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Chapter 9: Data mining, text analytics and international commercial arbitration

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(1) (2)

> "Then suddenly cries rang out that electronic brains disguised as lawyers were present in the hall and should be removed at once, since their bias was indisputable – not to mention the fact that they had no right to take part in the deliberations." (3)

9.1 Introduction

Law has never been at the forefront of innovation. Perceived as a "mirror of society" that reflects its norms and morals, law often follows in the wake of changes that have already taken place in society. This reflection applies to the legal industry itself, which is rather conservative and cautious in welcoming new developments. However, the use of technology in international commercial arbitration (and law in general) proves to be slowly but steadily an increasing phenomenon, only boosted by the COVID-19 pandemic. This is also true with the use of data mining and text analytics in international commercial arbitration. Arbitral practice shows that such technology is currently being used; whether and how the law keeps up with this reality will be discussed in this paper.

This Chapter, therefore, focuses on the use of data mining and text analytics throughout the lifecycle of international commercial arbitration (hereinafter: "ICA") proceedings. (4) As the definitions of the concepts of data mining and text analytics would not differ in
P 160 commercial arbitration ● and investor-state arbitration (hereinafter: "ISA"), this Chapter relies upon and benefits from the theoretical underpinning canvassed by Alschner and Charlotin in Chapter 8. (5) The potential application of these tools, however, might be different considering the private nature of ICA (as opposed to the broader publicity of ISA). The first two sections will briefly explain the concepts of data mining and text analytics (section 2) and the current legal framework to deal with these tools, or rather the lack thereof (section 3). What follows is a handful of reflections regarding the use of data mining and text analytics by parties/counsel (section 4) and the arbitral tribunal (section 5).

9.2 The emergence of data mining and text analytics in international commercial arbitration

This analysis focuses on two techniques already in (more or less frequent) use in ICA: data mining and text analytics. The explanation below is intended to (briefly) define their scope. The ICC Arbitration Commission Report on Managing E-Document Production provides the following "simple" definition of data mining: "[d]ata [m]ining[...] originally relates to the extraction of knowledge (information) from databases in a meaningful (intelligible) format for analysis for a specific purpose". (6) In a nutshell, therefore, the technology allows locating the relevant data from a vast quantity of sources.

The second technology, namely text analytics, pertains to distilling information from the analyzed documents. (7) As Alschner and Charlotin explain in Chapter 8: "structured information about a document corpus [...] can be investigated in isolation, aggregated to find trends and patterns, or used to generate forecasts". (8) Consequently, text analytics
P 161 may have descriptive, ● predictive, and prescriptive functions. (9) As will be shown below, both tools have plenty of applications during the arbitration.

9.3 The law stays behind – the absence of a legal framework for data mining and text analytics

To date, the use of data mining and text analytics escapes any direct regulation within the arbitration legal framework: the New York Convention, arbitration laws, and arbitration rules of leading institutions remain silent in this respect. (10) Consequently, nothing "require[s], forbid[s], or address[es]" (11) the use of data mining and text analytics, which, in turn, means that the general international arbitration principles will apply. As with the use of IT in general, it would also be "unusual and impractical" (12) to refer to data mining and text analytics in arbitration agreements. In any case, such reference should be limited and unspecific, given that years can pass between the drafting of the agreement and the emergence of the dispute, and the technology can develop significantly.

The analysis below assesses the use of data mining and text analytics in arbitration in the light of a legal framework that, as already illustrated, lacks any specific reference to these technological innovations.

In general, the New York Convention, the statutory and the institutional regimes governing arbitration provide considerable procedural flexibility to both parties and
P 162 arbitrators, provided that the parties are treated ● equally. (13) For example, the UNCITRAL Model Law on International Commercial Arbitration – a representative example of modern arbitration legislation – provides under Article 18 that the parties must be treated equally and must have the full opportunity to present their case. At the same time, it allows the parties to agree on the procedure (14) and the tribunal to intervene in the absence of the parties' agreement. (15) Notably, the law vests the tribunal with considerable powers related to evidentiary issues. (16) These will naturally include matters related to the use of data mining and text analytics, particularly in collecting evidence.

The leading soft law instruments, such as IBA Rules on the Taking of Evidence in International Arbitration or the Prague Rules on the Efficient Conduct of Proceedings in International Arbitration, usually discuss specific issues related to the taking of evidence in more detail. (17) Yet again, they address neither data mining nor text analytics explicitly. Nevertheless, the IBA Rules contain several relevant provisions. First, they provide for a (considerably broad) definition of a document. (18) This is relevant for data mining, as the data being mined can take any form. Second, IBA Rules require the arbitral process users to consider cybersecurity and data protection (19) . These concerns are relevant for data mining as data is being mined and processed digitally. Third, the IBA Rules require the party making document production request to "identify specific files, search terms, [...] or other means of searching for such Documents efficiently and economically". (20) The purpose of this rule is to ensure efficiency during discovery. Technology (including the one discusses in this Chapter) can help to achieve this goal.

In recent years some soft law instruments were proposed that reflect a less adversarial
P 163 and more inquisitorial approach to evidence, particularly ● limiting the discovery. This may, in turn, affect the necessity and practicality of using data mining and text analytics to digest the data obtained through discovery. The more limited document production is, the less data is obtained, and thus the less practical it would be to mine or analyze it with the use of technology. Consider the Prague Rules, which at Article 4.2 discourages parties and arbitrators from benefiting from e-discovery (and thus arguably from the use of data mining). The relevant part reads that "the arbitral tribunal and the parties are encouraged to avoid any form of document production, including e-discovery". (21) The CPR Protocol on Disclosure of Documents & Presentation of Witnesses in Commercial Arbitration (22) adopts a similar approach to limit document production. It allows granting the "production of electronic materials from a wide range of users or custodians [...] only upon a showing of extraordinary need". (23)

In recent years, various stakeholders created numerous protocols to address the fast-developing (technological) changes in international arbitration. Several instruments address the legal status of data in arbitration in detail, such as the ICCA/NYC Bar/CPR Cybersecurity Protocol for International Arbitration, (24) the CIArb Protocol for E-Disclosure in International Arbitration, (25) or the ICC Commission Report on managing the e-document production. (26) Yet, they do not directly address the technologies that
P 164 are the subject of this Chapter. (27) ●

Furthermore, the TeCSA/SCL/TECBAR eDisclosure Protocol (28) provides a valuable insight (albeit not related to international arbitration) on how to regulate the issue. In addition to general rules regarding the preparation of electronic documents for production, this Protocol also contains Appendix 5 on specific technical arrangements. Significantly, the parties may agree to use "computer-assisted review tools". (29) The shape of this instrument could potentially inspire arbitration institutions seeking to regulate this topic.

Moreover, the ICDR International Dispute Resolution Procedures provide that "[r]equests for documents maintained in electronic form should be narrowly focused and structured to make searching for them as economical as possible". (30) Additionally, "[t]he Tribunal may direct testing or other means of focusing and limiting any search". (31) This allows the tribunal to consider data mining software and other advanced search mechanisms to tailor the process of document production.

Whenever considering data mining or text analytics, it is essential to remember that general data protection principles will equally apply to the whole arbitration process, (32) including these technical developments. While the current analysis does not deal with data protection issues, it is necessary to highlight – as a side note – that it is not clear whether sharing data with third-party providers of data mining and text analytics
P 165 software triggers any obligations under data protection laws and, in particular, ● whether these third companies process the data contained in arbitration case files for their purposes.

All in all, the arbitration laws and rules neither regulate nor prohibit data mining or text analytics in ICA. The only notable exception is the use of data mining/text analytics in document production. Thus, the stakeholders operate in a legal "no man's land", based on broad discretionary procedural freedoms guaranteed by the arbitral process.

9.4 The potential use by the parties/counsel

There is also little "hard" data on the use of IT technology in arbitration, including the use of data mining and data analytics. Stakeholders, hence, rely on "war stories" and anecdotes. (33) According to recent data, using AI in ICA is still last in the popularity of information technology forms (after videoconferencing, hearing room technologies, cloud-based storage, and virtual hearing rooms). Only 41% of respondents in 2021 used it sometimes, frequently, or always, comparing to 19% in 2018. (34)

These technological tools can still ease counsel's (as well as arbitrators') (35) work at every stage of the proceedings. Depending on when, the innovations may either (i) enhance the parties' ability to make informed choices, especially before the arbitration takes place, (ii) allow the parties to streamline the arbitral process itself, and finally (iii)
P 166 assist the parties in challenging or defending the award.

9.4.1 The use of data mining and text analytics prior to arbitration – informed decision-making

9.4.1.1 Selecting seat of arbitration and applicable rules; drafting arbitration clauses

Selecting the seat of arbitration and applicable rules as well as drafting arbitration clauses is, unfortunately, underestimated. Parties often copy-paste wording from their previous contracts or make uninformed decisions based on word of mouth or limited legal advice. This sometimes leads to ill-drafted arbitration agreements, jeopardized processes, and a threat to the enforceability of the award. (36)

By selecting the seat, parties opt for the law governing the proceedings, the court supporting and supervising the whole arbitral process as well as determine the scope of (the setting aside) review of the arbitral award, (37) and potentially also the law applicable to the arbitration agreement.

The users of arbitration long departed from choosing a seat simply because it is *en vogue*. The recent Queen Mary University of London and White & Case 2021 International Arbitration Survey (hereinafter: "QMUL Survey 2021") showed that stakeholders primarily seek more significant support for arbitration by local courts and judiciary, increased neutrality and impartiality of the local legal system, and better track record in enforcing agreements to arbitrate and arbitral awards. (38) This led to significant rises in popularity of Singapore (raise to 54% in 2021 from 39% in 2018 and 19% in 2015) and Hong Kong (increase to 50% in 2021 from 28% in 2018 and 22% in 2015) as preferred seats. (39) This shows that nothing is static, and arbitrations do migrate, seeking more attractive
P 167 *fora*.

Despite many similarities, different arbitral institutions offer different solutions. One can name e.g., time limits or expected length of the proceedings, calculation and allocation of costs, emergency arbitration, or scrutiny of arbitral awards (performed, e.g., under Article 34 of the ICC Rules).

Data gathered in the 2021 International Arbitration Survey show a shocking decrease in the popularity of ICC (77% in 2018 to 57% in 2021) and LCIA (51% in 2018 to 39% in 2021). The trend is reversed for Asian institutions, which are on the rise, e.g., SIAC (from 36% in 2018 to 49% in 2021) and HKIAC (from 27% in 2018 to 44% in 2021). Although the general reputation of the institution and the user's previous experience of that institution remain the main factors in selecting the institution, statistical data shows that parties are open to new possibilities. (40)

Any technological tool that may aid counsel in advising the party in selecting the most appropriate seat, set of rules, and the language of the arbitration agreement for its dispute is most welcome. Tools that can "crunch" extensive data (e.g., decisions in post-arbitral cases), can determine e.g., whether a jurisdiction is arbitration-friendly, how tribunals operate under a particular set of rules, or whether a state court ever questioned the specific language of a clause. It goes without saying, however, that the parties should always be mindful that the global playing field is changing, and their choices of today can trigger different consequences in the future.

However, the critical challenge in this respect is the lack of (comparable) data. Despite recent initiatives, (41) arbitration case law is in the majority not in the public domain, especially as far as ICA is concerned. This is due to the confidentiality obligations of the parties and institutions. (42) Even those awards that are publicly available sometimes do not contain important (meta)data. Fortunately, state court judgments, including those passed in post-arbitral cases, are publicly available in most jurisdictions, and the data
P 168 contained therein can be analyzed.

9.4.1.2 Conflict check

Potential conflicts of interest are an important issue in ICA. At the same time, one may (i) not possess all the data necessary to perform a conflict check (e.g., one possesses only the names of the parties without the names of their affiliates, officers, groups of companies, etc.), (ii) need to verify all the necessary (potentially extensive) data obtained, and finally (iii) need to verify (based on the data obtained) whether any legally relevant conflict occurs.

Although the task may be potentially performed manually in the first two scenarios,

obtaining and analyzing all the data may be burdensome, given its volume. Different tools are available for conflict check, either as standalone software or a part of law firm management systems. (43) This does not mean that the issue at hand is resolved. First, notably, US data from 2018 showed that many law firms, including the majority of small law firms, do not use any conflict check software. (44) Practice shows that this conclusion may not be limited to the US market alone. Second, even if being used, the services that allow assessment of conflicts are based on data obtained primarily from publicly available sources. (45) Due to the limited availability of the data, such assessments cannot be regarded as made with 100% accuracy.

If a party gathered the data, it is sometimes not clear whether a particular factual scenario amounts to conflict or not. In particular, the term "justifiable doubts as to (an) arbitrator's impartiality or independence" (46) is hardly a clear signpost. Similarly, the
P 169 IBA Guidelines on Conflicts of ● Interest in International Arbitration, (47) which help arbitrators to assess conflicts frequently use vague terms like "significant interest in a party", "regularly advises", "close relationship", "significant commercial relationship", "related issue", "significant fees or other revenues", "regular basis". These terms need to be and often are interpreted by tribunals or courts. Tools for mass-analyzing the data from the awards and judgments would potentially offer parties and arbitrators guidance whether there are justifiable doubts as to arbitrator's impartiality and independence in a specific factual scenario.

9.4.1.3 Assessing the case

The stakeholders in arbitration and – more widely – all dispute resolution processes often seek to verify their position in the case and chances of success. In other words, they aim to make "a more detailed calculation of the return of investment on the time and cost" relating to initiating the arbitration. (48)

Traditionally, case assessment is performed "manually", i.e., counsel, based on their experience and the analysis of facts and law, to assess chances of success in a given case. Such analyses are usually quite inconclusive, (unconsciously) biased, and bear numerous reservations. Their usefulness for a party to make an informed decision whether to pursue the case or not is therefore limited.

The topic of case assessment is on the rise with the growing popularity of third-party funding. Litigation and arbitration funders invest in cases, do not gamble upon them. Therefore, their priority is to evaluate the probability of success and reduce the chance factor to the minimum. Initially, this assessment was also made "manually", i.e., by the
P 170 funders' internal or external counsel. However, it is not surprising that funders created ● tools to aid them in this process. (49) Most of these companies operate in jurisdictions (particularly in the US) where the data, based on which predictions are made, is public, stable, and predictable. (50)

Such services also entered the arbitration market. Some companies provide tools "quantifying case risks using machine learning and game theory inspired models" for arbitration proceedings. (51) Others allow to "compare average claim amount by case type, examine party locations by region, review arbitration outcomes by case type and measure average case length across all case types". (52)

However, the road to the proliferation of such services is quite bumpy. One of the pioneers of litigation prediction closed recently due to "the conservative nature of the legal sector, including litigation funders, when it came to using predictive techniques; and the tough market for legal tech startup funding during the current pandemic". (53)

The market in the arbitration sector is even more difficult, primarily due to the lack of data described above. There are further factors that limit the predictability of arbitrators' decisions.

First, during a recent DIS40 webinar, Scherer correctly pointed out that arbitrators who
P 171 put their signature under an award may not always be ● convinced with every argument raised in the reasoning. (54) However, such cases rarely result in the drafting of dissenting opinions, especially in ICA. Thus, "on paper" such arbitrators could be regarded by the AI as supporting all the views presented in the award, but this may not be the case.

Second, agreeing with the legal reasoning of an award in one case may not mean that a given arbitrator will follow the same legal reasoning in a different case. This pertains to instances where arbitrators apply vague definitions (e.g., "foreseeable", "fault", "reasonable"). One must remember that different approaches to these cases are permissible, as long as the award is not contrary to public policy. (55) Only a violation of the most basic principles of a given legal system may thus render the award defective. In all other cases, the arbitrators might have been "right", even if they diverged from the approach adopted in a previous case by a different tribunal where they sat.

The same applies to procedural rules. In a 2012 study, only ca. 10% of arbitrators answered that they always, usually or often exclude evidence that is not admissible under the evidentiary standards they believe would be appropriate outside of arbitration, rather than take the evidence and give it such weight as you deem fit. In turn, ca. 90% answered that they "never" and "sometimes" do that. (56) It means that the arbitrators generally do not have a firm stance on the admissibility of evidence and opt

for weighing particular pieces of evidence on a case-by-case basis. Furthermore, evidence excluded in one arbitration under a specific principle may be admitted by a different panel, even in a related case. This example shows how unpredictable the
P 172 outcome of an arbitrator's decision-making can be.

Third, arbitrators can simply change their minds on a given legal problem. Especially in a survey from 2015 shows that 75% of arbitrators did not consider future reappointments while arbitrating. (57)

Fourth, even the available data is hardly comparable. (58) Those awards that are public need to be collected from different sources and are rendered in a different form, in different languages, and under different rules. Even if parties can collect data on some more awards from publicly available state court judgments in post-arbitral proceedings, such decisions may not make a direct quotation to an award but describe their content in the court's own (possibly incomplete or even inaccurate) way. Such data cannot, therefore, be relied upon in the same way as arbitral awards.

Finally, in those rare cases where arbitrators decide *ex aequo et bono*, the comparability of such decisions with other cases is even further limited.

These limitations show that while the tools in question do show some potential, they are far from being widely implemented in ICA, given the specificities of ICA (confidentiality, untenured adjudicators, multiplicity of procedural frameworks, and applicable substantive law). Therefore "technology-driven data analytics will not make the judgment and expertise of experienced lawyers obsolete". (59)

This does not mean that the technology in question cannot be relied upon by the parties. Although the general principles of ICA (party autonomy, due process) provide little guidance in applying these tools, they also provide for no prohibition. In particular, it is hard to find any due process issues using such instruments only by one party to the dispute. Therefore, even if "the judgment and expertise of experienced lawyers" will always be required, said lawyers may rely upon advanced technology to elevate the level
P 173 of their services or simply make their work easier and more time and cost-effective.

9.4.2 The use of data mining and text analytics during the arbitral process

9.4.2.1 Selection of arbitrators

Selecting the right arbitrator (60) to the dispute is labeled as "one of the most consequential choices in the context of arbitration proceedings". (61) Avoiding choosing a conflicted arbitrator (see sub-section 4.1.2. above) is only the first step. A party should appoint an arbitrator who not only is not conflicted, but also who has ample time to resolve the dispute and whose line of reasoning may help the party. This choice, despite its importance, is often based on word of mouth and recommendations from colleagues. (62)

Therefore, several tools were developed, assisting with the process of selection of arbitrators. (63) Their growing popularity is a testament to the opinion that arbitrators' appointment is the field in which the application of AI may be the first to enter the day-to-day work of the users of arbitration.

An interesting legal question arises in this respect: does the availability of such tools to assess conflicts and select an appropriate arbitrator change the duties of those appointing arbitrators, i.e., parties and arbitral institutions, or of those suggesting a prospective appointment, i.e., counsel? On the one hand, if there is publicly available data about arbitrators, it needs to be analyzed to assess whether a specific arbitrator is suitable for the case. The same applies to legal tech tools that help in the process. On the other hand, the mere possibility cannot automatically create duties. For instance, the fact that private investigation agencies exist does not mean that every counsel should hire one to spy on a prospective arbitrator and assess a potential conflict. There are, therefore, limits to the duty to investigate on the part of an entity appointing or suggesting an arbitrator. Furthermore, the use of the tools in question is usually not free of charge. However, whilst the duties of counsel do not change, new legal tech solutions enlarge the toolbox of counsel. The latter may at best be expected to offer such tools to the parties, but the final decision is always the client's, also because it is the client who bears the costs. In making that decision, the client should consider that the costs of repeating an arbitration after an arbitrator is removed for lack of impartiality and
P 174 independence may be higher than the costs of relying on technology to assess the conflict before the appointment. Furthermore, suppose that said technology becomes more available and cheaper. In that case, it may become a day-today routine and obligation of counsel to use it, to verify the arbitrator's suitability for a given dispute or perhaps to suggest a given solution to the client.

As for institutions, it is plausible that their evaluation and position on the market may depend on the use of such tools for the appointment of arbitrators. Time will tell if this is the case.

9.4.2.2 Controlling arbitrator's impartiality and independence

The tools that can be used to clear initial conflicts of interest can also be used to verify

the occurrence of the conflict in the course of the proceedings. However, the question arises whether the existence of these tools raises the level of diligence of the arbitrators in informing the parties that new circumstances have arisen, which may give rise to justifiable doubts as to their independence and impartiality.

On the one hand, the emergence of the tools described above could be viewed as changing arbitrators' and perhaps parties' duties also during the proceedings. Following this approach, if publicly available data and tools facilitate the assessment and disclosure of conflicts, the parties should expect the arbitrators to disclose. As a consequence, the same elevated level of diligence would apply to counsel. They, too, would need to verify publicly available data and challenge arbitrators, if the data show the occurrence of conflict. Due to short deadlines for filing the challenge, utmost care would be needed. Some authorities support this approach and require parties and arbitrators to investigate conflicts. (64)

On the other hand, this seems to be a far-reaching approach, that might potentially become overly burdensome. This might be the reason why the courts took opposing views recently. In a 2020 decision of the Swiss Federal Tribunal, (65) the court found that "a party cannot be required to continue its internet searches throughout the arbitration
P 175 proceedings, nor, a fortiori, to scan the messages published on social networks by the arbitrators during the arbitration proceedings". If this rule is confirmed, the emergence of new techniques for assessing conflicts will not elevate the duty of inquiry obligations as to conflicts of interest. It seems that, if the parties' responsibilities do not change, arbitrators would also not be expected to verify their impartiality and independence using data mining and text analytics tools.

9.4.2.3 Improving persuasiveness of the written submissions (66)

Submissions serve to "do things with words," (67) i.e., to persuade arbitrators to share a party's factual and legal position. The first step is to write one's submission in proper English (or any other language of the proceedings). The second step is to polish up the writing so that it is more understandable. This is particularly important as, according to recent data, 61% of users of the arbitral process would agree to the limited length of written submissions; (68) legal tech serving to make the submission more concise and persuasive would thus be welcomed by these stakeholders. Several tools serve such a purpose for plain (69) and legal English. (70)

The usefulness of these tools, especially for non-native speakers, is significant. There is no hard data to what extent a "better" submission raises chances of prevailing in proceedings. However, one may agree that "counsel's framing of the dispute and the theme developed to tell the story to evoke a positive response from the arbitrators is
P 176 known by all to be essential to a persuasive presentation". (71)

Additionally, several valuable databases serve to gather, group, link, and connect authorities. (72) The necessity to use them in international arbitration practice is a truism. No party can draft a convincing legal submission without citing relevant authorities. Modern solutions allow counsel e.g., to build upon authorities, track precedents, and easily implement them into submissions. The same applies to tools allowing to analyze mass data. (73) Counsel use numerous solutions to handle classes of documents, group them, evaluate and search relevant data. (74)

Finally, data mining and text analytics can also be used directly by a party to make an argument. Parties can make an argument and substantiate it using metadata from a given document (e.g., to prove fraud), or analyzing data on a mass scale. This can take the form of evidence, as it falls within the scope of a document, e.g., under the IBA Rules. It can also take the form of an expert report; namely, a party can appoint an expert to prepare such analytics and introduce them in the form of a report.

9.4.3 Data mining and text analytics at the post-award stage (75)

Data mining and text analytics can also be used at the post-award stage. In the *Yukos Universal Limited (Isle of Man) v The Russian Federation* case, the Russian Federation appointed experts, who "examined by digital means, on the basis of the presence of authorship characteristics derived from earlier writings of [tribunal's secretary] and the three arbitrators, whether [the tribunal's secretary] wrote certain pieces of text, or whether this text originated from one of the arbitrators. The experts concluded that it is more than 95% certain that [the tribunal's secretary] [had] written at least 60-70%
P 177 ([expert 1]) or at least 41% ([expert 2]) of Chapters IX, X, and XII of the Final Award". (76) Russia's evidence and argument (although it ultimately failed) led the Hague Court of Appeal to assume that the tribunal's secretary was indeed involved in drafting the award. (77) The above example shows a potential to use data mining and text analytics techniques to challenge an award, particularly when other tools fail, e.g., to provide proof for corruption or conflict of interest of arbitrators.

There is yet another avenue of application of data mining and text analytics after the arbitral proceedings have finished and the award was declared enforceable against the losing party. The prevailing party may face challenges in successfully recovering assets. When one considers that "[d]ata [m]ining [...] relates to the extraction of knowledge from databases in a meaningful (intelligible) format for analysis for a specific purpose", (78)

tools analyzing mass data may help such parties to track and chase the assets to secure their interest. One might consider extracting details of an asset (e.g., location of a property, location, and the number of a bank account) from a cluster of files.

9.4.4 Legal implications for the use of data mining and text analytics

The use of data mining and text analytics as tools in ICA proceedings poses some legal questions, particularly when it comes to the disclosure of these tools, the tribunal's powers over them, and finally, the costs.

As to the first question, if parties use such techniques, should they disclose it beforehand? Indeed, there are questions, for example, "whether there would need to be rules around the disclosure of cyber-predictions to a tribunal". (79) Similar questions were raised as to the disclosure of third-party funding. For instance, under Article 11(7) of the 2021 ICC Rules, the parties "must" disclose the existence and identity of "any non-
P 178 party ● which has entered into an arrangement for the funding of claims or defenses and under which it has an economic interest in the outcome of the arbitration". However, such a rule presupposes that there might be a potential conflict of interest between counsel, arbitrators, and third-party funders. (80) No such arguments are valid for the use of data analytics (save for situations in which any participant in the arbitral process, particularly an arbitrator, has an interest in a data analytics company and may be biased towards parties using its product).

Second, should the arbitrator prohibit using such techniques considering inequality (e.g., if the adversary is not sophisticated enough or has no funds to produce similar evidence but to the opposite)? The fundamental question is, what would be the legal basis for such a prohibition. A similar debate recently arose on virtual hearings, where one of the primary objections was the possible technological inequality of the parties in this respect. (81)

Indeed, the use of sophisticated legal tech by one of the parties may create a disequilibrium. However, the same applies to the quality of the counsel, experts, etc. A party should not be, in principle, prevented from taking best efforts to build its case, including the use of data mining and text analytics. Hence, as correctly argued in the ICC Commission Report: Information Technology in International Arbitration, if the Parties disagree on the use of IT in arbitration, "[t]he tribunal is under no obligation to adopt a particular approach, whether or not proposed by the parties, and may have its own views on how IT should or should not be used". (82) At the same time, this Report correctly noted that "no party should be allowed to insist on a particular IT solution to make the proceedings more difficult or expensive for another party. Thus, the tribunal might deny a request for directions to use a specific form of IT if it finds that the requesting party's preference for that solution is motivated by a desire to cause the other party to incur unreasonable costs or where the tribunal concludes that a less expensive solution would
P 179 work just as well — both for the parties ● and the tribunal. Conversely, the tribunal also would condemn a party's attempt to complicate or obstruct the proceedings by unjustifiably resisting IT use". (83) This approach would equally apply to data mining and text analytics.

Third, it is unclear what the evidentiary power of data mining/text analytics software is. One may consider that a party submits the results of legal analysis and argues that in similar cases, all (or the vast majority) of courts and tribunals found that a given conduct meets the legal requirements to trigger a party's responsibility. Would that exempt the tribunal from analyzing whether the case law relied upon indeed is similar to the dispute pending before it, as to facts and law? The result of the use of the software cannot be a standalone basis for any party to prevail. The same goes with e.g., software's conclusion that "evidence clearly shows the contacts between party A and B in a certain period". Both the arbitrators and the parties would still need to evaluate what this means in the context of the case's legal framework. The given examples show that it would be more persuasive if such a party demonstrated how the software it relied upon reached a given conclusion. This might require the software to, at least partially, reveal its algorithms, which may be contrary to the software's creator interests to protect its business secrets. Practice will show whether data mining/text analytics software could be persuasive enough for the parties and arbitrators to substitute traditional analysis of facts and law.

Fourth, as mentioned above, relying on data mining/text analytics software entails (sometimes significant) costs. (84) Can parties claim reimbursement of such expenses, and – in turn – should the other party reimburse them? Whether incurring such costs was reasonable and necessary for the party to present its case would need to be analyzed on a case-by-case basis by the tribunals. "Tribunals might also forbid the use of certain IT if it would be overly cumbersome or unreasonably increase time and costs". (85) Finally, they should apply the proportionality test to assess whether certain costs should be recoverable. All in all, the use of technology is largely uncharted territory, and its impact
P 180 on arbitration at large is yet to be seen. ●

9.5 Enhancing the tribunal's procedural toolbox

As explained in the previous section, data mining and text analytics have the potential to make (and are already making) the life of arbitration counsel significantly easier, but also

to impact the costs and time of the arbitral proceedings by streamlining decision-making, expediting the arbitral process and facilitating presenting one's position during and after the arbitration. At the same time, one should not forget that the tribunal manages the process, and may equally become a beneficiary of technological innovations. This section will provide some further reflections regarding the use of these innovations by the tribunal itself. In particular, the analysis below will focus on the tribunal's power to employ data mining and text analytics both (i) at the parties' request and (ii) *ex officio*. Finally, one should also consider (iii) the use of text analytics to (self)scrutinize the award and ensure its enforceability.

9.5.1 The use of data mining software by the parties

As argued above, the current legal framework provides no guidelines regarding data mining or text analytics. Instead – when it comes to document production – it offers open-ended norms that encapsulate the tribunal's broad discretion on evidentiary issues. (86) In turn, this means – at least in theory – that the tribunal is provided with wide discretion in the assessment of the evidence. Consequently, in the context of the discussed techniques, nothing prevents the tribunal from using them, provided that arbitrators are mindful that arbitration is a process where the parties are expected to make their case. Thus, the arbitrator's active involvement in fact-finding may seriously impede parties' equality to present their case (which may also affect the fate of the award). The conclusion might differ if the parties obliged the arbitrators to play an active role in fact-finding (directly or for example by reference to the Prague Rules). (87)

In any event, data mining and text analytics software are nothing more than tools that may help (also) the tribunal digest volumes of evidence submitted by the parties. This would suggest the desirability of including these innovations in the tribunal's toolbox to
P 181 evaluate the evidence presented. ● No issue arises if the parties agree on the use of the specific tool (e.g., e-discovery software).

Furthermore, at one party's request and following consultation with (all) the parties, using a specific tool may be appropriate to analyze the documents produced and well within the tribunal's discretion. Indeed, "because party autonomy is paramount and parties can have very differing views on evidentiary matters, it is desirable to seek the input of the parties and wherever possible have agreement between them to obviate the need for a discretionary determination". (88) Consequently, although the discussed tools are new, the usual due process considerations apply (thus equal treatment of the parties, no surprise decision by the tribunal, etc.).

9.5.2 The use of data mining software at the tribunal's initiative

Perhaps the more controversial setting would be an *ex officio* decision by the tribunal to use data mining or text analytics techniques. There, one can imagine three hypotheticals: (i) a tech-savvy tribunal recommends the use of specific technological tools to, e.g., facilitate the production of evidence and boost efficiency, (ii) a tribunal takes the initiative to use data mining (independently or through the expertise of a tribunal's appointed expert) to evaluate submitted evidence, (iii) the tribunal takes the initiative to obtain factual evidence (e.g., through the use of data mining software).

When it comes to the first hypothetical, nothing should prevent the tribunal from recommending technological advancements to expedite the arbitral process. Promoting efficiency may be considered at the core of the tribunal's dispute management function. (89) The tribunal should propose to the parties the techniques to better pin-point evidence at the very outset of the proceedings (thus before any party has brought forward
P 182 its evidence) so that it can already be included in the first Procedural Order ● or Terms of Reference. (90) The tribunal may endorse the use of software that would allow processing more evidence produced electronically, or to better manage the document production at the later stage. At the same time, the tribunal may decide to admit less evidence, limiting it only to the extent that is directly material to the dispute.

Arguably, when suggested (or even ordered) at the beginning of arbitration, it is unlikely that the use of these technologies would successfully trigger allegations of unequal treatment of the parties, if it indeed promotes efficiency and the costs of relying on the software in question do not prevent any of the parties from making its case. If the tribunal requires a particular IT solution, its costs should be recoverable from the losing party. (91) As mentioned above, however, the efficiency of the proceedings alone cannot impede a party from making its case. Therefore, the tribunal's directives that are unreasonable or too burdensome for a party may be susceptible to challenges of equal treatment.

The second hypothetical goes one step further. In this case, the tribunal does not take the initiative to obtain factual evidence per se. Still, it is not entirely satisfied with the presentation/the use of evidence by a party (or parties). At the same time, based on its expertise, it recognizes, for example, that the use of specific (type of) software may facilitate its understanding and assessment of evidence, and eventually of the core of the legal dispute between the parties. Landolt suggested (although not in the context of legal technology) that whilst "[a]rbitrators should satisfy themselves that they have fully understood the parties' arguments and the implications of the legal authorities

submitted, [...] [they] should be careful to aim exclusively at arriving at a complete understanding of the parties' submissions, and not to causing new factual and legal evidence to be introduced because of any dissatisfaction that the arbitrators may feel with the parties' submissions as properly understood". (92)

P 183 Here again, provided that the use of technology can significantly aid the tribunal, the best approach would be to bring such a proposal to the parties ● for their consideration and inquire whether they agree to make use of a given software to analyze the data produced. In this case, ideally, the tribunal explains the way it wishes to use software and/or search algorithm it wishes to employ (or, in the alternative, make use of the tribunal's appointed expert). When parties have a chance to comment on such an initiative, (93) the possibility to successfully challenge the tribunal's decision at the post-award stage would be reduced.

The tribunal should be cautious, however, with unsolicited fact-finding activism, bearing in mind the paramount importance of party autonomy, (94) the costs of such measures, (95) and the fact that "the kinds of measures a tribunal might employ to promote efficiency can invite disappointed parties to consider challenges based on interference with their ability to fully present the case". (96) Indeed, "there is much in general to recommend arbitrator passivity as regards the obtaining of factual and legal evidence". (97)

There is a valid reason why the tribunal should often refrain from exercising its inquisitorial discretion, namely because "parties are generally in a better position to ascertain [the facts], as they were [...] involved" (98) and the tribunal's ultimate goal is to resolve the dispute between the parties. However, the third hypothetical reflects upon the situation where the tribunal independently takes steps to obtain factual evidence. Although recent empirical studies have shown that the tribunals rarely engage in independent factual research, (99) how real this scenario is, will generally depend on the
P 184 arbitrator's (and the post-award stage court's) perception of the arbitrator's role. (100) ●

To this end, very recently, the Frankfurt Higher Regional Court declared an ICC award enforceable. The tribunal used its own internet research in reaching its conclusions on damages. As reported, "the tribunal had consulted the website of the German national health insurance after the close of proceedings, and had relied on its content to justify adopting the drug pricing method advocated by AOC [i.e., an award creditor] in its calculation of damages". (101) It was noted that the Frankfurt Higher Regional Court "held that the tribunal had been entitled to carry out whatever online research it deemed appropriate. This followed from Article 25(1) of the ICC Rules (unchanged in the 2021 edition), which requires the tribunal to "establish the facts of the case by all appropriate means". It was also consistent with the mandatory rules of German civil procedure. Crucially, the tribunal was permitted to rely on its findings provided that this did not result in a "surprise decision". (102) In the case at hand, the court did not consider the tribunal's decision a surprise to the parties.

Nevertheless, the tribunal should consult the parties before engaging in independent factual research. If no party proves any of the disputed facts, one of them will still prevail (typically respondent). Therefore, by helping the parties confirm the disputed facts, the tribunal is rarely genuinely neutral. For example, the English Commercial Court in *Fleetwood Wanderers Limited (t/a Fleetwood Town Football Club) v AFC Fylde Limited* concluded that the arbitrator failed to comply with its general duties by not engaging the parties with extrinsic research it carried out, and thus by not allowing them to make representations. (103) The court remitted the case to the tribunal for reconsideration. (104)

The above examples show that the award may still survive when the tribunal conducts its own (factual) internet research. At the same time, the better view is to ensure that the parties can comment on this initiative. Currently, the internet is the most common tool
P 185 that allows the tribunal ● to gather information independently. Arguably, when data mining software is adopted in the proceedings (following the parties' agreement), a tribunal acquainted with its functioning may have a chance to make use of the software independently, provided that it elucidates the intended application of the tool to the parties.

As explained above, acting *ex officio* is always linked with a perceived role of the arbitral tribunal. Suppose the tribunal considers that its role goes beyond a mere resolution of the dispute between the parties. In such a case, it might be tempted to undertake a more active role in the process of obtaining evidence. (105) One of the examples when the tribunal might indeed consider making extra use of its procedural discretion is the need to comply with applicable mandatory norms. In this context, one may consider whether the tribunal should not be allowed to potentially use e.g., data mining software if it helps to locate evidence of bribery, fraud, or money laundering. These doubts are reinforced by the consideration that "[t]oday, a majority of commentators affirms that tribunals have a duty to investigate suspicions of criminal conduct *ex officio* not only in cases in which one of the parties alleges it but also *sua sponte* where none of the parties raises any allegations". (106)

Indeed, arbitration should not be considered as a vehicle facilitating illegal business activities. It is also uncontroversial that "[f]oreign public bribery, private bribery, fraud,

and money laundering are against transnational public policy". (107) Betz confirms that "[i]f there is *prima facie* evidence for criminal conduct, arbitrators should raise the issue with the parties and investigate in all cases. [...] The arbitrator's function does have a public aspect in the sense that an award has the same force as a state court decision". (108) Against this background, appropriate software may assist the tribunal in analyzing volumes of data where proof of illegal activity is buried. Such a tribunal's initiative
P 186 should survive a potential challenge at the post-award stage.

9.5.3 Text analytics as a (self-)scrutiny tool

The above reflections primarily focused on the use of data mining, be it as it may on the parties' requests or the tribunal's own motion. At the outset of this section, however, it has been explained that data mining and text analytics may further enhance the efficiency and quality of the tribunal's decision-making. The use of text analytics tools may be considered a (self-) scrutiny instrument for the tribunal before it renders the award. (109) It will essentially have a similar function as analytics to improve advocacy of the parties' briefs (and in case of the award — persuasiveness of it). (110) Suppose such a tool is available for the tribunal to consult (in the sense that the tribunal remains free to disregard the software recommendations). It may increase not only the quality of the arbitral product (i.e., the award) but also legal certainty.

In the alternative, the arbitral institution may consider using (or developing its own) "award analytics" tools that would focus on the clarity of the award, its completeness as well as enforceability. This may then be an "add-on" to already offered scrutiny services, and a standalone element of the functioning of institutional arbitration. (111) One may even consider whether it could be possible to feed the program (for scrutiny) with the information that would otherwise be confidential (e.g., confidential arbitral awards of said institution). If developed, such a tool might be a distinctive feature in an ever-crowded market of arbitral institutions.

All in all, the analysis above has shown that arbitral tribunals may (equally as the parties and their counsel) benefit from the use of data mining and text analytics in international commercial arbitration. Perhaps following the virtual hearings (r)evolution, the time has come for another technological advancement to become part of everyday arbitration
P 187 practice.

9.6 Concluding remarks

As argued above, the legal framework of data mining and text analytics in ICA is limited. The law neither regulates nor prohibits to use of these techniques. Hence, there is a possibility for applying advanced search mechanisms as a tool (112) in ICA. The use of the discussed software is for the benefit of everyone active in international arbitration, including parties, counsel, and arbitrators alike. Both data mining and text analytics may effectively streamline the arbitral process and improve the quality of the legal submissions and arbitral awards. As long as the standard due process checks and balances are in place, there should not be many controversies arising from technological advancements.

Are there uses of these technologies that should be legally restricted or banned altogether? What are the consequences of violating these prohibitions? Is there any way to rationally prohibit such uses at all? Time will tell what the answers to these questions will be. However, these questions cannot be answered *a priori* without analyzing in which aspects of arbitration these tools can be used and, most importantly, how they can be used. The analysis above has attempted to map these potential territories, waiting to be
P 187 explored even further.

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99) See e.g. Stacie I Strong, *Legal Reasoning Across Commercial Disputes* (OUP 2020) 99-115.
100) Without going further into details this relates to the classical "civil law" – "common law" divide and the inquisitorial vs. adversarial character of the dispute resolution. See *i.a.* Gary Born, *International Commercial Arbitration* (Kluwer 2021) 2369-2372.
101) Laurence Doering, Eileen Löbig,'Can arbitrators rely on their own internet research in an award? The risk of annulment is different for arbitration seated in Germany, England and France' (*Practical Law Arbitration Blog*, 20 May 2021) < http://arbitrationblog.practicallaw.com/can-arbitrators-rely-on-their-own-internet-research-in-an-aw... > accessed 2 February 2022.
102) Ibid.
103) *Fleetwood Wanderers Limited (t/a Fleetwood Town Football Club) v AFC Fylde Limited [2018] EWHC 3318 (Comm) at [32] -[42].*
104) Ibid *[47].*
105) Landolt (n 92) 203.
106) Ibid 287.
107) Ibid 264.
108) Ibid 289.
109) The outstanding question might be who should pay for the use of text analytics software, if it is used to prepare a "better" award. It will likely depend on the circumstances of the case, unless the software is developed by the arbitral institutions as one of the "extra" options for arbitrating under said set of rules.
110) See section 4; Chapter 8 by Alschner and Charlotin in this volume.
111) One might wonder whether this would be a service offered to the parties, or perhaps also to the arbitrators, in the sense that arbitrators may wish request "e-scrutiny" on their own costs and account. What follows is the question whether such a use should be disclosed to the parties, and whether the parties would have a say in allowing or prohibiting the tribunal from the use of award scrutiny tools.
112) Gauthier Vannieuwenhuyse, 'Arbitration and New Technologies: Mutual Benefits' (2018) 35 Journal of International Arbitration 120-123.

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