction Claims and Disputes: Managing Documentary Evidence", *Kluwer Arbitration Blog*, 7 September 2018.
28. *Ibid.*

27. It should be emphasized that this paper trail may facilitate the document review process that occurs when a dispute arises by accelerating the elimination of documents that are immaterial or irrelevant to the case.[29]

ii. Use of EDMS:

28. Electronic document management software (EDMS) is key to facilitating the storing, sorting and analysis of voluminous documents. EDMS allows its user to filter out irrelevant documents in the early stages of the dispute and therefore extensively reduce the quantity of documents that need to be reviewed.

29. Moreover, the documents stored in the EDMS can be accessed by various users at the same time and from multiple devices. The information from the EDMS can also be quickly transferred to external users, including the other party or the arbitrators.[30]

30. With such new technology, parties can search and analyse documents based on chronology or subject-matter, which can be helpful when it comes to crafting and developing a convincing thesis of the facts that will help a party win its case.[31]

31. For instance, Qatar Rail selected Aconex, a provider of the world's most widely used project collaboration solutions, particularly in the construction sector, to host a collaborative electronic document management (EDM) system for the Qatar Rail Program. Faced with an ambitious schedule and tight deadlines, Qatar Rail chose an electronic document management system that offers fast implementation and high reliability.[32]

3.2. Practical tools for the arbitration proceedings:

32. The following tools are recommended to both arbitrators and parties:

i. Electronic tools during document production:

33. Construction arbitrations are often won or lost depending on the availability and relevance of documents generated at the time of the events giving rise to the dispute.

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29. Bartosz Kru ewski and Robert Moj, "Documents in Construction Disputes", The Guide to Construction Arbitration, 3rd edition, *Global Arbitration Review*, 2 August 2017.
30. Bartosz Kru ewski and Robert Moj, "Documents in Construction Disputes", The Guide to Construction Arbitration, 3rd edition, *Global Arbitration Review*, 2 August 2017.
31. Tanya Landon and Azal Khan, "Practical Tips for Handling Construction Claims and Disputes: Managing Documentary Evidence", *Kluwer Arbitration Blog*, 7 September 2018.
32. **"Qatar Rail Selects Aconex as EDMS for Major Transportation Program", MENA FOCUS, 9 May 2013,** https://menafocus.qa/qatar-rail-selects-aconex-as-edms-for-major-transportation-program/.

34. During the arbitration proceedings, and usually within the context of a specific phase on document production, also known as discovery, a party may request all types of documents. Some arbitrators may view this process as a fishing expedition. Tribunals generally prefer the traditional method of document production, *i.e.* the production of specific documents, notably as defined in the IBA Rules on the Taking of Evidence in International Arbitration[33] and the Rules of the International Centre for Dispute Resolution (ICDR).[34]

35. In construction arbitration, the most voluminous type of document sought in discovery are emails. Unlike the traditional method of targeting specific documents, making a request for the production of emails might lead to the submission by the opposing party of a series of irrelevant emails. In order to avoid this, practice has shown that the parties may agree "*on a protocol for the production of electronically stored data, such as emails*", with "*the arbitrators* [in charge of] *oversee*[ing] *and insist*[ing] *on a process that is both fair and efficient*".[35] The establishment of such a protocol between the parties should also recognize the need for metadata showing the provenance of the evidence to be preserved.

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33. Allow requests for a narrow and specific requested category of Documents in accordance with Article 3: "*1. Within the time ordered by the Arbitral Tribunal, each Party shall submit to the Arbitral Tribunal and to the other Parties all Documents available to it on which it relies, including public Documents and those in the public domain, except for any Documents that have already been submitted by another Party.*
2. Within the time ordered by the Arbitral Tribunal, any Party may submit to the Arbitral Tribunal and to the other Parties a Request to Produce.
3. A Request to Produce shall contain:
(*a*) (*i*) *a description of each requested Document sufficient to identify it, or*
(*ii*) *a description in sufficient detail (including subject matter) of a narrow and specific requested category of Documents that are reasonably believed to exist; in the case of Documents maintained in electronic form, the requesting Party may, or the Arbitral Tribunal may order that it shall be required to, identify specific files, search terms, individuals or other means of searching for such Documents in an efficient and economical manner;*
(*b*) *a statement as to how the Documents requested are relevant to the case and material to its outcome; and*
(*c*) (*i*) *a statement that the Documents requested are not in the possession, custody or control of the requesting Party or a statement of the reasons why it would be unreasonably burdensome for the requesting Party to produce such Documents, and*
(*ii*) *a statement of the reasons why the requesting Party assumes the Documents requested are in the possession, custody or control of another Party*".

34. Allow also requests for specific documents or classes of documents in accordance with Article 21.4: "*The tribunal may, upon application, require a party to make available to another party documents in that party's possession not otherwise available to the party seeking the documents, that are reasonably believed to exist and to be relevant and material to the outcome of the case. Requests for documents shall contain a description of specific documents or classes of documents, along with an explanation of their relevance and materiality to the outcome of the case*".

35. David Kiefer and Adrian Cole, "Suitability of Arbitration Rules for Construction Disputes", The Guide to Construction Arbitration, 3rd edition, *Global Arbitration Review*, 3 October 2019, p. 84.

36. Other recent methods for eliminating irrelevant data include (i) the use of search terms, whereby the requesting party states its request and then agrees with the producing party on a set of search terms to be run against the universe of data to find responsive hits,[36] or (ii) the use of predictive coding, which is based on an algorithm designed to extract emails relating to the issues that are most important to the parties.[37]

37. All of these methods contribute to saving time and thus to streamlining the efficiency of a complex construction arbitration.[38]

ii. The Scott Schedule:

38. Most construction disputes are multi-faceted,[39] dealing with various causes of action and heads of claim. For this reason, arbitral tribunals might require the parties to submit their respective positions in a schedule/tabular, the objective of which is "to *present the issues before the arbitral tribunal as crystal clear as possible*".[40]

39. The Scott Schedule is referred to by some scholars as nothing less than "*the antithesis of pleadings*"[41] and consists in the parties formulating their basic positions and claims, together with the most important arguments supporting their assertions, in different columns according to the following sequence:
    1/ the claimant enumerates its allegations first; for example, by naming alleged defects;
    2/ the respondent replies to each of the issues, normally by including a statement on whether the respective allegations are agreed or denied and, in the latter case, the reason for the denial;[42] and
    3/ the tribunal rules upon the claims which are denied by the respondent.

40. In addition, the use of a Scott Schedule can even be extended to include the opinions of experts appointed by each party.[43]

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36. *Ibid.*, p. 84.
37. *Ibid.*, p. 84.
38. *Ibid.*, p. 84.
39. Adrian Cole, "Winning Construction Arbitration in the Gulf: Some Strategic Considerations", in Nassib Ziadé (ed), *BCDR International Arbitration Review*, 2017, Volume 4, Issue 1 p. 122.
40. Irene Welser and Alexandra Stoffl, "Chapter II: The Arbitrator and the Arbitration Procedure, The Use and Usefulness of Scott Schedules", in Christian Klausegger, Peter Klein, et al. (eds), *Austrian Yearbook on International Arbitration*, Volume 2017, pp. 165-167.
41. *Ibid.*, pp. 165-167.
42. Irene Welser and Alexandra Stoffl, "Chapter II: The Arbitrator and the Arbitration Procedure, The Use and Usefulness of Scott Schedules", *op.cit.*, pp. 165-167.
43. Adrian Cole, "Winning Construction Arbitration in the Gulf: Some Strategic Considerations", in Nassib Ziadé (ed), *BCDR International Arbitration Review*, 2017, Volume 4, Issue 1, p. 122.

41. There are many reasons to recommend the use of a Scott Schedule:

- A Scott Schedule is a "*single*"[44] working document that summarizes, in just a few paragraphs, the issues otherwise described on several pages through submissions. It should therefore serve to separate the crucial issues from the trivial ones and facilitate the analysis of data and the drafting of the award by the arbitrators in a cost and time effective way.[45] As proof of its usefulness, some arbitral tribunals have included part or all of the Scott Schedule in the final award.[46]
- A Scott Schedule may help the arbitral tribunal in identifying the main issues in dispute and thus facilitate the decision-making process.
- A Scott Schedule is supposed to eliminate the need for reiterated references to large written submissions.[47]
- Finally, and more importantly, a Scott Schedule may help parties to reach a settlement agreement as to their dispute, insofar as it increases the parties' respective awareness of their potential weaknesses and the risks they might bear from arbitration.

iii. New methods in gathering technical expert evidence:

42. Another feature of the complexity of construction arbitration is its heavy reliance on expert reports.[48]

43. Parties commonly resort to experts on delay and *quantum*, as well as design or material failure.

44. Experts on delay identify the critical path, or sequence of events which lead to delay in the completion and quantify that delay. However, they are often also asked to identify the causes of such delay as well as the party which bears responsibility.[49]

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44. Jeff Waincymer, Procedure and Evidence in International Arbitration, Part II: The Process of an Arbitration, Chapter 9: Hearings, section 9.3.2, p.721.
45. Irene Welser and Alexandra Stoffl, "Chapter II: The Arbitrator and the Arbitration Procedure, The Use and Usefulness of Scott Schedules", *op.cit.*, pp. 170-171.
46. *Ibid.*, pp. 165-167.
47. Jane Jenkins and Kim Rosenberg, 'Chapter 9: Engineering and Construction Arbitration', in Julian David Mathew Lew, Harris Bor, et al. (eds), Arbitration in England, with chapters on Scotland and Ireland, pp. 159 - 192.
48. Richard Harding, "The Unique World of Construction Arbitration: A Middle East Perspective", in Nassib Ziadé (ed), *BCDR International Arbitration Review*, 2017, Volume 4, Issue 1, p. 5.
49. *Ibid.*, pp. 5-6.

45. Experts on *quantum* evaluate the claims, applying either the valuation rules in the contract or their expertise, to ascertain reasonable sums. They also often carry out the task of verifying that the sums claimed are supported by documentary evidence.[50]

46. Due to the complexity of these issues, the inevitably large number of factual issues, the large quantity of documentary evidence, and the amount of work carried out by experts, construction arbitrations require significant management of the technical expert reports.

47. For instance, in the *Adel A Hamadi Al Tamimi v. Sultanate of Oman* case,[51] numerous expert reports were presented and were necessary to enable the tribunal to understand the various issues and resolve the complexity of the dispute.

48. To ensure the proper management of such evidence and to enhance the efficiency of a construction arbitration, tribunals have developed useful techniques:

49. For example, tribunals may require the party-appointed technical experts to meet and confer, or even to submit a joint report, allowing them to narrow the issues in dispute.[52] This approach has been endorsed in Article 5.4 of the IBA Rules, according to which:

> "[t]*he Arbitral Tribunal in its discretion may order that any Party-Appointed Experts who will submit or have submitted Expert Reports on the same or related issues meet and confer on such issues. At such meeting, the Party-Appointed Experts shall attempt to reach agreement on the issues within the scope of their Expert Reports, and they shall record in writing any such issues on which they reach agreement, any remaining areas of disagreement and the reasons therefore*".[53]

50. Arbitration practice and rules have developed efficient techniques to hear the oral testimony of experts that meet the efficiency requirements of construction arbitration. For instance, Article 8.3(f) of the IBA Rules provides for the use of the "*witness conferencing*" technique, known also as "*hot tubbing*".[54] According to this tool,

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50. *Ibid.*, pp. 5-6.
51. *Adel A Hamadi Al Tamimi v. Sultanate of Oman, ICSID Case No. ARB/11/33, 3 November 2015, International Journal of Arab Arbitration*, 2015, Volume 7, Issue 2, pp. 45-225.
52. Thomas Snider and Laura Adams, "The Use of Experts in Construction Arbitration in the Middle East", in Nassib Ziadé (ed), *BCDR International Arbitration Review*, 2017, Volume 4, Issue 1, p. 17.
53. IBA Rules on the Taking of Evidence in International Arbitration, Article 5.4.
54. Article 8.3(f) of the IBA Rules on the Taking of Evidence of International Arbitration: "*the Arbitral Tribunal, upon request of a Party or on its own motion, may vary this order of proceeding, including the arrangement of testimony by particular issues or in such a manner that witnesses be questioned at the*

arbitrators may require that experts sit together and opine on the same issues to be examined at the same session. This allows the tribunal to more easily identify the areas on which the experts agree and disagree. It also prevents experts from being present at the hearing longer than necessary. By carefully orchestrating witness conferencing, the tribunal can reduce the duration of the hearing in a complex construction dispute which could otherwise last several weeks.[55]

CONCLUSION:

51. Filtering the issues to be addressed and managing evidence during the pre-arbitration phase, as well as setting a time frame for the procedure during which the parties may submit their claims under a Scott Schedule and resorting to witness conferencing have all proved to increase the time and cost efficiency of construction disputes. That being said, the volume of documents in construction disputes is overwhelming and could expand further in the future as the complexity of construction projects continues to increase. This underlines the importance of the efficient management of documents in construction disputes, which is key to the parties' success in arbitration. Every new tool and technology must be considered to improve the efficiency of the process, and arbitrators, of all ages, should be open to the use of these new technologies.

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same time and in confrontation with each other (witness conferencing)". See also Kiefer and Adrian Cole, "Suitability of Arbitration Rules for Construction Disputes", The Guide to Construction Arbitration, 3rd edition, *Global Arbitration Review*, 3 October 2019, p. 84.

55. Commentary on the IBA Rules on Evidence, Article 8 [Evidentiary Hearing]', in Roman Mikhailovich Khodykin, Caroll Mulcahy, et al., A Guide to the IBA Rules on the Taking of Evidence in International Arbitration, Oxford University Press 2019, p. 396.