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Redefining the Role and Value of Expert Evidence in International Arbitration

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I. Introduction

The use and presentation of expert evidence is an important feature of international arbitration. The manner in which experts have come to be deployed has raised associated concerns about the best way for parties, and the tribunal, to obtain realistic, objective expert evidence. Although both party-appointed and tribunal-appointed experts are used in international arbitration, by far most expert evidence is provided by party-appointed experts. In the absence of effective case management techniques, experts of like discipline may be like “ships passing in the night,” providing evidence on different questions (generated by the respective parties), based on different witness and documentary material. The value of such expert evidence for both parties and the tribunal is low, with experts, whose agreed duty is to assist the tribunal, inevitably adopting the position of advocate for their respective appointing parties.

This article will consider the options available to international arbitration tribunals to receive expert evidence, and in respect of party-appointed experts, means by which tribunals, in consultation with parties, can devise methods for experts of like discipline to provide opinions on the same questions, using common data sets. Where opinions may differ, this article explores how experts can still assist by providing their analysis if the other expert’s methods or assumptions were to be adopted by the tribunal.

To do so, this article will first address in Section II the types of experts deployed in dispute resolution. Section III then explains the history behind the diverging methods by which experts are appointed (or designated) and the rules developed to accom-

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modate this difference. In Section IV, this article explores the use, benefits, and challenges of each method of appointment, along with some reforms implemented to respond to these challenges. Section V then discusses the ways in which the use and presentation of party-appointed expert evidence might proceed and proposes best practice protocols building on existing solutions. Two appendices setting forth exemplars of best practice are provided. Appendix 1 is an expert witness procedural order. Appendix 2 is an expert access protocol (facilitating the tribunal's ability to access quantum experts as part of the decision-making process).

It is suggested in this article that in order to achieve efficiency and cost-effective outcomes and provide real value for the parties and the tribunal, it is imperative to redefine the approach to expert evidence from party-appointed experts. Central to achieving this objective is the need for proactive case management. The author expects that the discussion and exemplars will be useful to practitioners and arbitrators in both domestic and international arbitration proceedings.

II. Who are the expert witnesses?

The legal and factual complexity of disputes requires the involvement of experts¹ who can assist the tribunal by giving specialized evidence in areas with which the tribunal may be unfamiliar. Experts can be broadly divided into three categories, differentiated by the type of expertise and their familiarity with giving expert evidence.

The first category is comprised of technical experts who are called to assist the tribunal on issues requiring specialized technical knowledge. Their evidence can range from knowledge of specific financial markets to expertise in a range of specialist fields, for example, pharmacology, computer programming, and metallurgy. Technical or industry-specific experts typically have less experience with giving expert evidence than the other two categories of experts.

The second category of experts can be broadly grouped under the description of "analysis" experts and comprise delay, disruption, and quantum (or damages) experts. These experts collate and express views on masses of material, often with the assistance of complex analytical models. Damages experts may specialize in a number of disciplines, such as accounting or finance.

¹Brooks W Daly and Fiona Poon, Technical and Legal Experts in International Investment Disputes, in Chiara Giorgetti (ed.), *Litigating International Investment Disputes* (Brill, 2014) 323, 323.

They may also possess other technical or scientific skillsets.² These experts represent an interesting middle ground between technical and analytical expertise because although they deploy some modicum of expertise in methods of valuation, this comes by means of analyzing and absorbing a mass of data which tribunal members often do not have the opportunity to fully analyze themselves. Quantum experts may have a particularly important role to play in assisting the tribunal, as many arbitrators indicate that they often find quantifying damages to be more challenging than determining liability.³

Legal experts occupy the third category. Lawyers may be called upon to give evidence where the law of a particular legal system is material to the dispute, and neither counsel nor the tribunal is familiar with such laws. However, the actual value of legal experts is problematic when both lawyers and the tribunal are in their own right “experts” in law; counsel having experience with presenting legal arguments, and arbitrators with assessing them. This is particularly the case in international arbitration where all parties to the arbitration frequently interact with “foreign” law.⁴ In this context, the practice, and purpose, of having lawyers cross-examine other lawyers is sometimes less than useful.⁵ One potential alternative which will be discussed further in this article is the use of an *amicus curiae*, independent to the proceedings, who may assist the tribunal with a submission on law. The tribunal may then consider this brief with the assistance of party submissions. In *Re United States Tobacco Company*, Justice Enfield (of the Federal Court of Australia) noted that the increasing complexity of modern life, compounded by the burgeoning of statutory law, presented legal challenges for the court’s discretion which might benefit from the assistance of *amici curiae*.⁶ This perspective can arguably be applied to international arbitration.

One or more of the above three types of expert witness are

²John A Trenor, Strategic Issues in Employing and Deploying Damages Experts, in John A Trenor (ed.), *The GAR Guide to Damages in International Arbitration* (Law Business Research, 2nd ed, 2017) 136, 136.

³Sussman, Arbitrator Decision Making: Unconscious Psychological Influences and What You Can Do about Them, 24 *Am. Rev. of Int’l. Arb.* 487, 497 (2013).

⁴Donald Francis Donovan, Re-examining the Legal Expert in International Arbitration, in Hong Kong International Arbitration Centre (ed.), *International Arbitration: Issues, Perspectives and Practice: Liber Amicorum Neil Kaplan* (Wolters Kluwer, 2018) 247, 253–5.

⁵Nigel Blackaby et al, *Redfern and Hunter on International Arbitration* (Oxford University Press, 6th ed, 2015) 397–8.

⁶*Re United States Tobacco Company v. The Minister of Consumer Affairs and the Trade Practices Commission* [1988] FCA 241 (14 July 1988) [68].

involved in the majority of arbitrations,⁷ and may be deployed in several ways. Some party-appointed experts are employed as consultants to assist with developing or setting the parameters for a claim to ensure parties advance better quality claims supported by sufficient, accurate evidence.⁸ This emerging category of shadow experts, or expert advisers, is distinct from the category of independent expert witnesses: the former's duty being foremost to the party while the latter has an overarching duty to the tribunal.⁹ Although they are distinct roles, it is envisioned that the same individual may assist the party in the preparation of claims and then with the presentation of expert witness evidence at the hearing.¹⁰ In this respect it is often the case that although not "shadow" experts, party-appointed experts in the second category of expert referred to above have had a degree of prior involvement in the case with the party who appoints them. This calls into play the need to judge the weight of their evidence, as noted in the International Chamber of Commerce (ICC) Commission 2019 Report.¹¹

Experts are usually called upon to give evidence in the form of written reports and testimony at an evidentiary hearing. The efficient use of this expert evidence has been the subject of significant recent debate including in webinars in which the author has been involved.¹²

⁷Paul Friedland and Stavros Brekoulakis, 2012 International Arbitration Survey: Current and Preferred Practices in the Arbitral Process (Survey, White & Case, 2012) 29.

⁸Experts in International Arbitration, *LCIA* (Web Page, 17 January 2018) <<https://www.lcia.org/News/experts-in-international-arbitration.aspx>>.

⁹See Julian Haslam-Jones, Are Shadow Experts Having a Positive Impact on Disputes?, *22 Driver Trett Digest* 22, 22–3 (Oct.).

¹⁰International Chamber of Commerce Commission on Arbitration and ADR, *Construction Industry Arbitrations: Recommended Tools and Techniques for Effective Management* (Report, 2019 update) 22 [18.3].

¹¹International Chamber of Commerce Commission on Arbitration and ADR, *Construction Industry Arbitrations: Recommended Tools and Techniques for Effective Management* (Report, 2019 update).

¹²See, e.g., Conversation Special on Construction Experts, *Delos Dispute Resolution* (Web Page, 25 May 2021) <<https://delosdr.org/my-events/conversation-special-on-construction-experts/>>; Conversation Special on Quantum Experts, *Delos Dispute Resolution* (Web Page, 4 May 2021) <<https://delosdr.org/my-event/s/conversation-special-on-quantum-experts/>>; ICC Commission Report: Witness and Expert Evidence, *Pinsent Masons* (Web Page, August 2021) <<https://www.pinsentmasons.com/events-training/icc-commission-report-witness-and-expert-evidence>>; Paris Arbitration Week 2021: Eight Disagreements over how to Enhance the Value of Witness Evidence, *ReedSmith* (Web Page, September 2021) <<https://www.reedsmith.com/en/events/2021/09/paris-arbitration-week-2021-eight-disagreements-over-how-to-enhance-the>>.

III. Methods of appointment

International arbitration is a preferred method to resolve complex, cross-border commercial disputes. Procedural flexibility and the enforceability of awards contribute significantly to this popularity. The multijurisdictional character of international arbitration has led to an amalgam of historically distinct civil and common law domestic procedures.

The difference in preferred methods of appointment (or “designation” as many U.S. practitioners would put it) for experts arises from distinctions between the approach to evidence in the civil and common law traditions. The methods of expert appointment can be broadly divided into two categories: party-appointed or tribunal-appointed.

Party-appointed experts emerge from the adversarial tradition of the common law where parties are responsible for developing the factual record and directing the legal issues for consideration by the court or tribunal. In this context, each party engages its own experts, briefs them, and consults with them in the preparation of their expert evidence. These experts can be cross-examined by the opposing party and the weight accorded to their evidence is ultimately determined by the court or tribunal.

Tribunal-appointed experts are the product of the civil law systems in which courts take a more inquisitorial approach to ascertaining facts and law. The role of the expert in the civil law tradition is to provide specialist assistance to the court or tribunal. Many jurisdictions have rules governing the appointment of tribunal-appointed experts, including avenues to challenge their appointment on grounds such as a lack of independence, conflict of interest or inadequate qualifications.

A. The meeting of traditions in international arbitration rules

Historically, international arbitration was more familiar to civil law practitioners and parties; however, the increasing participation of the United States (U.S.) and United Kingdom (UK) after their respective ratification of the New York Convention¹³ has led to the incorporation of a number of common law practices into the international arbitral process (e.g., discovery and written witness statements).¹⁴ The rules governing the taking of evidence in international arbitration have sought to recognize and embrace

¹³*Convention on the Recognition and Enforcement of International Arbitral Awards* (New York), opened for signature 10 June 1958, 330 UNTS 3 (entered into force 7 June 1959).

¹⁴Rubenstein, *International Commercial Arbitration: Reflections at the Crossroads of the Common Law and Civil Law Traditions*, 5 *Chi. J. Int'l L.* 303, 303 (2004).

these differences in tradition to achieve a compromise which adopts procedures attractive to parties from both civil and common law traditions.

1. The IBA Rules

The successful incorporation of common law evidence procedure by American firms into international arbitrations left continental lawyers feeling that they were at a disadvantage when faced with opponents familiar with these practices.¹⁵ In 1983 the International Bar Association (IBA) issued its Supplementary Rules Governing the Presentation and Reception of the Evidence in International Commercial Arbitration. The provisions regarding expert witnesses were slim and significant powers were given to the tribunal to call its own expert and regulate the way in which witness evidence (including expert evidence) was called and presented by the parties.¹⁶ Although the Supplementary Rules were oft discussed in academia, they were not widely adopted in practice.¹⁷ With the proliferation of international arbitration, they gave way in 1999 to the first modern iteration of the IBA Rules on the Taking of Evidence in International Commercial Arbitration (1999 IBA Rules). The goal of the 1999 IBA Rules was to provide a method of compromise between the divergent common law and civil law traditions by codifying a set of rules for international arbitration available for use by practitioners from different legal cultures. The IBA Rules were updated in 2010, and most recently in 2020, to incorporate developing best practice guidelines on the taking of evidence. With updates, the IBA Rules have become an “unavoidable tool” for counsel and tribunals in guiding the taking of evidence.¹⁸

It is important to note that the IBA Rules did not seek to develop a standardized or merged procedure for the taking of expert evidence, but rather reflected the practice of both historical traditions in providing separate rules for party-appointed and

¹⁵Christoph Müller, Importance and Impact of the First PRT, the IBA Evidence Rules, in Daniele Favalli (ed.), *The Sense and Non-sense of Guidelines, Rules and other Para-regulatory Texts in International Arbitration* (ASA Special Series No 37, 2015) 63, 64.

¹⁶International Bar Association, Supplementary Rules Governing the Presentation and Reception of the Evidence in International Commercial Arbitration (1983) arts 5, 7.

¹⁷Christoph Müller, Importance and Impact of the First PRT, the IBA Evidence Rules, in Daniele Favalli (ed.), *The Sense and Non-sense of Guidelines, Rules and other Para-regulatory Texts in International Arbitration* (ASA Special Series No 37, 2015) 63, 66.

¹⁸Scherer, The Limits of the IBA Rules on the Taking of Evidence in International Arbitration; Document Production Based on Contractual or Statutory Rights, 13(5) Int'l Arb. L. Rev. 195, 195 (2010).

tribunal-appointed experts.¹⁹ These rules are contained in Article 5 (party-appointed experts) and Article 6 (tribunal-appointed experts), and have been developed and refined to address the specific issues associated with each method of appointment.²⁰

The IBA Drafting Committee recognized that most modern institutional rules specifically referred to party-appointed experts. As a result, the Drafting Committee of the 1999 IBA Rules developed Article 5 to provide guidance on the use of party-appointed experts. The rules in Article 5 permitted a party to submit an Expert Report containing the background and qualifications of the expert, a disclosure of their relationship with any parties, a statement of the facts forming the basis for their expert opinion, and their conclusions along with the method used to arrive at them.²¹ Under Article 5.3, the tribunal could order party-appointed experts to meet and confer on relevant issues in order to reach agreement where possible and identify outstanding areas of disagreement. Experts were then required to appear for testimony at the evidentiary hearing unless otherwise agreed by the parties.²² The 2010 revisions sought to address a number of concerns about the partisan nature of party-appointed expert evidence, which will be discussed in more detail in Section IV. In particular, the 2010 IBA Rules required the Expert Report to contain a description of the instructions pursuant to which the expert(s) were providing their opinions and conclusions²³ and further, a statement of their independence from the parties, counsel, and the tribunal.²⁴ An added nuance in the 2010 IBA Rules was the requirement that the experts affirm their genuine belief in their opinions expressed in the Expert Report, as opposed to the 1999 IBA Rules which required affirmation of the “truth of the expert report.”²⁵ The 2020 revisions make minor changes to the content of Article 5; namely, Article 5.3(b) now permits revised or additional Expert Reports to be submitted in response to new

¹⁹Roman Khodykin and Carol Mulcahy, *A Guide to The IBA Rules on the Taking of Evidence in International Arbitration*, ed Nicholas Fletcher (Oxford University Press, 2019) 325-7; Henry and Romero, *La Preuve dans l'Arbitrage: Prague Rules v IBA Rules 1* *Revue de l'Arbitrage* 71, 74 (2020).

²⁰Roman Khodykin and Carol Mulcahy, *A Guide to The IBA Rules on the Taking of Evidence in International Arbitration*, ed Nicholas Fletcher (Oxford University Press, 2019) 327. These concerns are discussed further in Section IV.

²¹International Bar Association, *Rules on Evidence in International Arbitration* (1999, 1st ed) art 5.2 (1999 IBA Rules).

²²1999 IBA Rules, art 5.4

²³International Bar Association, *Rules on the Taking of Evidence in International Arbitration* (2010, rev ed) art 5.2(b) (2010 IBA Rules).

²⁴2010 IBA Rules, art 5.2(c).

²⁵1999 IBA Rules, art 5.2(d); 2010 IBA Rules, art 5.2(g).

developments that could not have been addressed in a previous Expert Report.

Article 6 provides rules for tribunal-appointed expert evidence. Unlike the rules for party-appointed experts, the 1999 IBA Rules clearly required tribunal-appointed experts to submit a statement of their independence from the parties and tribunal.²⁶ The 1999 IBA Rules further recognized the importance of party autonomy in arbitration, requiring the tribunal to consult the parties before appointing an expert and establishing the terms of reference for the expert inquiry.²⁷ The 1999 IBA Rules further permitted parties to raise objections as to the independence of the expert prior to their appointment. Experts were required to attend the evidentiary hearing at the request of a party or the tribunal and could be questioned by the tribunal, the parties or any party-appointed experts.²⁸ The 2010 revisions enhanced these rules, requiring tribunal-appointed experts to also submit (1) their qualifications and (2) their independence from parties' legal advisers, both of which can now be grounds for objection by parties. The scope for objection was widened such that parties could object to the expert's qualifications or independence *after* their appointment but only for reasons which the party became aware of after the appointment.²⁹ The 2010 IBA Rules prescribed in greater detail the content for the Expert Report by establishing requirements similar to those for party-appointed experts (albeit without a further requirement for a statement of independence).³⁰ One feature of both the 1999 and 2010 IBA Rules was that the tribunal-appointed expert had the same authority as the arbitral tribunal to request that a party provide information or access to documents, goods, sites etc. which were relevant and material to the outcome of the case. In the event of a disagreement as to the relevance, materiality, or appropriateness of a request, the arbitral tribunal could make a ruling. While the 2020 IBA Rules still permit the tribunal-appointed expert to request information from the parties, the language "same authority as the arbitral tribunal" has been removed,³¹ perhaps in response to growing concerns about tribunal-appointed experts acting as a sort of "fourth arbitrator."

²⁶ 1999 IBA Rules, art 6.2.

²⁷ 1999 IBA Rules, art 6.1.

²⁸ 1999 IBA Rules, art 6.6.

²⁹ 2010 IBA Rules, art 6.2.

³⁰ 2010 IBA Rules, art 6.4.

³¹ International Bar Association, "Rules on the Taking of Evidence in International Arbitration" (2020, rev ed) art 6.3 (2020 IBA Rules). Cf 1999 IBA Rules, art 6.3 and 2010 IBA Rules, art 6.3.

2. The Prague Rules

The Rules on the Efficient Conduct of Proceedings in International Arbitration 2018 (Prague Rules) were developed by a working group of predominantly civil law practitioners as an alternative to the IBA Rules. Their goal was to develop procedural innovations grounded in the civil law tradition which would improve efficiency and reduce costs. The Prague Rules encourage early, proactive tribunal engagement to streamline evidentiary issues.³² Article 6.1 of the Prague Rules permits the arbitral tribunal to appoint one or more independent experts at the request of a party or on the tribunal’s own initiative. The Prague Rules require the arbitral tribunal to seek submissions from the parties as to who they might appoint but confirm that the tribunal is not bound by these proposed candidates. In line with the focus on efficiency, the arbitral tribunal may instruct experts to have a conference and issue a joint report to provide the tribunal with areas of agreement and disagreement.³³ While the Prague Rules do not “preclude a party from submitting an expert report by an expert appointed by that party,” it is clear in the language and layout of the text that the use of tribunal-appointed experts is favored.³⁴ According to Henry and Romero, a key difference between the Prague Rules and the IBA Rules is that the former aim to center civil law procedures in international arbitration best practice while the latter aim to create a hybrid system unique to international arbitration.³⁵

3. Institutional rules (ICC, LCIA, HKIAC)

Most institutional arbitration rules include provisions for the use of both party and tribunal-appointed experts, giving parties the freedom to determine their preferred procedure. For example, the 2021 ICC Rules provide:

2) The arbitral tribunal may decide to hear witnesses, experts appointed by the parties or any other person, in the presence of the parties, or in their absence provided they have been duly summoned.

3) The arbitral tribunal, after consulting the parties, may appoint one or more experts, define their terms of reference

³²Janet Walker, The Prague Rules: Fresh Prospects for Designing a Bespoke Process, in Amy C Kläsener, Martin Magál and Joseph E Neuhaus (eds) *The GAR Guide to Evidence in International Arbitration* (Law Business Research, 1st ed, 2021) 36, 37–9.

³³Rules on the Efficient Conduct of Proceedings in International Arbitration (2018) art 6.7 (Prague Rules).

³⁴Prague Rules, art 6.5.

³⁵Henry and Romero, La Preuve dans l’Arbitrage: Prague Rules v IBA Rules 1 *Revue de l’Arbitrage* 71, 74 (2020).

and receive their reports. At the request of a party, the parties shall be given the opportunity to question at a hearing any such expert . . .³⁶

The London Court of International Arbitration (LCIA) has detailed rules concerning the use of expert evidence. Article 20 applies to fact or expert witnesses relied on by a party and provides:

20.2 Before any hearing, the Arbitral Tribunal may order any party to give written notice of the identity of each witness that party wishes to call (including rebuttal witnesses), as well as the subject matter of that witness's testimony, its content and its relevance to the issues in the arbitration.

20.5 The Arbitral Tribunal and any party may request that a witness, on whose written testimony another party relies, should attend for oral questioning at a hearing before the Arbitral Tribunal. If the Arbitral Tribunal orders that other party to secure the attendance of that witness and the witness refuses or fails to attend the hearing without good cause, the Arbitral Tribunal may place such weight on the written testimony or exclude all or any part thereof altogether as it considers appropriate in the circumstances.³⁷

Article 21 of the LCIA rules covers tribunal-appointed experts as follows:

21.1 The Arbitral Tribunal, after consultation with the parties, may appoint one or more experts to report in writing to the Arbitral Tribunal and the parties on specific issues in the arbitration, as identified by the Arbitral Tribunal.

21.2 Any such expert shall be and remain impartial and independent of the parties; and he or she shall sign a written declaration to such effect, delivered to the Arbitral Tribunal and copied to all parties.

21.3 The Arbitral Tribunal may require any party at any time to give to such expert any relevant information or to provide access to any relevant documents, goods, samples, property, site or thing for inspection under that party's control on such terms as the Arbitral Tribunal thinks appropriate in the circumstances.

21.4 If any party so requests or the Arbitral Tribunal considers it necessary, the Arbitral Tribunal may order the expert, after delivery of the expert's written report, to attend a hearing at which the parties shall have a reasonable opportunity to question the expert on the report and to present witnesses

³⁶International Chamber of Commerce, ICC Arbitration Rules (2021) arts 25(2)–(3).

³⁷London Court of International Arbitration, LCIA Arbitration Rules (2020) art 20.5.

in order to testify on relevant issues arising from the report. Articles 20.8 and 20.9 of the LCIA Rules shall apply, with necessary changes, to any expert to the Arbitral Tribunal.

Similarly, for the Hong Kong International Arbitration Centre (HKIAC), rules for party-appointed expert witnesses are subsumed into broader rules on evidence brought by parties to support their claim or defense. The arbitral tribunal has the power to determine the “admissibility, relevance, materiality and weight” of this evidence and has discretion to determine the manner in which an expert or witness is examined.³⁸

Article 25 of the HKIAC Rules then provides for the appointment of tribunal-appointed experts as follows:

25.1 To assist it in the assessment of evidence, the arbitral tribunal, after consulting with the parties, may appoint one or more experts. Such expert shall report to the arbitral tribunal, in writing, on specific issues to be determined by the arbitral tribunal. After consulting with the parties, the arbitral tribunal shall establish terms of reference for the expert, and shall communicate a copy of the expert’s terms of reference to the parties and HKIAC.

25.2 The parties shall give the expert any relevant information or produce for his or her inspection any relevant documents or goods that he or she may require of them. Any dispute between a party and such expert as to the relevance of the required information or production shall be referred to the arbitral tribunal for decision.

25.3 Upon receipt of the expert’s report, the arbitral tribunal shall send a copy of the report to the parties who shall be given the opportunity to express their opinions on the report. The parties shall be entitled to examine any document on which the expert has relied in his or her report.

While the above examples indicate the flexibility afforded in international arbitration with regard to expert evidence, the standard approach is for parties to appoint their own experts.³⁹ The 2012 International Arbitration Survey from White & Case and the Queen Mary University of Law (QMUL) found that 90% of expert witnesses were appointed by parties rather than the tribunal. The survey did note, however, that respondents’ preferences were not so polarizing: 43% of respondents found party-appointed expert witnesses to be more effective as opposed to

³⁸Hong Kong International Arbitration Centre, HKIAC Administered Arbitration Rules (2018) arts 22.1, 22.2, 22.5.

³⁹Trittmann and Kasolowsky, Taking Evidence in Arbitration Proceedings Between Common Law and Civil Law Traditions: The Development of a European Hybrid Standard for Arbitration Proceedings 31(1) U.N.S.W.L.J. 330, 340 (2008).

31% favoring tribunal-appointed experts.⁴⁰ However, the 2021 Bryan Cave Leighton Paisner Survey on Expert Evidence in International Arbitration (BCLP Survey) confirmed an ongoing preference for parties to have the right to appoint their own experts. Ninety-six percent (96%) of respondents thought that parties should have the right to rely on the evidence of a party-appointed expert.⁴¹ The most favored alternatives to a party-appointed expert were a tribunal-appointed expert selected by the parties or a single joint expert selected by the parties. Both options signify the value placed on party autonomy.⁴² The next Section will explore these preferences further.

IV. Comparative analysis

A. Tribunal-appointed experts

As discussed in Section III above, tribunal-appointed experts are a legacy of the civil law. Given that they are appointed by the court or tribunal and tasked with assisting the court or tribunal to reach the truth,⁴³ they are often touted as a solution to the partisanship and inefficiency concerns plaguing the use of party-appointed experts. Germany and France are two jurisdictions whose domestic civil procedure legislation offers useful insight into the appointment and use of tribunal-appointed experts in civil law countries.

In both Germany and France, an expert is appointed either upon request of a party or by motion of the court itself. The German Code of Civil Procedure, or *Zivilprozessordnung* (ZPO), provides that the court has discretion to appoint one or more experts.⁴⁴ The court may ask the parties to select persons suitable to be examined as experts and if the parties agree on certain persons the court is to comply with this selection.⁴⁵ In France, the appointment of experts is governed by the *Code de Procédure Ci-*

⁴⁰Paul Friedland and Stavros Brekoulakis, 2012 International Arbitration Survey: Current and Preferred Practices in the Arbitral Process (Survey, White & Case, 2012) 3.

⁴¹George Burn, Claire Morel de Westgaver and Victoria Clark, Expert Evidence in International Arbitration: Saving the Party-Appointed Expert (Survey, Bryan Cave Leighton Paisner, 2021) 9. However, it may be relevant that 75% of the respondents hailed from a common law background: at 8.

⁴²George Burn, Claire Morel de Westgaver and Victoria Clark, Expert Evidence in International Arbitration: Saving the Party-Appointed Expert (Survey, Bryan Cave Leighton Paisner, 2021) 16.

⁴³Julian DM Lew, Loukas A Mistelis and Stefan Kröll, *Comparative International Commercial Arbitration* (Kluwer Law International, 2003) ch 22, 553–83.

⁴⁴*Zivilprozessordnung* [German Code of Civil Procedure] para 404(1) (ZPO).

⁴⁵ZPO paras 404(2)–(3).

vile (CPC) which permits the judge to commission any person of their choice to opine on issues requiring the insight of an expert without provisions for the consultation of parties.⁴⁶

ZPO section 404a outlines the directions to be given to the expert appointed by a German court. Under this section the court is to issue instructions on the nature and scope of the expert's activities, familiarize the expert with their tasks and determine the facts on which the expert report is to be based.⁴⁷ The CPC also permits the judge who commissioned the expert to define the scope of the expert's mission.⁴⁸ In practice, a French judge can broadly seek an expert's opinions on certain issues rather than presenting them with specific questions to answer, which is the case in German civil procedure.⁴⁹ In both jurisdictions the parties are entitled to challenge an expert on the same grounds on which they might challenge a judge (i.e., neutrality).⁵⁰

While German and French courts have discretion as to whether or not they follow the views of a court-appointed expert, in practice they usually do so because of the difficulties associated with identifying the "correctness" of any reasoning grounded in highly technical evidence.⁵¹

German courts have discretion to determine the extent to which an expert may contact or involve the parties; however, any instructions given to the expert by the court must be communicated to the parties.⁵² Under this model, the judge is in charge of liaising between experts and parties. In France, the expert takes a more active role. In practice, they often contact the parties directly to request documents or information and

⁴⁶*Code de Procédure Civile* (CPC) [French Code of Civil Procedure], Art. 232.

⁴⁷ZPO paras 404a(1)–(3).

⁴⁸*Code de Procédure Civile* (CPC) [French Code of Civil Procedure], Art. 236.

⁴⁹Policy Department C: Citizen's Rights and Constitutional Affairs, European Parliament Directorate-General for Internal Policies, *Civil-Law Expert Reports in Cross-Border Litigation in the European Union: A Comparative Analysis of the Situation in France and Germany* (Report, 2015) 15.

⁵⁰ZPO para 406(1); *Code de Procédure Civile* (CPC) [French Code of Civil Procedure], Art. 234.

⁵¹See Timmerbeil, *The Role of the Expert Witness in German and US Civil Litigation* 9(1) *Ann. Surv. Int'l & Comp. L.* 163, 175–6 (2003). See also *Code de Procédure Civile* (CPC) [French Code of Civil Procedure], Art. 246.

⁵²ZPO paras 404a(4)–(5).

conduct site visits.⁵³ The parties in French proceedings must give the experts all documents which the experts deem necessary to complete their task (absent which the judge might order production), and in turn experts must consider the claims/findings of the parties and append them to their report if the parties so request.⁵⁴ These provisions, amongst others, serve to promote compliance with the adversarial principle in France.⁵⁵ The same principle is complied with through different provisions in the German context, namely the rights of parties to question the expert in a hearing.⁵⁶ However, scholarship on the German Code suggests that while counsel have the opportunity to examine the witness, any examination is often far less confrontational than U.S.-style cross-examination because “attacking the expert would be equivalent to criticizing the judge’s authority to select and question the expert.”⁵⁷

Neither the ZPO nor the CPC contains explicit rules for party-appointed experts, although in practice parties may hire their own expert advisers. It has been noted that the opinion of such an expert is not considered to be “witness” evidence and thus does not carry the same weight as that of a court-appointed expert.⁵⁸

1. Court-appointed experts in common law domestic proceedings

Expert witnesses can be appointed by courts in common law countries too, although this practice is rare and, when implemented, supplementary to the use of party-appointed experts. In the Australian case of *White Constructions v PBS Holdings*,⁵⁹ Justice Hammerschlag (of the Supreme Court of New South

⁵³Code de Procédure Civile (CPC) [French Code of Civil Procedure], Art. 242-3.

⁵⁴Code de Procédure Civile (CPC) [French Code of Civil Procedure], Art. 275-6.

⁵⁵Policy Department C: Citizen’s Rights and Constitutional Affairs, European Parliament Directorate-General for Internal Policies, *Civil-Law Expert Reports in Cross-Border Litigation in the European Union: A Comparative Analysis of the Situation in France and Germany* (Report, 2015) 19.

⁵⁶Policy Department C: Citizen’s Rights and Constitutional Affairs, European Parliament Directorate-General for Internal Policies, *Civil-Law Expert Reports in Cross-Border Litigation in the European Union: A Comparative Analysis of the Situation in France and Germany* (Report, 2015) 19.

⁵⁷Timmerbeil, The Role of the Expert Witness in German and US Civil Litigation, 9(1) Ann. Surv. Int’l & Comp. L. 163, 175 (2003).

⁵⁸Timmerbeil, The Role of the Expert Witness in German and US Civil Litigation, 9(1) Ann. Surv. Int’l & Comp. L. 163, 177–8 (2003).

⁵⁹*White Constructions Pty Ltd v PBS Holdings Pty Ltd* [2019] NSWSC 1166 (6 September 2019).

Wales) used the court’s power under the New South Wales *Uniform Civil Procedure Rules 2005* (UCPR) to appoint a court adviser. Rule 31.54(1) of the UCPR permits the court to “obtain the assistance of any person specially qualified to advise on any matter arising in the proceedings” and further to “act on the adviser’s opinion.”⁶⁰ On the value of rule 31.54, Justice Hammerschlag noted, “this is a useful rule, which is not used as often as it perhaps might (or should) be. It enables the Court to have the benefit of confidential, unbiased and competent scientific or other advice.”⁶¹ In this case, the party-appointed programming experts disagreed on the delay methodology and its application, reaching diverging conclusions. Regarding the expert reports as “complex” and “to the unschooled . . . impenetrable,” Justice Hammerschlag recognized the need for additional expert assistance which would allow him to evaluate the conclusions presented.⁶² Justice Hammerschlag appointed Mr. Ian McIntyre and eventually proposed to act upon Mr. McIntyre’s opinion that neither method was appropriate in the case and that the Court should apply the common law approach to causation to determine whether White Constructions had discharged its burden.⁶³ In this case, the Court found the expert assistance invaluable in determining what weight to give the heavily conflicting evidence presented by the parties’ experts.

Court-appointed expertise also featured in the high-profile UK case *Re Al Maktoum* concerning the welfare and custody of two children of Her Royal Highness Princess Haya bint Al Hussein and her ex-husband His Highness Mohammed bin Rashid Al Maktoum of the United Arab Emirates. Of particular significance for this article is the *Re Al M Fact-finding*⁶⁴ judgment regarding allegations that Sheikh Mohammed had engaged in the unlawful surveillance of Princess Haya, two of her solicitors, her personal assistant and two members of her security staff throughout the course of the proceedings using the “Pegasus” software licensed by the NSO Group. Princess Haya’s lawyer, Baroness Shackleton, was alerted to the potential hacking by a computer surveillance expert Dr. William Marczak of the independent research body,

⁶⁰This rule applies to all proceedings excluding those in the Admiralty List or those tried before a jury: *Uniform Civil Procedure Rules 2005* (NSW), Rule 31.54(3).

⁶¹*White Constructions Pty Ltd v PBS Holdings Pty Ltd* [2019] NSWSC 1166 (6 September 2019) [24].

⁶²*White Constructions Pty Ltd v PBS Holdings Pty Ltd* [2019] NSWSC 1166 (6 September 2019) [22].

⁶³*White Constructions Pty Ltd v PBS Holdings Pty Ltd* [2019] NSWSC 1166 (6 September 2019) [195]–[196].

⁶⁴*Re Al M Fact-finding* [2021] EWHC 1162 (Fam).

Citizen Lab, and separately by Mrs. Cherie Blair QC, who had been informed by the NSO Group that they believed their software had been misused to monitor Princess Haya.

Dr. Marczak independently discovered the potential hack and offered his advice and assistance to Princess Haya and her team. His investigation, which occurred prior to any formal instruction, formed the basis for Princess Haya’s application to the Court.⁶⁵ Sir Andrew McFarlane, President of the Family Division, recognized the unusual circumstances which understandably gave rise to the unconventional involvement of Dr. Marczak. In these circumstances, Dr. Marczak could not be regarded as an independent expert in the proceedings. On President McFarlane’s view, the circumstances and complexity of the case generated a need for the court to adopt a strategy which could both permit “the mother to deploy and rely upon the evidence of Dr. Marczak, while, at the same time, conducting a process that was fair to the interests of the father and the children.”⁶⁶ The court decided to adopt a number of evidentiary measures including: (1) permitting Sheikh Mohammed and his team to appoint a confidential scientific adviser; (2) appointing a Single Joint Expert; and (3) appointing independent counsel to review aspects of Dr. Marczak’s redacted communications with Princess Haya’s counsel, amongst other procedures.

On exceptional grounds, the Court permitted counsel for Sheikh Mohammed to instruct a cyber security expert who could advise them on a confidential basis. The opinions of this expert were intended to even the playing field given that Princess Haya had access to the technical expertise of Dr. Marczak. The court made it clear that this opinion was not the same as deploying a formal expert witness who would have to be instructed following the standard steps including “full and open disclosure of both the process of instruction and any resulting expert opinion.”⁶⁷ The respondents declined to make an application to appoint a formal expert witness. Thus, when counsel for Sheikh Mohammed sought the disclosure of core data for their special technical adviser, Sygnia, the court rejected this application so as not to “inflate the status of Sygnia into an expert whose opinion would be open to the court and filed in the proceedings,”⁶⁸ thereby clearly demarcating the parameters of such an exceptional advisory role. Instead, the Court appointed Professor Alastair Beresford as the

⁶⁵Re Al M Fact-finding [2021] EWHC 1162 (Fam), [30]–[32].

⁶⁶Re Al M Fact-finding [2021] EWHC 1162 (Fam), [32].

⁶⁷Re Al M Fact-finding [2021] EWHC 1162 (Fam), [38]–[39]. *See* discussion in Section II above on shadow experts/expert advisers.

⁶⁸Re Al M Fact-finding [2021] EWHC 1162 (Fam), [40].

Single Joint Expert who prepared reports on the court's instruction and attended an expert's meeting where he and Dr. Marczak answered questions submitted by the parties. Professor Beresford also gave oral evidence at the hearing and was subject to cross-examination by both sets of counsel.⁶⁹ The approach to expert evidence in this case was exceptional, driven by the circumstances.

2. Other methods of court-appointed expertise

Admiralty assessors

Admiralty matters in England have incorporated a form of court-appointed expert since the 16th century to assist with the assessment of fault in complex maritime matters.⁷⁰ These nautical assessors were appointed by the court to act in an advisory capacity; they were not cross-examined and their advice was not disclosed to the parties but was still treated as evidence to the exclusion of evidence from independent party-appointed experts.⁷¹ Concerns about procedural fairness have led to the evolution of best practice guidance to increase transparency, and relatedly, the role of parties. In the English case of *Global Mariner v Atlantic Crusader*,⁷² Justice Gross of the Admiralty Court recommended that the topics on which advice was to be sought from an assessor should be flagged with counsel, and further that subsequent questioning should not diverge from that which had been previously disclosed to counsel. Justice Gross further recommended that counsel should be given the opportunity to make submissions on whether the assessors advice should be followed.⁷³

The present rules on assessors in admiralty matters are contained within Part 61 of the UK *Civil Procedure Rules 1998*. Rule 61.13 provides:

The court may sit with assessors when hearing -
(a) collision claims;
(b) other claims involving issues of navigation or seamanship; or whenever it does so, the parties will not be permitted to call expert witnesses unless the court orders otherwise . . .

⁶⁹Re Al M Fact-finding [2021] EWHC 1162 (Fam), [48]–[49].

⁷⁰Justice Steven Rares, Using the “Hot Tub”: How Concurrent Expert Evidence Aids Understanding Issues (Speech, Judicial Conference of Australia Colloquium, 12 October 2013) [11].

⁷¹Justice Peter McClellan, Keynote Address on Concurrent Expert Evidence (Speech, Medicine and Law Conference, Law Institute of Victoria, 29 November 2007) 3; Justice Jonathan Beach, The Use of Assessors in Class Actions (2015) 129 *Precedent* 15, 21.

⁷²*Global Mariner v Atlantic Crusader* [2005] 1 CLC 413.

⁷³Justice Jonathan Beach, The Use of Assessors in Class Actions (2015) 129 *Precedent* 15, 17–18, discussing *Global Mariner v Atlantic Crusader* [2005] 1 CLC 413.

By contrast, the Indian Code regulating the assistance of assessors in admiralty confirms that party-appointed experts are not precluded by the appointment of an assessor. Section 13 of the *Admiralty (Jurisdiction and Settlement of Maritime Claims) Act 2017* provides:

(1) Notwithstanding anything contained in any other law for the time being in force, the Central Government shall appoint by notification, a list of assessors with such qualifications and experience in admiralty and maritime matters, the nature of duties to be performed by them, the fees to be paid to them and other ancillary or incidental matters for the purposes of this Act, in the manner as may be prescribed.

(2) The appointment of assessors shall not be construed as a bar to the examination of expert witnesses by any of the parties in any admiralty proceeding.

In the Australian state of Victoria, the *Supreme Court Admiralty Rules 2010* (Vic) give judges broad discretion to define the procedure of a hearing involving an assessor. Regulation 3.05 provides:

The trial of a proceeding in the List with the assistance of assessors under section 77 of the Supreme Court Act 1986 shall take place in such a manner and on such terms as the Judge in Admiralty directs.

The unique factual nature of maritime collision claims involves specialized skill and knowledge which has crystalized over centuries into the accepted practice of using assessors, however there are many other specialist areas which can, and do, benefit from such methods of expert deployment.

Amicus curiae

The concept of *amicus curiae* or “friend of the court” can be used to refer to several distinct functions which arise from diverse scholarship on the origins and purpose of the role. The absence of procedural laws on their appointment and use in many jurisdictions⁷⁴ has contributed to this diversity of function. This article is concerned with the traditional use of court-appointed *amici curiae* which emerged from the Roman civil practice of seeking the assistance of a *consiliarius*, to consult on decisions

⁷⁴Cf detailed procedural rules for the appointment of an *amicus curiae* before the International Residual Mechanism for Criminal Tribunals: *United Nations, Policy for the Appointment and Remuneration of Amici Curiae Investigators and Prosecutors in Proceedings before the International Residual Mechanism for Criminal Tribunals* (adopted 10 May 2018, rev 12 April 2021).

involving determinations of law.⁷⁵ The practice of deploying court appointed *amici* has since developed within common law countries as a “departure from the traditionally adversarial methods of common law courts.”⁷⁶ *Amici* are appointed by the court to provide independent legal expertise where the court requires further assistance to that provided by party submissions on issues of law. As such, they do not adopt a partisan function, but rather serve the court.⁷⁷

There are, of course, other forms of *amicus curiae*. For example, an *amicus* might be appointed by the court to assist an unrepresented defendant in accordance with the principles of a fair trial. However, the New Zealand Court of Appeal has noted that, without proper demarcation between the role of a traditional *amicus curiae* and this form of “standby counsel,” there can be serious confusion and potential conflict about who the *amicus curiae* is bound to assist: the court or the accused?⁷⁸ Also of note is the development of “public interest” *amicus* briefs from the U.S. as a means by which community groups, government agencies and other third parties can advance the social or public interest through submissions to the court.⁷⁹ These parties have an interest in the litigation and are clearly not neutral.⁸⁰

Despite the absence of procedural clarity on the appointment of *amici curiae*, they are deployed frequently in the traditional sense discussed above in a number of jurisdictions. One such jurisdiction is Singapore where the Chief Justice of the Supreme Court, Sundaresh Menon noted in 2013 that “where difficult and important issues of law arise, the Court of Appeal may more readily appoint *amicus curiae* and where appropriate, they may

⁷⁵S Chandra Mohan, *The Amicus Curiae: Friends No More?* [2010] (December) *Singapore Journal of Legal Studies* 363; Beckwith and Sobernheim, *Amicus Curiae: Ministers of Justice*, 17(1) *Fordham L. Rev.* 40 (1948).

⁷⁶Kochevar, *Amici Curiae in Civil Law Jurisdictions*, 122(6) *Yale L. J.* 1653, 1656 (2013).

⁷⁷S Chandra Mohan, *The Amicus Curiae: Friends No More?* [2010] (December) *Singapore Journal of Legal Studies* 365.

⁷⁸*Fahey v The Queen* [2017] NZCA 596, [55], [80] (Miller J. for the Court).

⁷⁹Loretta Re, *The Amicus Curiae Brief: Access to the Courts for Publish Interest Associations*, 14 *Melbourne U. L. Rev.* 522, 525–6 (Jun. 2018).

⁸⁰This is an interesting feature of domestic, and more frequently international, dispute resolution. *See generally* Gomez, *Rethinking the Role of Amicus Curiae in International Investment Arbitration: How to Draw the Line Favourably for the Public Interest*, 35(2) *Fordham Int'l L. J.* 513 (2012).

be drawn from the ranks of our academics.”⁸¹ The Singaporean courts have frequently appointed *amici*, recently for example in the widely followed case of *Quoine Pte Ltd*,⁸² where on appeal from the Singapore International Commercial Court (SICC), the Court of Appeal appointed Professor Yihan Goh as *amicus* to analyze complex questions concerning the doctrine of unilateral mistake and the nature of property which gives rise to trust obligations in relation to the novel areas of cryptocurrency and Bitcoin.⁸³ The Singapore Supreme Court also conducts the Young *Amicus Curiae* Scheme to allow exemplary junior lawyers to assist the court on novel points of law. Such a scheme is a testament to the value placed on this method of court appointed assistance in a common law jurisdiction. The author in his capacity as an International Judge of the Singapore International Commercial Court has had the opportunity to avail himself of the appointment of *amici* and has found the process of value, for example, in the area of public international law, an area often the subject of party-appointed expert evidence in international arbitration.

The examples discussed in this Section demonstrate the diverse use of court- or tribunal-appointed experts and the advantages of such an adjudicative body having the ability to call on experts for specialist assistance. However, this method of the use of experts is not without controversy.

3. Issues with tribunal-appointed experts

There are five main issues surrounding the deployment of tribunal-appointed experts. At the center of this debate is a core value of international arbitration: party autonomy.

The first issue is that an expert appointed by the tribunal to the exclusion of party-appointed experts undermines the party’s ability to present its evidence in a manner which it considers will strengthen its case. Freedom to control procedure is an attractive advantage of international arbitration. In the 2021 BLCP Survey, 84% of respondents agreed that it was a “basic right of each party to rely on a party-appointed expert as a means of putting forward evidence on a specific issue.”⁸⁴ Many rules for tribunal-appointed expertise (as discussed in Section III above) do provide for party

⁸¹Chief Justice Sundaresh Menon, Response: Opening of the Legal Year 2013 and Welcome Reference for the Chief Justice (Speech, 4 January 2013) [32].

⁸²*Quoine Pte Ltd v B2C2 Ltd* [2020] SGCA(I) 02.

⁸³*Quoine Pte Ltd v B2C2 Ltd* [2020] SGCA(I) 02, [4]–[6].

⁸⁴George Burn, Claire Morel de Westgaver and Victoria Clark, Expert Evidence in International Arbitration: Saving the Party-Appointed Expert (Survey, Bryan Cave Leighton Paisner, 2021) 17.

involvement in selecting the expert. Many also permit the party to challenge the appointed expert or appoint their own experts to challenge the findings of the tribunal-appointed expert. However, such rules, while valuable for recognizing the principle of party autonomy, can undermine considerations of economy and efficiency which are also important to parties participating international arbitration for the resolution of their disputes.

There is also concern that a tribunal-appointed expert might become a “de facto fourth arbitrator”⁸⁵ who, by virtue of their expertise, assumes the decision-making responsibility of the tribunal or overly influences their decision. While this second concern might be resolved by an appointed tribunal member possessing the relevant expertise, there would likely be concerns with defining the scope and nature of such expertise in the selection process.

This leads to the third concern surrounding the selection of experts. Simply put, how can the tribunal effectively appoint and brief an expert before they themselves are familiar with the facts and arguments, and therefore, the nature of the expertise that they will require? Respondents of the BCLP survey overwhelmingly agreed that parties and lawyers with knowledge of the dispute are better placed than the tribunal to select experts with appropriate expertise.⁸⁶ The tribunal may invite parties to suggest suitable experts or approach a specialist institution to help identify appropriate expertise, but the benefit of this process is dependent on the tribunal understanding the key issues of the case to a sufficient degree early enough in the proceedings to allow for the efficient deployment of the expert.⁸⁷

The fourth issue is that deploying a single tribunal-appointed expert reduces the tribunal’s ability to benefit from different views legitimately held within a particular discipline. While the tribunal-appointed expert opinion might have the benefit of independence and impartiality, it can only present one such view. The consequence of this is that the tribunal may not have the opportunity to consider a valid alternative expert approach which may favor the other party. The ICC notes that construction disputes in particular often involve specialized technical ques-

⁸⁵Paul Friedland and Stavros Brekoulakis, 2012 International Arbitration Survey: Current and Preferred Practices in the Arbitral Process (Survey, White & Case, 2012) 14.

⁸⁶George Burn, Claire Morel de Westgaver and Victoria Clark, Expert Evidence in International Arbitration: Saving the Party-Appointed Expert (Survey, Bryan Cave Leighton Paisner, 2021) 17.

⁸⁷Roman Khodykin and Carol Mulcahy, *A Guide to The IBA Rules on the Taking of Evidence in International Arbitration*, ed Nicholas Fletcher (Oxford University Press, 2019) 332.

tions for which there may be two or more schools of thought.⁸⁸ Understandably, this is a concern for parties and their counsel.

Conversely, the value of the adversarial system is to afford the tribunal the benefit of the perspective of both parties and their respective experts. With case management techniques encouraging discussion and debate between experts, tribunals can benefit from the diverging opinions of two experts to better clarify the legitimate points of contention within a particular discipline on which to focus their attention. This process may precede, or indeed eliminate the need for, the appointment of further expert assistance as in *White Constructions* discussed above, narrowing the need and scope for additional court-or tribunal-appointed expertise to particularly complex cases.

And finally, a practical concern: how is the tribunal-appointed expert to be paid? It logically follows that parties will pay for the experts they appoint. However, it is not as intuitive for a party to absorb the cost of an expert appointed by the tribunal. Under the 2020 LCIA Rules, expert fees for experts appointed by the tribunal are drawn from the advance payment of costs paid by the parties as part of the arbitration costs. This means that parties have to bear the costs of a tribunal-appointed expert despite having no right to restrict the ability of the tribunal to appoint such an expert.⁸⁹ This may understandably be the source of some discontent amongst parties.

4. Proposed solutions

Some years ago, Dr. Klaus Sachs (a prominent Munich-based international arbitrator), with the assistance of Dr. Nils Schmidt-Ahrendts, developed the “Sachs Protocol” on expert teaming to respond to some of the challenges discussed above. In developing the protocol, Dr. Sachs noted that, unlike reforms to the presentation of party-appointed expertise (which will be discussed below), little had been done to address concerns facing tribunal-appointed experts.⁹⁰ The expert teaming protocol seeks to establish a middle ground between tribunal-appointed and party-appointed expertise whereby the parties each propose a short list of candidates for issues they identify as requiring expert evi-

⁸⁸International Chamber of Commerce Commission on Arbitration and ADR, *Construction Industry Arbitrations: Recommended Tools and Techniques for Effective Management* (Report, 2019 update) 23 [18.7].

⁸⁹Lisa Richman, Hearings, Witnesses and Experts, in Lisa M Richman, Maxi Scherer and Rémy Gerbay (eds) *Arbitrating under the 2020 LCIA Rules: A User’s Guide* (Kluwer Law International, 2021) 257, 275.

⁹⁰Klaus Sachs and Nils Schmidt-Ahrendts, Protocol on Expert Teaming: A New Approach to Expert Evidence, in Albert Jan Van den Berg (ed.) *Arbitration Advocacy in Changing Times* (ICCA Congress Series, vol 15, 2011) 135, 144.

dence, and offer comments at the request of the tribunal on the candidates proposed by the opposing party. The tribunal then forms an expert team by selecting one expert from each list. The tribunal, parties and expert team jointly establish an instruction protocol, based on which the experts then prepare a preliminary and final report. It is envisioned that these experts may be available upon request by the tribunal, party or any additional party-appointed expert for questioning at an evidentiary hearing.⁹¹ One benefit of the Sachs Protocol for tribunal-appointed expertise is said to be its ability to remove concerns about the lack of party involvement by including parties in every stage of the process, including discussing the experts' mandate and providing comments on preliminary reports. The protocol also helpfully builds on parties' (superior) preliminary knowledge of the issues in the selection of targeted, appropriate expertise. Further, there is incentive for parties to choose an independent expert who is more likely to be vetted by the other side and selected by the tribunal. Unlike party-appointed experts, these expert teams would be subject to provisions on independence and impartiality which exist in rules governing the duties of tribunal-appointed experts. This may serve to assuage some of the concerns raised in Section IV.B about party-appointed expertise.⁹² While the Sachs Protocol creatively envisions a solution to a whole host of challenges facing expert evidence through a "best of both worlds" approach, there are concerns about the practicality of this proposal with regard to experts' access to relevant documents and information, which would be more readily available to party-appointed experts working closely with parties and counsel.⁹³ Despite its merits, the Sachs Protocol suffers from a lack of traction and has not achieved widespread adoption in international arbitration.

B. Party-appointed experts

1. Challenges facing party-appointed experts

Despite the overwhelming preference by parties and their counsel for party-appointed experts, there are many concerns regarding their fair and efficient deployment. The concerns surrounding the use of party-appointed experts fall into three categories: (1) partiality; (2) discerning which issues require expert evidence; and (3) managing conflicting evidence.

⁹¹Klaus Sachs and Nils Schmidt-Ahrendts, Protocol on Expert Teaming: A New Approach to Expert Evidence, in Albert Jan Van den Berg (ed.) *Arbitration Advocacy in Changing Times* (ICCA Congress Series, vol 15, 2011) 135, 145.

⁹²Klaus Sachs and Nils Schmidt-Ahrendts, Protocol on Expert Teaming: A New Approach to Expert Evidence, in Albert Jan Van den Berg (ed.) *Arbitration Advocacy in Changing Times* (ICCA Congress Series, vol 15, 2011) 135, 146–7.

⁹³Kantor, A Code of Conduct for Party Appointed Experts in International Arbitration—Can One Be Found?, 26(3) *Arb. Int'l* 323, 338–9 (2010).

The primary issue facing the use of party-appointed experts is that of bias, i.e., experts as “hired guns” for the parties. Arguably, the fact that experts are hired, and paid for, by the parties impacts, either consciously or subconsciously, the framing of their evidence in support of the party employing them. As explained in Section II above, it is appreciated that experts may both be retained in an advisory role while the parties set the parameters of their claim and then later testify as expert witnesses. They are likely therefore to grow familiar with the case and counsel of their appointed side. While this is not to suggest that experts are directly or purposefully biased (although in the author’s experience this is not unknown), this familiarity may sway them towards adopting a particular position or direction with their evidence. Direct bias might be a concern with the rise of full-time experts who have an interest in being retained in future matters. Bias may also be a particular concern where the pool of experts is small, and individuals are being retained consistently either by the same counsel or parties, or on related matters to give evidence for a particular category of party.

Bias, or perceived bias, can have significant impacts on the evidentiary process and thus, the eventual outcome of proceedings. Experts who adhere rigidly to party lines can adversely impact the efficiency of the process and, further, call into question the extent to which the evidence actually assists the tribunal in distilling the key issues and forming reliable conclusions. Concerns about bias can also negatively impact the parties’ confidence in the evidentiary process which is critical for the smooth running of proceedings and the ability of the final award to withstand challenge.

Most institutional rules do not contain provisions on the independence or ethical duties of party-appointed experts. A majority of respondents in the 2018 White & Case and QMUL International Arbitration Survey agreed that there would be merit in such rules providing standards for the independence and impartiality of experts.⁹⁴ As discussed in Section III, the IBA Rules (like other codes of practice) have been developed to address growing concerns of bias: for example by requiring a statement of independence, a description of the instructions provided and an affirmation of the expert’s genuine belief in the opinions expressed. Georgetown University Law Professor Mark Kantor relevantly questions, however, the merits of such rules and guidelines. Parties may simply prepare their expert witness to present evidence which is impartial enough to comply with the

⁹⁴Paul Friedland and Stavros Brekoulakis, 2018 International Arbitration Survey: The Evolution of International Arbitration (Survey, White & Case, 2018) 33–4.

rules while still supporting the party's case.⁹⁵ Further, these rules can only go so far in addressing issues of subconscious bias. In some respect, it is expected that experts will be partisan to an extent and there may be some value in this partisanship for the strength of the adversarial process. However, given the negative consequences, the issue of bias cannot be ignored.

Most respondents of the 2021 BCLP Survey felt that the tribunal was the most important barrier against bias. Eighty-four percent (84%) of respondents agreed that tribunals are "generally capable of determining when a party-appointed expert is not being objective in their testimony."⁹⁶ Further, 93% of respondents thought that "a tribunal should give limited weight to the evidence of a party-appointed expert who breaches his/her duty to remain independent and assist the tribunal."⁹⁷

If this is indeed the case, solutions to enhance the usefulness of party-appointed expert witnesses require proactive involvement by the tribunal and reinforcement of the expert's duty to assist the tribunal.

The remaining issues concern efficiency and obtaining value from the experts.

The second issue concerns the number of party-appointed experts and their range of expertise. The *ICC Arbitration Commission Report on Controlling Time and Costs in Arbitration* advises parties to an arbitration to presume that expert evidence will not be required and to only depart from this presumption if there are key issues on which expertise is needed to assist the tribunal.⁹⁸ However, one pressing concern is a trend towards parties' over-reliance on experts where it may be unnecessary. This might occur when one party calls expert evidence on a particular topic and the other seeks to counteract any potential advantage by calling their own expert, despite having no need for the expertise. The effect of this "one-upping" is that costs increase exponentially while efficiency is adversely impacted.

Third, there is the issue of experts relying on conflicting facts,

⁹⁵Kantor, A Code of Conduct for Party Appointed Experts in International Arbitration—Can One Be Found?, 26(3) Arb. Int'l 323, 335 (2010).

⁹⁶George Burn, Claire Morel de Westgaver and Victoria Clark, Expert Evidence in International Arbitration: Saving the Party-Appointed Expert (Survey, Bryan Cave Leighton Paisner, 2021) 14.

⁹⁷George Burn, Claire Morel de Westgaver and Victoria Clark, Expert Evidence in International Arbitration: Saving the Party-Appointed Expert (Survey, Bryan Cave Leighton Paisner, 2021) 21.

⁹⁸International Chamber of Commerce Commission on Arbitration and ADR, *ICC Arbitration Commission Report on Controlling Time and Costs in Arbitration* (Report, 2018) 13 [62].

data, and methodologies. There is of course merit to the tribunal being presented with legitimate differences of methodology. However, if experts are working off fundamentally different baseline facts or data sets in the preparation of their report, their respective analyses may diverge to an extent that is not useful for a tribunal who seeks to compare them. This greatly impacts the value of expert evidence. It is also critical that experts of the same discipline answer the same questions. Although this seems an obvious point, it is difficult to achieve in practice in light of the primacy of party autonomy.

As illustrated in the *White Constructions* case above, diverging methodological approaches can result in different conclusions and it is not always possible for the tribunal to discern which, if any, are correct. This is particularly the case for expert disciplines where there are multiple accepted methodologies, e.g., delay and disruption expertise.

In common law court practice, the issues with obtaining value from party-appointed experts and reducing their bias towards the party who appointed them have bedeviled the area and led to some innovations in procedure designed to improve the process. It is apposite to examine some of these reforms.

2. Reforms and existing solutions

Legislative reforms

It is useful to begin with a discussion of English legislative reforms arising from Lord Woolf's seminal 1996 report titled *Access to Justice: Final Report to the Lord Chancellor of the Civil Justice System in England and Wales* (The Woolf Report). In this report, Lord Woolf found that the "full, 'red-blooded' adversarial approach," while valuable, came at a great cost for both efficiency and economy.⁹⁹ The Woolf Report identified that the uncontrolled proliferation of expert evidence—often as a result of parties believing that more experts equaled a stronger case—was at the heart of efficiency problems. Lord Woolf also raised the concerns voiced above about "hired gun" experts. The Woolf Report proposed a series of reforms emphasizing the primacy of the expert's duty to the court and promoting active case management by the tribunal. Lord Woolf's proposals led to a suite of reforms including the standardized *Civil Procedure Rules* (CPR) in 1998 and the *Protocol for the Instruction of Experts to Give Evidence in Civil Claims* drafted by the UK Civil Justice Council in 2005. This Protocol was introduced to assist with the interpretation of CPR Rule 35 and the associated Practice Direction 35 on experts

⁹⁹Lord Woolf MR, *Access to Justice: Final Report to the Lord Chancellor of the Civil Justice System in England and Wales* (Final Report, 1996) [13.6].

and assessors. The Protocol importantly emphasized the need to consider whether expert evidence is necessary and appropriate and then offered guidance on a range of topics including the appointment and instruction of experts (including single joint experts which are encouraged under the CPR); the duties owed by experts (including the need to balance the duty of reasonable skill and care owed to the retaining party with the expert's overriding duty to the court);¹⁰⁰ and the content of the expert report (including a standard statement which must be annexed to the end of all reports, verifying the truth of the statement and the completeness of the opinion).¹⁰¹ The Protocol was replaced in 2014 by the *Guidance for the Instruction of Experts in Civil Claims*. This Guidance remains substantially the same as the 2005 Protocol but emphasizes the issue of cost which was a central concern of Lord Justice Jackson's review of civil litigation in 2013. The objectives of the 2014 Guidance are in substance the same as the 2005 Protocol and read as follows:

- a. encourage the exchange of early and full information about the expert issues involved in the prospective claim;**
- b. enable the parties to avoid or reduce the scope of the litigation by agreeing the whole or part of an expert issue before proceedings are started; and**
- c. support the efficient management of proceedings where litigation cannot be avoided.¹⁰²**

In October 2020, amendments were made to CPR Practice Direction 35 to strengthen the statement of truth required by an expert. The addition to the standard form statement was a final sentence acknowledging that experts who make a false statement in a document containing a statement of truth could face proceedings for contempt of court. The statement now reads:

I confirm that I have made clear which facts and matters referred to in this report are within my own knowledge and which are not. Those that are within my own knowledge I confirm to be true. The opinions I have expressed represent my true and complete professional opinions on the matters to which they refer.

I understand that proceedings for contempt of court may be brought against anyone who makes, or causes to be made, a false statement in a document verified by a statement of truth without an honest belief in its truth.¹⁰³

The English approach has faced criticism for “seeking to end

¹⁰⁰See *Civil Procedure Rules 1998* (UK), Rule 35.2.

¹⁰¹See *Practice Direction 35* (UK) [3.3].

¹⁰²*Guidance for the Instruction of Experts in Civil Claims 2014* (UK) [2].

¹⁰³*Practice Direction Amendments*, 1 October 2020 (UK) [3.3].

partisanship in an inherently partisan relationship”¹⁰⁴ (a U.S. view where civil jury trials complicate a comparative analysis) and it appears that these recent amendments continue that venture with the goal of addressing the issue of “hired guns.”

There have also been similar reforms in Australian state and federal civil procedure rules. The issue of bias (including subconscious bias) was a concern of Australian judges in a 1999 survey published by the Australian Institute of Judicial Administration,¹⁰⁵ and the subject of an Issues Paper (2004) and Report (2005) by the New South Wales Law Reform Commission.¹⁰⁶ This discourse facilitated reform to the Uniform Civil Procedure Rules of each Australian state to provide expert codes of practice and encourage proactive case management.

The New South Wales UCPR¹⁰⁷ contains a robust code of conduct with which experts must comply. The code of conduct under Schedule 7 contains the following requirements:

2 General duties to the Court

An expert witness is not an advocate for a party and has a paramount duty, overriding any duty to the party to the proceedings or other person retaining the expert witness, to assist the court impartially on matters relevant to the area of expertise of the witness.

. . .

5 Duty to comply with the court’s directions

If directed to do so by the court, an expert witness must—

- (a) confer with any other expert witness, and
- (b) provide the court with a joint report specifying (as the case requires) matters agreed and matters not agreed and the reasons for the experts not agreeing, and
- (c) abide in a timely way by any direction of the court.

6 Conferences of experts

Each expert witness must—

- (a) exercise his or her independent judgment in relation to every conference in which the expert participates pursuant to a direction of the court and in relation to each report thereafter provided, and must not act on

¹⁰⁴Kantor, A Code of Conduct for Party Appointed Experts in International Arbitration—Can One Be Found?, 26(3) Arb. Int’l 323, 327 (2010).

¹⁰⁵Ian Freckelton, Prasuna Reddy and Hugh Selby, *Australian Judicial Perspectives on Expert Evidence: An Empirical Study* (Report, Australian Institute of Judicial Administration, 1999) 37.

¹⁰⁶New South Wales Law Reform Commission, *Expert Witnesses* (Issues Paper No. 25, November 2004); New South Wales Law Reform Commission, *Expert Witnesses* (Report No. 109, June 2005).

¹⁰⁷*Uniform Civil Procedure Rules 2005* (NSW), Rule 31.23.

any instruction or request to withhold or avoid agreement, and

- (b) **endeavour to reach agreement with the other expert witness (or witnesses) on any issue in dispute between them, or failing agreement, endeavour to identify and clarify the basis of disagreement on the issues which are in dispute.**¹⁰⁸

Schedule 7 further contains requirements for the content of expert reports including providing the assumptions and material facts relied upon (3(d)), and the reasons for relying on certain materials (3(e)), amongst other considerations.¹⁰⁹

Amendments were made to the Queensland UCPR in 2004 to establish a presumption in favor of a single expert either appointed by the court or by agreement of the parties, to the exclusion of party-appointed experts. The goal of this presumption was to reduce the risk of adversarial bias.¹¹⁰

The Federal Court of Australia has also published an *Expert Evidence Practice Note* with an annexed Harmonised Expert Witness Code of Conduct which makes clear that “parties and their legal representatives should never view an expert witness retained (or partly retained) by them as that party’s advocate or ‘hired gun’.”¹¹¹ The *Practice Note* also provides guidance on the concurrent taking of evidence, which will be discussed further in the next section.

By contrast, the approach to reform in U.S. court practice has sought to preserve party autonomy to the greatest extent possible while managing the usefulness of expert evidence on procedural admissibility grounds.¹¹² In this context, it is important to recognize the prevalence of juries (arising from the U.S. Constitutional right to trial by jury) in U.S. state and federal civil trials, a phenomenon which exacerbates the potential advocacy role of an expert witness. Rule 702 of the U.S. *Federal Rules of Evidence* on “Testimony by Expert Witnesses” provides:

A witness who is qualified as an expert by knowledge, skill, experience, training, or education may testify in the form of an opinion or otherwise if:

¹⁰⁸ *Uniform Civil Procedure Rules 2005* (NSW) Sch 7.

¹⁰⁹ *Uniform Civil Procedure Rules 2005* (NSW) Sch 7(3).

¹¹⁰ See *Uniform Civil Procedure Rules 1999* (Qld), Rule 423(b); New South Wales Law Reform Commission, *Expert Witnesses* (Report No 109, June 2005) 49–50.

¹¹¹ Federal Court of Australia, *Expert Evidence Practice Note*, 25 October 2016, [3.1].

¹¹² Kantor, A Code of Conduct for Party Appointed Experts in International Arbitration—Can One Be Found?, 26(3) *Arb. Int'l* 323, 326–7 (2010).

- (a) **the expert’s scientific, technical, or other specialized knowledge will help the trier of fact to understand the evidence or to determine a fact in issue;**
- (b) **the testimony is based on sufficient facts or data;**
- (c) **the testimony is the product of reliable principles and methods; and**
- (d) **the expert has reliably applied the principles and methods to the facts of the case.**

In the 1993 case of *Daubert v Merrell Dow Pharmaceuticals*,¹¹³ the United States Supreme Court discussed the application of Rule 702 with regard to assessing the admissibility of expert evidence. The Court found that the “helpfulness” standard under Rule 702(a) required the evidence to be relevant—i.e., present a “valid scientific connection to the pertinent inquiry as a precondition to admissibility.” Notably, the Court emphasized that it was the trial judge’s role to determine whether “the expert is proposing to testify to (1) scientific knowledge that (2) will assist the trier of fact to understand or determine a fact in issue.”¹¹⁴ In providing guidance for this endeavor the Court established what is now referred to as the “Daubert Standard.” The Court raised the following non-exclusive factors which could be considered by a trial judge:

1. Whether a theory can and has been tested;
2. Whether the theory has been subjected to peer review or publication;
3. The known or potential rate of error; and
4. “General acceptance” within the relevant scientific community.¹¹⁵

Two U.S.-based international arbitrators (Hodgson and Stewart) argue that this standard can provide a useful model for the “tribunal as gatekeeper” in an international arbitration context by focusing on the relevance and reliability of methodology, unlike most institutional procedural rules.¹¹⁶

In the realm of international dispute resolution, the SICC has

¹¹³*Daubert v. Merrell Dow Pharmaceuticals, Inc.*, 509 U.S. 579, 591–92, 113 S. Ct. 2786, 125 L. Ed. 2d 469, 27 U.S.P.Q.2d 1200, Prod. Liab. Rep. (CCH) P 13494, 37 Fed. R. Evid. Serv. 1, 23 Envtl. L. Rep. 20979 (1993).

¹¹⁴*Daubert v. Merrell Dow Pharmaceuticals, Inc.*, 509 U.S. 579, 592, 113 S. Ct. 2786, 125 L. Ed. 2d 469, 27 U.S.P.Q.2d 1200, Prod. Liab. Rep. (CCH) P 13494, 37 Fed. R. Evid. Serv. 1, 23 Envtl. L. Rep. 20979 (1993).

¹¹⁵*Daubert v. Merrell Dow Pharmaceuticals, Inc.*, 509 U.S. 579, 593–94, 113 S. Ct. 2786, 125 L. Ed. 2d 469, 27 U.S.P.Q.2d 1200, Prod. Liab. Rep. (CCH) P 13494, 37 Fed. R. Evid. Serv. 1, 23 Envtl. L. Rep. 20979 (1993).

¹¹⁶Hodgson and Stewart, *Experts in Investor-State Arbitration: The Tribunal as Gatekeeper*, 9(3) *J. Int’l Disp. Settlement* 453, 461–2 (2018).

established a specialist Technology, Infrastructure and Construction (TIC) list dealing with complex disputes in these areas. A list of rules governing cases placed on the TIC list have been introduced into the SICC Practice Directions:

157. Parties to seek approval for expert evidence

(3) Where the Court has approved the adducing of expert evidence, the following apply, unless the Court directs otherwise:

- (a) The parties must attempt to agree on?**
 - (i) The list of issues to be referred for expert evidence (which must as far as possible be expressed in the form of questions which can be answered with “yes” or “no”); and**
 - (ii) The common set of agreed or assumed facts that the experts are to rely on.**
- (b) The parties must obtain the Court’s approval of any list of issues agreed between the parties and the common set of agreed or assumed facts.**
- (c) If there is no agreement, the Court may decide the list of issues and the common set of agreed or assumed facts.**
- (d) The expert evidence must be confined to the approved issues and must rely only on the approved common set of agreed or assumed facts.**

158. Joint statement and joint report by experts

(1) Where 2 or more experts are appointed to give evidence on a matter, the Court may direct the experts to produce a joint statement setting out the issues on which they agree and the issues on which they disagree, accompanied by a brief statement of the reasons for their disagreement.

(2) The Court may direct the experts to produce a joint report, signed by all of the experts, on the issues on which the experts agree, and to produce an individual report by each expert only on the issues on which the experts disagree.

159. Court may convene case management conference with experts

(1) Without affecting Order 40A, Rule 5 of the Rules of Court, the Court may convene a case management conference at any time the Court thinks appropriate, to be attended by such of the experts as are directed by the Court, and by the parties or their counsel or both, as provided for under paragraph 77(1) of these Practice Directions.¹¹⁷

These rules are specifically intended to facilitate the manage-

¹¹⁷Singapore International Commercial Court, *Practice Directions Amendment No 5* (2021), inserting Part XXIV.

ment of particularly complex cases and therefore include flexible powers for the management of expert evidence including encouraging agreement between experts.

CI Arb Protocol

In 2007 the Chartered Institute of Arbitrators (CI Arb) published their Protocol for the Use of Party-Appointed Expert Witnesses in International Arbitration (CI Arb Protocol),¹¹⁸ drawing on the legislative reforms that had already occurred in England and elsewhere. The CI Arb Protocol was drafted with the IBA Rules in mind, adopting consistent language but offering more detailed guidance on expert reports and the principles of independence.

Article 4 on “Independence, Duty and Opinion” reads as follows:

1. An expert’s opinion shall be impartial, objective, unbiased and uninfluenced by the pressures of the dispute resolution process or by any Party.

2. Payment by the appointing Party of the expert’s reasonable professional fees for the work done in giving such evidence shall not, of itself, vitiate the expert’s impartiality.

3. An expert’s duty, in giving evidence in the Arbitration, is to assist the Arbitral Tribunal to decide the issues in respect of which expert evidence is adduced.

Article 4.4(k) further requires expert reports to contain a declaration (outlined under Article 8) that experts understand that their overarching duty is to the tribunal.¹¹⁹ Article 6 provides detailed, but flexible, guidance on procedural matters for the taking of evidence encouraging experts to discuss, identify, and where possible, agree on issues and analysis prior to the preparation of a report. As part of this process, the arbitral tribunal can direct experts to exchange draft outlines without prejudice to the parties’ positions.¹²⁰ Experts shall then provide a statement to the tribunal on areas of agreement and disagreement with reasons, a process which is certainly useful for focusing in on the key contentious points in the evidence.¹²¹

While this protocol provides useful guidance for the deployment of party-appointed experts, it suffers criticism from some practitioners in an international arbitration context for its “Englishness,” as compared to the IBA Rules’ efforts to create a

¹¹⁸Chartered Institute of Arbitrators, Protocol for the Use of Party-Appointed Expert Witnesses in International Arbitration (September 2007) (CI Arb Protocol).

¹¹⁹CI Arb Protocol, art 8.1(a).

¹²⁰CI Arb Protocol, art 6.1(a).

¹²¹CI Arb Protocol, art 6.1(b).

consolidated set of rules for the taking of evidence.¹²² These criticisms, however, ignore the need for detailed focus on procedure if reform that enhances usefulness and efficiency and reduces costs of expert evidence is to be achieved.

Expert witness conferencing

Expert witness conferencing or “hot tubbing” is increasingly adopted in international arbitration. Its goal is to facilitate efficient engagement between experts and the tribunal with a view towards distilling the issues and identifying key areas of difference.

Hot tubbing has particular merit in arbitrations with complex, technical facts involving numerous experts. As the name suggests, it involves the concurrent taking of evidence from experts of similar disciplines who engage with the other experts’ analysis and conclusions in conference with counsel and the arbitral tribunal. Perhaps due to the assistance this provides in managing the evidentiary process and understanding the issues, requests for concurrent evidence often originate from the tribunal.¹²³ A key benefit of this method is that it allows experts who understand the issues to be encouraged to directly engage with each other’s evidence. This approach has the potential to bring much greater clarity and efficiency to an evidentiary process whereby experts can hold each other accountable for potentially partisan or unnecessarily complicated views.

Australian courts are widely recognized as having the most experience with expert witness conferencing, and as discussed above, Australian jurisdictions have developed detailed best practice guidelines on the taking of concurrent evidence.¹²⁴ The Federal Court of Australia’s *Expert Evidence Practice Note* contains Annexure B, the “Concurrent Expert Evidence Guidelines,” to assist with the application of the *Federal Court Rules 2011*, Rule 23.15. The Guidelines state that when used properly, concurrent expert evidence can minimize the risk “that experts become ‘opposing experts’ rather than independent experts assisting the Court” and “reduce the chance of the experts, lawyers and the judge misunderstanding the opinions being expressed by

¹²²Kantor, A Code of Conduct for Party Appointed Experts in International Arbitration—Can One Be Found?, 26(3) *Arb. Int’l* 323, 333 (2010).

¹²³Institute of Chartered Accountants in England and Wales, *Concurrent Expert Evidence: Hot Tubbing* (Practical Guidance, 2021) 2.

¹²⁴Justice Steven Rares, Using the “Hot Tub”: How Concurrent Expert Evidence Aids Understanding Issues (Speech, Judicial Conference of Australia Colloquium, 12 October 2013) [1].

the experts.”¹²⁵ The Guidelines emphasize that the procedure for the taking of concurrent evidence should be applied flexibly with regard to the specific nature of the case.¹²⁶

In 2019, the CIArb published its own *Guidelines for Witness Conferencing in International Arbitration*, which contain some useful directions for the concurrent taking of evidence while still affording important flexibility to parties and tribunals to design a procedure befitting their needs.¹²⁷

Support for hot tubbing is mixed. When respondents of the 2015 White & Case and QMUL International Arbitration Survey were asked what arbitration counsel could do better to reduce time and cost, 46% answered “consider joint expert reports and early meeting of experts.”¹²⁸ However, according to the 2021 BCLP Survey data, only 49% of respondents agreed that witness conferencing was more effective than sequential evidence. It is important to note however that a large majority agreed that the effectiveness of witness conferencing increased when led by the tribunal in accordance with an agreed protocol.¹²⁹ This highlights the vital role that the arbitral tribunal needs to play for this method of taking evidence to be effective.

These reforms have made significant headway in improving the deployment and presentation of expert evidence, however the issues discussed in this Section persist. These problems are exacerbated by the enthusiastic adoption of party-appointed expert evidence by counsel, and arbitrators, with civil law backgrounds who are not familiar with the long history of concerns and associ-

¹²⁵Federal Court of Australia, *Expert Evidence Practice Note*, 25 October 2016, annexure B [3]–[4].

¹²⁶Federal Court of Australia, *Expert Evidence Practice Note*, 25 October 2016, annexure B [13].

¹²⁷Chartered Institute of Arbitrators, *Guidelines for Witness Conferencing in International Arbitration (Guidelines)*, April 2019).

¹²⁸Paul Friedland and Stavros Brekoulakis, 2015 International Arbitration Survey: Improvements and Innovation in International Arbitration (Survey, White & Case, 2015) 30.

¹²⁹Seventy-five per cent (75%) and 71% of participants respectively: George Burn, Claire Morel de Westgaver and Victoria Clark, *Expert Evidence in International Arbitration: Saving the Party-Appointed Expert* (Survey, Bryan Cave Leighton Paisner, 2021) 20. While the nature of such a protocol will differ between arbitrations, an example of such a protocol might provide for the cross-examination of each party’s expert, with the opposing expert within the same discipline present. The tribunal may also ask questions of the expert being cross-examined, and may, with the consent of counsel, ask for a brief comment by the opposing expert on the answer provided. Cross-examination is followed by a hot-tubbing of the experts during which the tribunal will ask questions to be answered by both experts. Counsel can then examine or cross-examine experts further, limited to matters raised by the tribunal’s questions.

ated reforms to party-appointed expert procedure in common law jurisdictions.

V. Proposed solutions

Given the challenges and reforms discussed above, this article proposes a practical protocol. In the author's experience, this protocol, combined with proactive case management, has consistently improved the value provided by party-appointed experts to arbitration proceedings. It should be emphasized however that the processes whereby tribunals can themselves effectively deploy tribunal experts are different from those discussed below, but nevertheless require early engagement with the parties on the issues in dispute, and proactive case management thereafter. The solutions discussed below are however limited to party-appointed experts given the prevalence of their deployment in arbitration.

A preliminary question impacting this discussion of solutions is the impact of the choice between pleadings and memorial style written submissions. The less common pleaded case approach (adopted in many domestic common law courts) involves staggered submissions beginning with an outline of the allegations and background, followed by factual and expert witness evidence after the pleadings are exchanged, and then legal arguments. More common in international arbitration, however, is the memorial style approach. Where this approach is adopted, parties submit Statements of Case or Defense containing their factual evidence, legal arguments, and all documentary material relied upon. It is a natural desire by parties to seek to include party-appointed expert reports with their memorials. However, doing so is unfortunately not conducive to experts of like discipline either opining on common questions, or having the benefit of the same material. Thus, Appendix 1 contemplates that the preparation of party-appointed expert reports be deferred until common questions for experts of like discipline can be settled and there has been established a common data set from which the experts can work. An additional problem with party-appointed expert reports being provided with memorials is the immediate identification of the experts with the case of the party for whom they are providing their reports, creating a potential psychological barrier to cooperative work with their colleagues of like discipline.

With this in mind, set forth below is the process which the author has found useful, adapted to suit the needs of particular disputes and the desires of the parties. It is entitled Party-Appointed Experts Case Management Protocol.

A. Party-appointed experts case management protocol

The protocol involves six steps.

1. Identification of the disciplines in need of expert evidence, and which experts are proposed to give evidence in each discipline

It is necessary to identify at a very early stage of the proceedings which experts the parties want and why. Parties, who by the commencement of arbitration proceedings normally have a reasonable idea of their own cases, are well placed to identify early the disciplines from which they wish to draw expertise, and the particular experts they propose to use before the first round of pleadings, subject of course to the flexibility to adduce further expert evidence at a later stage where it is established to be necessary. In assessing the disciplines in need of expert evidence, parties may find that the value of their dispute on certain issues may not be proportionate to the costs of deploying an expert. Undertaking this process can assist in limiting the deployment of expert evidence to only the relevant issues. This is in line with the *ICC Arbitration Commission Report* which emphasizes the use of expert evidence only for key issues where it would assist the tribunal.¹³⁰ Early identification brings with it a number of key benefits. First, tribunals can ensure that parties only call expert evidence on necessary issues, and when they do so (in the absence of good reason) only deploy one expert from each expert discipline. Second, tribunals can ensure that any conflict of interest which emerges with the proposed experts can be addressed and dealt with. Early identification of experts also gives parties the opportunity to raise (at least preliminary) challenges (e.g., as to whether the other side's expert has the requisite expertise) in order to avoid fundamental challenges later, which have the potential to derail the process.

2. Establish within each discipline a common list of questions

Tribunals should confer as early as possible with the parties and the experts chosen under each discipline to establish a list of common questions which both experts will answer. The tribunal should play an active role in this process and assist where parties disagree on the questions to be asked. Reaching a level of agreement can be difficult because each party is focused on asking questions to both their expert and the other side's expert which will support the case they seek to construct. An effective way to resolve disagreement between parties is for the tribunal to hold a case management conference with the experts present, often after the first exchange of pleadings, to ask them, with

¹³⁰International Chamber of Commerce Commission on Arbitration and ADR, *ICC Arbitration Commission Report on Controlling Time and Costs in Arbitration* (Report, 2018) 13 [62].

their knowledge of the case and the materials, what questions *they* think they should be asked. Creating a common list of questions will assist in ensuring that any difference is a result of genuine difference in methodology or analysis and not a consequence of each expert going on a (party-directed) frolic of their own. It is of course likely that as the matter develops there may be further issues upon which the experts may be called to opine, or indeed which they think they should be asked. It is therefore not useful to treat the initial common list of questions as closed or final, but rather subject to further development. However, any further questions should be agreed with the tribunal and answered by both parties' experts.

3. Defer the production of all expert reports until common factual evidence (documentary and witness) is available and ensure that the experts opine always on a common data set

It is vital that experts' analysis be based upon a common data set of factual evidence. This requires deferring expert reports until there is available sufficient documentary and witness evidence to enable the experts to prepare useful initial reports. This is one reason why individual expert reports should not be delivered with the parties' memorials. The result of submitting expert reports with the initial Statement of Case or Defense which simply opine in support of each party's case creates an undesirable asymmetry of opinion which is difficult to later remedy. Waiting until sufficient evidence is available also assists in identifying where the experts may have unequal access to documents or information. In this respect, the involvement of the experts in disclosure issues can be of value. Many disclosure requests are driven by the need of experts to have access to material. The experts can assist here by agreeing what they both need (proportionate to the amount(s) in dispute), or where they disagree, providing the tribunal with the reasons for any such disagreement, rather than the tribunal simply relying on counsel's submissions in areas of disputed disclosure.

4. The experts within each discipline first produce a joint expert report identifying areas of agreement and disagreement

Once the experts are armed with sufficient material they should as a first step prepare a joint expert report on the agreed list of questions. In this report they outline the assumptions, methodology and conclusions on which they agree and disagree. The preceding steps will ensure a joint expert report that is more efficient and valuable for parties and the tribunal. Experts should first confer "without prejudice" to preliminarily discuss their

positions, test their analyses against each other and where possible, identify common ground. In this process they should be encouraged, if useful, to exchange written reports which will be privileged from later production to the tribunal in which they explain their respective views preparatory to the development of their first joint report. They then prepare a report outlining the identified areas of agreement and disagreement. In this author's view, experts are far more likely to find areas of agreement through confidential discussions with each other, before they have formally declared positions in a written report. The tribunal should encourage these discussions to be held in camera without counsel present.

5. The experts within each discipline next produce individual expert reports on areas of disagreement only

Where experts are unable to agree on particular answers to the agreed questions, they should produce individual reports on areas of disagreement. Many experts will express their opinions based on the importance they attach to assumptions which their appointing party's counsel may ask them to make, and the documents they consider to be important. This may result in differing conclusions being expressed in individual reports. Limiting the scope of individual reports to areas of difference contributes significantly to the efficiency of the expert process.

6. The experts then produce "reply" expert reports containing views in the alternative showing what their conclusions would be if the other expert's assumptions and methodologies were accepted by the tribunal

Where the basis of disagreement between experts is due to different factual assumptions or methodologies, it is useful for the tribunal to require experts to provide their opinions in the alternative through reply reports. It is important for the tribunal to clarify at this stage that reply reports are only for existing issues already raised by the other expert. In these reports experts give the opinion they would have reached if the factual assumptions or methods preferred by their counter-expert were to be adopted by the tribunal. In particular, the expert might identify whether, on the basis of their counter-expert's assumptions, they would have reached the same or different outcome and what the difference, if any, might have been. This way, when the tribunal decides on the issues of principle and fact separating the experts, they have the benefit of both sets of expert opinions. This maximizes the value of expert evidence for the tribunal, and avoids the waste of effort where the views only of the experts preferred by the tribunal are adopted.

Only after this process has been followed to completion can techniques like expert witness conferencing yield effective, focused results. Without early engagement by the tribunal, hot tubbing is too little, too late. In the author's practice as an arbitrator, experts meet with the tribunal several times in case management conferences to settle the issues on which they will opine before the main evidentiary hearing, and discuss the development of their joint and individual reports. This process also permits the tribunal to make known its expectations of the experts and the nature of their role, thus enabling the evidence they produce to be most useful. Despite adopting a protocol such as that proposed above, experts rarely hit the mark with their first joint report. They often require further guidance as to what the tribunal requires from them, particularly with regard to explaining areas of agreement and disagreement more explicitly in a joint expert report before producing individual reports. Regular case management conferences assist greatly in providing this guidance. The author can point to a recent complex construction dispute as one example of the success of this model. In this dispute involving nuclear power units, the parties had deployed expert evidence across eight different disciplines. Disruption experts were called to opine on systems, structural and mechanical aspects of the project facilities construction. Although an area of expertise often producing conflicting views, the disruption experts in this case managed to reach agreement on both methodology and quantification three weeks before the hearing and jointly presented their conclusion. Their conclusion was ultimately different than that advanced by both parties and was adopted by the tribunal. Although this was surprising to the parties, neither party challenged the experts' agreed position, and the result was a considerable saving of costs. Total agreement is an exceptional result and there is of course merit in the ventilation of genuine difference of opinion. In the author's practice, the use of these steps has consistently encouraged experts to consider what really separates them and therefore facilitated credible, valuable expert evidence. Although proactive case management can be a difficult, and initially time-consuming task, the author's experience is that early engagement from the tribunal considerably reduces time and cost in the future.

A process such as that described above is respectful of the professionalism and expertise of experts whose desire is usually to bring their expertise to bear for the assistance of parties and tribunals. By proactive case management this outcome can be enhanced considerably. Further, by engagement with the experts during the process, the tribunal is far better informed on the expert issues by the time of the evidentiary hearing than would otherwise be the case. Thus, although some have suggested that

a process as advocated above should be managed for the tribunal by a third party, doing so loses a significant part of the value to the tribunal of expert issue familiarization in the lead up to the hearing and could be considered an abdication of the tribunal's duty to understand the case before them.

B. Post-hearing expert access protocol

There is also value in experts being available to assist the tribunal after the main evidentiary hearing, particularly with calculating amounts to be awarded. Tribunal members often do not have expertise in performing complex calculations or deciding the application of interest rates on issues of quantum. Experts may assist in this process by building interactive models into which the tribunal can input its decisions on certain issues to obtain final calculations. In some cases, however, the cost of creating such a model may be disproportionate to the value of the dispute. In these instances, it is more efficient and effective for the experts themselves to complete the joint calculations upon provision by the tribunal of its decisions.

The second proposed solution is therefore an Expert Access Protocol, a tripartite agreement between the tribunal, the parties, and the relevant experts. This Protocol permits the tribunal to have confidential access to the experts, on agreement by the parties, strictly for the performance of calculations (as opposed to the provision of any further opinions). It is vital that the tribunal does not meet with the experts during this process but rather provides them with clear written instructions to complete the calculations. Both the instructions given by the tribunal, and the resulting calculations are then provided to the parties in conjunction with the final award. This gives parties the opportunity to apply for corrections under the applicable correction provisions if there are any computational errors, and further ensures transparency and accountability between the tribunal and the parties. Experts must also present their fees for certification before they are sent to the parties to ensure they are proportionate to the costs of the dispute.

The Expert Access Protocol has the benefit of ensuring that parties and their counsel are simultaneously provided with a final statement of both their rights and liabilities. This is particularly relevant in cases where asset preservation is a concern, and it would be beneficial to limit the period of time during which parties can infer the outcome of the arbitration. Further, in arbitrations involving publicly traded companies, parties may be subject to continuous disclosure obligations. If information is provided which can be translated into potential outcomes, a dispute may arise as to whether there has been a failure of one party or the other to meet those disclosure requirements. Over-

all, the assistance of experts with the award can ensure that tribunal decisions on quantum are made efficiently and accurately.

The author has prepared draft procedural directions in relation to the application of the principles discussed above for both memorial style exchanges (as noted above, the detailed statements of case common in civil law jurisdictions) and more traditional pleadings (less detailed statements familiar to common law practitioners). In the author's experience, these work well in practice, but it is of course necessary to adjust each procedural order for the needs of the case and the parties. Appendix 1 is an Example Expert Witness Procedural Order for both pleadings and for memorial submissions.

In the case of memorials, it is necessary to specify that parties' memorials do not include party-appointed experts reports which are deferred until after there is sufficient factual and documentary material available to both experts for them to commence their joint work. In relation to the tribunal's access to experts after the hearing, Appendix 2 provides a form of tripartite Expert Access Protocol for access to quantum experts.

C. Expert assistance with document production requests

Another area in which the effective management of experts may further assist the tribunal is that of document disclosure, which is a fraught issue in international arbitration. Disclosure often involves mutual written requests for documents which are commented on by the other party to whom the request is made. Many of the requests made by one party to the other relate to documents which are sought for the purposes of assisting party-appointed experts to undertake their work.

Various methods are used to compare parties' views about document requests including, most commonly, what is referred to as a Redfern Schedule, which seeks to apply the principles in the IBA Rules¹³¹ relating to the limitation of document production requests to those documents that are relevant and material to the issues in dispute and are established not to be in the possession of the party making the request.

However, on the issues of relevance and materiality, often a lot is lost in translation between what experts say they need and what lawyers acting for parties introduce in requests. Lawyers, of course, and particularly junior lawyers who are often given the responsibility of making document production requests, are anxious to avoid missing anything, and therefore their translation of

¹³¹2020 IBA Rules, art 3.

experts' requests often involves some embellishment in order to ensure that nothing is overlooked.

It is therefore of great assistance to the tribunal if, in respect of document production requests, the experts themselves engage with the tribunal, during the document production phase, to identify those documents which they agree (or disagree with reasons) are proportionately necessary to the work that they do. This process is often assisted by short case management videoconferences between the tribunal, counsel and the experts who, in the event of disagreement in areas of common discipline, can assist the tribunal by explaining why those differences exist. The tribunal can then use that engagement to find an agreed way forward, or, in any case, to make a ruling which is far better informed than it would be if it was merely left as matter of written debate between the parties or even debate between counsel at a case management conference dedicated to document production requests, without expert attendance or input.

VI. Conclusion

Discussions and developments on the use of expert evidence in international arbitrations have been ongoing since the introduction of the first IBA Rules. This is a testament to the persisting, and indeed growing, importance of expert evidence in dispute resolution. As disputes become more complex and multi-faceted, the arbitral community must strive to innovate to enable such disputes to be adjudicated upon fairly, efficiently, and economically. Innovation in the way party-appointed expert evidence is deployed is part of this challenge. Proactive case management, tailored to the intricacies of the particular dispute, is central to this endeavor.

The solutions presented in this article endeavor to streamline the approach to expert evidence, to focus on the key issues, and to foster genuine engagement on issues of disagreement. It has been the author's experience that these processes are generally welcomed by parties, counsel and experts, and contribute significantly to achieving efficient, fair and economical proceedings.

Appendix 1 Example expert witness procedural order

1. Experts

1.1. Dealings with any Party-appointed experts shall be carried out with the IBA Rules on the Taking of Evidence in International Arbitration and CIArb Protocol for the Use of Party-Appointed Expert Witnesses in International Arbitration serving as guidelines, subject to any applicable law.

1.2. On or before [insert date], each Party shall provide the Tribunal and the other Parties with details of the expert disciplines and the identity of the experts within those disciplines whom it proposes to call, together with an identification of the topics upon which the experts in each discipline will be asked to opine.

1.3. In response to the advice in paragraph 1.2 above each Party shall provide the Tribunal and the other Parties with details of any further expert disciplines and the identity of the experts within those disciplines whom it proposes to call, together with an identification of the topics upon which the experts in each such additional discipline will be asked to opine on or before [insert date].

1.4. The Parties shall confer and try to come to an agreement as to the principal topics and issues that the experts are to address by reference to the Parties' respective cases on or before [insert date], advising the Tribunal any agreement reached, by that date. In the case of any disagreement, the Parties shall revert to the Tribunal for the resolution of any disagreement by that date, setting out the areas of disagreement with brief reasons for disagreement.

1.5. No later than [insert date], the Parties shall file and exchange a preliminary list of the precise questions upon which each expert will opine.

1.6. Any Expert Report shall:

(a) be prepared in accordance with the CIArb Protocol and the IBA Rules on the Taking of Evidence in International Arbitration;

(b) set out the name and business address of the expert, his or her relationship with any of the Parties, if any, and a description of his or her qualifications, including his or her competence to give evidence;

(c) commence with a summary of matters intended to be established by the expert;

(d) be signed and dated by the expert;

(e) take the form of a declaration under oath or affirmation; and

(f) contain numbered paragraphs and page numbers.

1.7. The Parties shall arrange for meetings and communications between their respective experts to be scheduled in [insert month].

1.8. On or before [insert date], the Parties' experts, on each respective discipline, shall produce a Joint Expert Report of matters agreed and disagreed.

1.9. On or before [insert date], the Parties may file and simultaneously exchange between themselves individual expert report dealing with areas of disagreement identified in the Joint Expert Reports.

1.10. Following such exchange, each expert shall be entitled to produce a report in reply, which shall be limited to responding to the matters raised in the report of the other expert. Such replies shall be exchanged simultaneously on [insert date].

1.11. The Tribunal may, upon notice to the Parties and with the Parties' consent, hold meetings with any expert at any reasonable time.

1.12. Meetings between the Parties' experts, and any draft reports prepared by those experts shall be without prejudice to the Parties' respective positions in this Arbitration and shall be privileged from production to the Tribunal.

1.13. Although the Parties shall arrange for the meetings referred to in this section to be scheduled, it is expected that experts of like disciplines are to be otherwise unaccompanied at such meetings.

1.14. Any Expert Reports are to contain the following declaration:

I declare that:

- **I understand that my duty in giving evidence in this arbitration is to assist the arbitral tribunal to decide the issues in respect of which expert evidence is adduced. I have complied with, and will continue to comply with, that duty.**
- **I confirm that this is my own, impartial, objective, unbiased opinion which has not been influenced by the pressures of the dispute resolution process or by any party to the arbitration.**
- **I confirm that all matters upon which I have expressed an opinion are within my area of expertise.**
- **I confirm that I have referred to all matters which I regard as relevant to the opinions I have expressed and have drawn to the attention of the arbitral tribunal all matters, of which I am aware, which might adversely affect my opinion.**
- **I confirm that, at the time of providing this written opinion, I consider it to be complete and accurate and constitute my true, professional opinion.**
- **I confirm that if, subsequently, I consider this opinion**

requires any correction, modification or qualification I will notify the parties to this arbitration and the arbitral tribunal forthwith.

1.15. Any expert who has filed an expert report shall make him or herself available to be cross-examined at the Main Evidentiary Hearing. Notice should be given requiring his or her cross-examination by the other Party [insert date within 2 weeks of the exchange of the last expert reports]. The Party relying on such evidence shall secure that witness' presence and availability at the Main Evidentiary Hearing in advance. Any expert who gives evidence at the Main Evidentiary Hearing will do so after having given an oath or affirmation.

1.16. In the event that a Party does not make an expert available, the requesting Party may apply for any additional ruling from the Tribunal, including the setting aside of the prior testimony of that expert, or the drawing of an adverse inference.

1.17. The admissibility, relevance, weight and materiality of the evidence offered by an expert shall be determined by the Tribunal in accordance with the IBA Rules.

Appendix 2 Example expert access protocol (Quantum Experts)

1. Assistance to be provided

1.1. The Parties agree that the Arbitral Tribunal will be given access to two of the Parties' experts, [insert] and [insert] (the "Quantum Experts"), on a confidential basis, for the purpose of performing calculations on the basis of existing material contained in their expert reports forming part of the evidentiary record, adopting assumptions to be provided to them by the Arbitral Tribunal (the "Calculations"). For the avoidance of doubt, the Arbitral Tribunal will not engage in confidential communications with the Quantum Experts about matters that require the provision of expert opinion, rather than the performance of calculations.

2. Confidential information

2.1. In this Agreement, Confidential Information means: (i) all information supplied or made available to the Quantum Experts by the Arbitral Tribunal, (ii) all information supplied or made available to the Arbitral Tribunal by the Quantum Experts, (iii) all correspondence, discussions or queries raised between the Arbitral Tribunal and the Quantum Experts, (iv) all correspondence and discussions between the Quantum Experts, and (v) all material and working papers and spreadsheets prepared by, amended by or examined by the Quantum Experts in that context, all from the date of this agreement forward, for the purpose of the Quantum Experts assisting the Arbitral Tribunal with any and all Calculations.

3. Undertakings regarding confidential information

3.1. Disclosure and Use: The Quantum Experts will keep all Confidential Information confidential and will not, except as permitted by this agreement, disclose or distribute Confidential Information, or permit it to be disclosed or distributed, or disclose its substance, to any person including the Parties to the arbitration or their legal representatives.

3.2. Security of Information: The Quantum Experts will at all times effect and maintain adequate security measures to preserve the confidential nature of the Confidential Information, at least equivalent to the measures they would prudently effect and maintain for their own valuable and sensitive confidential information.

3.3. Exceptions: The following disclosures only are permitted by this agreement:

3.1.1. Arbitral Tribunal's Agreement: Confidential Information may be disclosed to the extent that the Arbitral Tribunal has expressly directed in writing that the Quantum Experts need not keep it confidential or may disclose it.

3.1.2. Required by law: Confidential Information may be disclosed to the extent required by law.

3.1.3. Quantum Experts' Staff: Confidential Information may be disclosed to members of the staff working for each of the Experts only to the extent necessary to assist the Experts in their interactions with the Arbitral Tribunal and each other and on the basis that such members of staff provide an equivalent undertaking to the relevant Quantum Expert.

3.1.4. Final Calculations: The final calculations performed by the Quantum Experts which are relied upon by the Arbitral Tribunal for determining the quantum awarded shall either be attached to, or provided at the same time as, the Tribunal's Award. Thereafter any calculation errors that may be identified by any of the Parties shall be dealt with in accordance with [the applicable rules governing Award correction].

4. Costs

4.1. The Party who engaged each of the Quantum Experts for the arbitration will remain responsible for each of their costs, including staff costs and other direct costs, and the Arbitral Tribunal will have no responsibility for any costs of the Quantum Experts. The Quantum Experts will submit all applicable invoices to the Arbitral Tribunal for approval and the Arbitral Tribunal will confirm within 15 days that the sums invoiced have been properly incurred.

4.2. The Arbitral Tribunal may allocate as costs of the arbitration the costs of the Quantum Experts arising from their assistance to the Arbitral Tribunal.

5. Disputes

5.1. All disputes arising out of or in connection with the present agreement shall be finally settled under the Rules of Arbitration of the London Court of International Arbitration by one or more arbitrators appointed in accordance with the said Rules. The seat of the arbitration shall be London and the language of the arbitration shall be English.