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Navigating the Digital Maze - Pertinent Issues in E-Arbitration

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Legal tech is commonly considered as the use of software and technology in the process of providing legal services. It is disrupting the method in which legal services are traditionally rendered, and under the buzz word "e-arbitration" also extends to the area of international commercial arbitration. This article aims to give an introduction into the most pertinent issues in "e-arbitration", starting with an attempt at defining the term "e-arbitration" and with an overview of some of the service providers. It goes on to address the use of information technology in international arbitration and concludes with an analysis of key legal issues arising when various aspects of the arbitral process are commenced, conducted or concluded in digital form.

Key Words : e-arbitration, Confidentiality, Arbitral Awards

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〈 Contents 〉

Ⅰ. What is E-arbitration?

It is currently difficult to predict the impact that technological progress will have on legal practice. Comprised under the collective label of "legal tech", numerous digital solutions have begun to enter the legal market, serving purposes that traditionally (at least from a lawyer's perspective) fall within the ambit of a lawyer's field of expertis e.[1] While these approaches vary in their degree of ambition and sophistication, they are generally seen as causing disruption within the legal industry. In the field of arbitration, this extends to visions of a future where disputes are decided solely by artificial intelligence,[2] presumably striking vast numbers of dispute practitioners as a rather dystopian scenario. Yet, instead of giving in to hysteria as we await the sword of Damocles to fall upon the legal profession, contemporary opportunities must be embraced without losing sight of the practical and legal realities. This holds true especially for the arbitration community. Unlike state court proceedings, arbitration allows for exceptional procedural flexibility and so is positioned to adapt to technological progress much faster than domestic forms of dispute resolution. Apart from a few technologically advanced national court systems like South Korea,[3] the

1) In June 2017, LexisNexis's purchase of Ravel Law, a California-based legal-tech start-up, garnered market attention. Ravel Law offers services that utilize modern machine learning technology to process United States case-law, extracting relevant information with regard to the requirements of the user. For further information on Ravel Law, see: 〈http://ravellaw.com/〉.
Another Example of the use of artificial intelligence is set by the German software developer Leverton which is selling solutions to simplify contract-analysis. For further information on Leverton, see: 〈https://leverton.de/〉.

2) See, Paul Cohen/Sophie Nappert, "The March of the Robots", Global Arbitration Review, Vol. 12, Issue 1, 2017, pp. 14-21.

3) For the South Korean civil court system, in which a large part of the filings and case management is done electronically, cf. the insightful presentation given by Mino Han, "The e-filing system in Korean court practice - Tips and suggestions for arbitral proceedings", held at the occasion of the DIS40/KOCIA YAPF seminar on 3 April 2017, reported in Harald Sippel, "DIS/KOCIA YAPF Life

most noticeable impact of technology can perhaps be seen in arbitral proceedings. Recently established terms such as "electronic arbitration" or "e-arbitration" have been used to describe forms of arbitration that solely or at least heavily rely on information technology.[4] E-arbitration has its roots in the early 1990s when the rise of e-commerce created a demand for dispute resolution through electronic communication.[5] The purpose of this paper is to give an introduction to pertinent issues that arise in the context of business-to-business (B2B) disputes involving e-arbitration. It will outline the various ways in which information technology has been implemented in current arbitral practice, before discussing the potential legal consequences that may arise from it.

After Paper: the Impact of Digitization on Arbitration", German Arb. J. [SchiedsVZ] 2017, p. 191, 192. While examples for the use of technology in state courts are rare, there are some noteworthy exceptions involving state-run online-litigation:

The Chinese Hangzhou Internet Court handles internet-related disputes entirely online. The Court heard its first case - concerning a copyright infringement - in August 2017. Proceedings involved videoconferencing, automated transcription and public participation via video feed. The case was concluded in less than 30 minutes. For further information, see, Mallory Locklear, "China's online court heard its first case today", Engadget 2017, available at: 〈https://www.engadget.com/2017/08/18/chinas-online-court-first-case/〉 (last visit September 7, 2017).

Canada runs the Civil Resolution Tribunal, an online Court that resolves small claims up to CAD 5.000 and strata disputes. For further information, see the Tribunal's website, available at: 〈https://civilresolutionbc.ca/〉 (last visit September 7, 2017).

In July 2017, the UK has launched a pilot Online Court for monetary claims up to GBP 10.000. The initiative will be open to the public in early 2018. While a first legislative attempt to underpin such an endeavor was withdrawn earlier this year, the government has decided to press on with court modernization despite the upcoming restructuring necessitated by Brexit, see, Dan Bindman, "Plan for 28-month Online Court pilot emerges as MR foresees live-streaming Court of Appeal", legalfutures 2017, available at: 〈http://www.legalfutures.co.uk/latest-news/plan-28-month-online-court-pilot-emerges-mr-foresees-live-streaming-court-appeal〉 (last visit September 7, 2017); Paul Magrath, "Is the Online Court the future of litigation?", Lawyer 2B (2017), available at 〈https://l2b.thelawyer.com/online-court-litigation/〉 (last visit September 7, 2017).

As of 2018, all Germany lawyers are required to install a "special electronic attorney's mailbox" (*besonderes elektronisches Anwaltspostfach*), to which documents can be formally served. It will also enable encrypted communications between lawyers, courts and public authorities.

4) For an excellent overview, see Mohamed S. Abdel Wahab, "ODR and e-Arbitration - Trends & Challenges", in: Mohamed Abdel Wahab/Ethan Katsh/Daniel Rainey (eds.), *Online Dispute Resolution Theory and Practice*, International Eleven Publishing, 2012, pp. 399-441, who locates e-arbitration within the broader category of online dispute resolution, comprising methods of alternative dispute resolution that are carried out online.

5) Gabriele Kaufmann-Kohler/Thomas Schulz, "The Use of Information Technology in Arbitration", JusLetter December 2005, para. 17, available at 〈https://ssrn.com/abstract=924878〉 (last visit September 7, 2017); Wahab (supra fn. 4), p. 400.

1. How can E-Arbitration be Defined?

First, it will be necessary to give some thought to the term "e-arbitration". As far as the authors are aware, neither e-arbitration providers, institutional guidelines, nor academic literature have come up with a uniform definition thus far.[6] Difficulties in circumscribing the notion arise because the use of information technology, especially electronic communication, is quite common in arbitration. Any definition should therefore carve out the distinction between what would still be considered conventional arbitration which incorporates the growing use of technology, and what constitutes genuine e-arbitration. However, in doing so it must be kept in mind that technical solutions, including those that are potentially fit to help conduct arbitral proceedings, are diverse and in constant progress. Thus, a grey area will remain inevitable.

One approach is to analyze the two ends of the extremes and work towards a middle ground: On the one hand, fully automated decision-making in real legal disputes currently remains science-fiction. Conversely, e-arbitration is not merely synonymous to the digitization of the legal workflow; most arbitration practitioners would not characterize arbitration as electronic merely due to the use of e-mails, electronic submissions or document hosting platforms - and it would also not do justice to the full potential of the utilization of technology in arbitration. Thus, in order to arrive at something that resembles an appropriate concept of e-arbitration, it seems necessary that technological means are not simply used to facilitate arbitration, but that the design of the whole process is such that the utilization of electronic means becomes the rule, and not the exception.[7]

Additionally, the concept of electronic commerce as electronic contracting without a physical meeting[8] furnishes an important consideration. As electronic commerce is

6) See, Wahab (supra fn. 4), p. 402; Article 4.2 of the TAMARA Arbitration Rules ("*the arbitration will be settled via an online platform ('e-arbitration')*", available at 〈https://www.tamara-arbitration.nl/fileadmin/user_upload/documents/TAMARA_Rules_2014.pdf〉; apparently not attempting a definition, Olivier Cachard, "United Nations Conference on Trade and Development - Course on Dispute Settlement in International Trade, Investment and Intellectual Property, module 5.9 - Electronic Arbitration", 2003, available at 〈http://unctad.org/en/Pages/DITC/DisputeSettlement/Project-on-Dispute-Settlement-in-International-Trade,-Investment-and-Intellectual-Property.aspx〉 (last visit September 7, 2017).

7) Similarly, Wahab (supra fn. 4), pp. 402-403.

8) Cachard (supra fn. 6) p. 3.

widely perceived to be one of the catalysts for electronic arbitration, one important distinguishing feature of e-arbitration should be seen in using electronic means instead of in-person meetings for the purposes of setting up, conducting or ending the arbitral process.

While a definition of "e-arbitration" remains as elusive as predicting forms of technological progress, in light of the above considerations it may be attempted as follows: e-arbitration can be understood as the predominant use of information technology for the arbitral process, whereby particularly the conduct of evidentiary hearings, but also the formation of the arbitration agreement and the rendering of arbitral awards in electronic form constitute pertinent, but not constitutive, elements.

2. Who offers E-arbitration?

In addition to tailor-made arbitration rules, e-arbitration necessitates an appropriate technical infrastructure for the conduct of online-proceedings as well as a technically trained administration. The ensuing expenses might best be invested by the larger players of international arbitration. However, despite being the most obvious candidates, most leading arbitral institutions do not provide for e-arbitration solutions in the sense explained above. Rather, they deploy information technology in order to facilitate conventional proceedings.[9] The few exceptions, like the China International Economic and Trade Arbitration Commission's (CIETAC) Online Dispute Resolution Center, focus on distinct areas of law, such as the solution of domain name and e-

9) For example the American Arbitration Associations (AAA) web-based "ClauseBuilder" tool, see, 〈https://www.clausebuilder.org/cb/faces/index?_afrLoop=122293042030630&_afrWindowMode=0&_adf.ctrl-state=8ahne4kti_4〉. The AAA also allows users to file and manage their cases online, including online-payment of invoices, see, 〈https://www.adr.org/Support〉.
Concerning the International Chamber of Commerce's (ICC) "NetCase" program, which has meanwhile been abandoned, see ICC - Commission on Arbitration and ADR, Report on Information Technology in International Arbitration, 2017, p. 2, available at 〈https://iccwbo.org/publication/information-technology-international-arbitration-report-icc-commission-arbitration-adr/〉 (ICC Commission Report 2017).
The World Intellectual Property Organization's (WIPO) Electronic Case Facility (ECAF), provides for videoconferencing solutions under certain circumstances, therewith going beyond the mere possibility of submitting written communications or documents online. See, 〈http://www.wipo.int/amc/en/ecaf/〉.
Online filing of communications is also possible via the website of the London Court of International Arbitration (LCIA), available at 〈http://onlinefiling.lcia.org/〉.
Listing further examples of prominent arbitral institutions' approaches to online dispute resolution (not e-arbitration), Faye Fangfei Wang, *Online Arbitration*, Routledge (forthcoming), Chapter 2.1.

commerce disputes.[10] That currently leaves the field to smaller providers of full-scale e-arbitration services.[11] These are often operated by corporations, foundations or private individuals that, unless they cater to a specific industry, may not be known, or only slightly known, in arbitration circles. One cannot be certain whether experienced users would trust all of these providers equally to handle their commercial disputes, particularly as websites range from highly professional designs and explanatory videos featuring well-known arbitrators to somewhat more cluttered set-ups featuring payment methods on the welcome page and defenses against scam reports in the FAQs. While the presentation of a provider may not be the sole relevant factor, it can be expected that professional parties will carefully explore and consider whether to trust lesser-known providers with administrating and hosting their sensitive data.[12]

E-arbitration at the moment seems to be mostly geared towards arbitral proceedings where the amount in dispute is low[13] - at least when compared to the average amounts in dispute before the established arbitral institutions.[14] While one explanation may be that parties and arbitrators still prefer face-to-face meetings and at least some paper for highly complex cases, another reason may be the lack of necessary

10) See the CIETAC's Online Dispute Resolution Rules, available at 〈http://www.cietac.org/index.php?m=Article&a=show&id=2770&l=en〉.

11) For a non-exhaustive sample, see eJust (France), 〈http://www.ejust.ch/〉, TAMARA (Netherlands), 〈https://www.tamara-arbitration.nl/en/〉 (specialized in areas of shipping, shipbuilding, transport, storage, logistics and international trade), net-ARB (USA), 〈https://www.net-arb.com/〉, or Virtual Courthouse (USA), 〈https://www.virtualcourthouse.com/〉. On e-arbitration initiatives, Wahab (supra fn. 4), p. 430 et seq.

12) Wang (supra fn. 9), Chapter 2, acknowledges such trust-issues and proposes the development of a set of best practices for online arbitration as a remedy, following the example of traditional arbitral institution which reflect best practices for conventional arbitration in their arbitration rules or in special reports. On best practices with regard to information technology in arbitration, see also, Wahab (supra fn. 4), p. 415 et seq.

13) Article XIV of the TAMARA Arbitration Rules (supra fn. 6) sets out a fee schedule between EUR 50.000 and EUR 1 million; the eJust website lists claim values of up to EUR 10.000, above EUR 200.001 and in between the two mentioned amounts; net-ARB brands itself as "*the small claims court for the internet*".

14) More than 70 % of specified monetary claims brought before the LCIA in 2016 involved sums larger than USD 1 Million. 18 % exceeded USD 50 Million, see, LCIA, Facts and Figures 2016, available at 〈http://lcia.org/LCIA/reports.aspx〉 (last visit September 7, 2017), p. 10.
The Singapore International Arbitration Center (SIAC) recorded an average value of USD 38.45 Million for cases filed in 2016, see, SIAC, Annual Report 2016, available at 〈http://siac.org.sg/images/stories/articles/annual_report/SIAC_AR_2016_24pp_WEBversion.pdf〉 (last visit September 7, 2017), p. 14.
The International Chamber of Commerce (ICC) recorded an average value of USD 112.259 Million for cases pending at the end of 2016, see, ICC, Dispute Resolution Bulletin 2017, Issue 2, p. 113.

infrastructure required for the management of such large cases.[15] At the same time, arbitral proceedings of considerable scale increasingly rely on facilitating technology.[16] Arbitral practice seems to be passing through a phase of gradually increasing its level of technical support, which may in turn lead to a higher use of e-arbitration in larger scale disputes in the not-too-distant future.[17] This makes it useful to provide a short overview of the various ways in which information technology is deployed in current arbitral practice.

Ⅱ. How is Technology used in Arbitration?

As part of the general process of digitalization, various services relying on information technology are becoming increasingly influential in international arbitration, arguably making it more efficient, cost-effective and convenient.[18] This gradual acceptance of modern technology should not be mistaken for a pioneer move of an avant-garde business sector. The rise of the internet and electronic technology has redefined standards in business and law, and arbitral practice is confronted with the users' increasing intolerance towards slow proceedings and delays.[19] Keeping up with technological development is thus imperative for counsel, arbitrators and arbitral institutions in order to remain in demand.

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15) Similarly, Kaufmann-Kohler/Schulz (supra fn. 5), para. 16.

16) See, for example, supra fn. 9.

17) Only recently, the German software developer Datarella conducted a mock arbitration of a contractual dispute involving Smart Contracts in a Blockchain environment. For further information, see, 〈http://datarella.com/codelegit-conducts-first-blockchain-based-smart-contract-arbitration-proceeding/〉 (last visit, September 7, 2017). The test run involved custom-built arbitration rules based on the United Nations Commission on International Trade Law Model Law on International Commercial Arbitration (UNCITRAL Model Law).

18) Regarding the advantages of electronically supported proceedings, see, Cachard (supra fn. 6) pp. 6 et seq.

19) Another aspect is the nature of the internet as a breeding ground for new, technologically versed business sectors - which in turn are prone to broaden range of arbitral activities. ESports may serve as a recent example: WESA, the World eSports Association, has published its own arbitration rules for eSports disputes, explicitly encouraging the use of electronic communications, see. Article 19.5 of the World ESports Association Arbitration Rules (2016), available at: 〈http://www.wesa.gg/wp-content/uploads/2016/12/WESA-Arbitration-Rules-2016.pdf〉 (last visit September 7, 2017). On the subject of eSports and arbitration, see, Benjamin Lissner, "Arbitration in Electronic Sports", Korean Arbitration Review 2017, Issue 8, p. 22.

It is not the purpose of this paper to provide an exhaustive listing of the varieties in which information technology is used in arbitral proceedings.[20] Yet, it is necessary to briefly provide for a basic notion of the technical framework available in arbitral proceedings, in order to discuss the specific legal issues arising from it. For this reason, three categories shall be mentioned:

First, and most obvious, information technology is used for written communication. According to an International Chamber of Commerce (ICC) Commission Report published in 2017 regarding "Information Technology in International Arbitration" (ICC Commission Report 2017), once the arbitral tribunal is constituted, written communication between and among the parties, the arbitrator(s) and the administering body often takes place exclusively in electronic form, with e-mail being the means of choice.[21] Despite this fact, it is unlikely that many people in arbitration circles would consider this to fall under the notion of e-arbitration.

Second, arbitral participants may transmit or store documents using cloud-based file-storing applications. A number of case-management applications have been developed and made available by major arbitral institutions to satisfy the needs of arbitral practice. This includes the ICC's former web-based case-management tool "NetCase",[22] the American Arbitration Association's (AAA) "WebFile" service, as well as "ECAF", developed by the World Intellectual Property Organization (WIPO).[23] Through such services, a large number of files can be transmitted, regardless of size; this can be achieved only to a limited extent using e-mail. Unlike e-mail services, case-management tools also simplify the organization and "searchability" of material relevant to a given case. Documents can be systematically filed, labeling them by origin or under substantive aspects. The material can then be made accessible wholly or in parts to a selected number of people, regardless of their location. Transmissions and exchanges may also be tracked, creating a clear history of the proceedings. If applied

20) For a comprehensive overview, see, ICC Commission Report 2017 (supra, fn. 9), pp. 2 et seq.; for a study from 2005 that is nevertheless still relevant, see, Kaufmann-Kohler/Schulz (supra fn. 5), para. 27.

21) ICC Commission Report 2017 (supra, fn. 9), p. 2, noting that unlike in the early 2000s, duplicate hard-copy correspondence today is unusual.

22) According to ICC Commission Report 2017 (supra, fn. 9), p. 2, the ICC is currently developing an updated web-based case-management product.

23) See, supra fn. 9; see also, Kaufmann-Kohler/Schulz (supra fn. 5), paras. 212-240.

by a resourceful user, such tools plainly outdo the benefits of e-mail and offline document-filing (not to mention the more nostalgic paper-based case-management strategies) in terms of convenience and effectiveness. These services frequently use encryption-mechanisms by default, providing a higher degree of privacy and data integrity compared to e-mail. Apart from the offerings of arbitral institutions, law firms and commercial service providers have also come up with products to electronically transfer and host large amounts of data. Not specific to arbitration are the use of FTP-links to send documents and the use of cloud services to upload documents.[24] While FTP-links are usually generated from secure servers, cloud services will often grant a provider extensive rights to the uploaded content under its terms and conditions.[25] This implies that users are either unaware of the "legal side effects" of using such software or tend to (maybe inadvertently) emphasize simplicity of use over matters of confidentiality.[26] Apart from general service providers, specialist litigation support providers offer cloud services, with particular annotation and display options for the documents thus stored during the evidentiary hearing.[27] Anyone who has ever sat behind the multitude of computer screens necessary for displaying cloud-stored documents, live transcription and one's own work space during such an in-person evidentiary hearing may have felt that, were it not for the physical presence of the witnesses or arbitral tribunal, such hearing would come quite close to a purely electronic meeting.

Third, and finally, where an in-person hearing is indeed forgone altogether, video conferencing constitutes an alternative that allows hearings to take place over large distances without the expense of travelling. Most advanced law firms and arbitral institutions nowadays possess sophisticated video conferencing hardware and software, and, as is the case with cloud storage, there are a number of reliable commercial options.[28] Despite the potential increase of effectiveness and convenience potentially

24) For example Google Documents, Google Drive, Dropbox.

25) ICC- Commission on Arbitration and ADR (supra, fn. 9), pp. 2-3.

26) ICC- Commission on Arbitration and ADR (supra, fn. 9), p. 3.

27) See, for example, Opus 2 Magnum, available at 〈https://www.opus2.com/magnum/case-analysis-software/〉 (last visit, September 7, 2017) ("*A paperless trial or arbitration is no longer a vision of the future.*").

28) For example Skype, Zoom, FaceTime, and ClickMeeting, the latter software for example being used by the Swiss International Law School (SiLS) staff to remotely set up practice hearings between student teams and arbitrators in preparation for the Willem C. Vis International

achieved by video conferencing, it remains a relatively rare substitute for in-person evidentiary hearings in arbitral proceedings.[29] It may well be that there is still doubt as to whether the immediate and subtle impressions of a witness reacting to questions, or the arbitral tribunal's reaction to pleadings, can be sufficiently captured via video conferencing. Also, it may be easier for the arbitral tribunal to maintain control over a highly adversarial hearing with everyone in the same room. Lastly, technology has not yet advanced in a way that excludes the possibility of technical issues abruptly disturbing the proceedings, particularly if the parties, witnesses and three arbitrators are all joining the video conference from various locations. It follows that e-arbitration as understood without an in-person hearing[30] still remains the exception, other than for smaller cases. However, given that video conferencing, at least for the examination of individual witnesses or experts, is becoming increasingly common - but not necessarily always trouble-free[31] -, this might change in the years to come.

In sum, information technology has obviously reshaped aspects of arbitral practice and holds the potential to further simplify and render more efficient the work of arbitral practitioners. The detailed guideline on information technology in international arbitration issued by the ICC Commission underscores the growing importance of putting technology to use in arbitral proceedings. However, as the following will show, aside from its practical implementation, e-arbitration also raises various legal issues that need to be kept in mind to ensure the legitimacy of the arbitral proceedings and their outcome.

Commercial Arbitration Moot, see 〈https://www.swissintlawschool.org/sils-moot-academy/〉 (last visit, September 7, 2017).

29) ICC- Commission on Arbitration and ADR (supra, fn. 9), p. 3; see also, Cachard (supra fn. 6) p. 33, stating (possibly somewhat unduly) that electronic arbitration in medium term will have to do without (electronic) hearings in order to keep costs at bay.

30) See above, section 0.

31) Benjamin Button-Stephens, "'WeChat' App not for Hearing Evidence, Says Australian Court", Global Arbitration Review News, October 6, 2016 [on file with authors].

Ⅲ. What are the Key Legal Issues in E-arbitration?

The use of information technology in arbitration necessitates a reconsideration of due process (1.) and confidentiality (2.). Furthermore, e-arbitration may be conducted in a geographically decentralized manner and therefore impact traditional notions of the arbitral seat (3.). Aside from these issues, information technology is also relevant for the electronic formation of the arbitration agreement (4.) and the use of information technology when issuing (5.) and delivering (6.) an arbitral award.

1. Can Due Process be observed?

In arbitration, due process comprises of procedural rules that ensure the impartiality and fairness of the arbitral decision-making.[32] The violation of due process regularly leads to setting-aside proceedings against the arbitral award in national courts[33] or the lack of its international enforceability.

As a basic matter of procedural fairness, a party must give proper notice to its counterparty of the commencement of the arbitration so that the latter is able to effectively pursue its interests during proceedings.[34] The importance of such notice is confirmed by national legislation as well as Article V(1)(b) of the New York Convention on the Recognition and Enforcement of Foreign Arbitral Awards (New York Convention),[35] which makes "*proper notice*" of the commencement of arbitral

32) While many parts of national laws on arbitration are not mandatory, there always remains an international minimum standard of procedural safeguards established by national and international laws, as well as arbitration rules, denying validity and enforceability to awards that do not fulfill such core procedural requirements. See, Matti Kurkela/Santtu Turunen, *Due Process in International Commercial Arbitration*, Oxford University Press, 2010, pp. 3-4; Gary B. Born, *International Commercial Arbitration - Volume II: International Arbitral Procedures*, Kluwer Law International, 2014, p. 2154.

33) Margaret Moses, *The Principles and Practice of International Commercial Arbitration*, Cambridge University Press, 2017, p. 219.

34) See, Maxi Scherer, "Violation of Due Process, Article V(1)(b)", in: Reinmar Wolff (ed.), "*New York Convention - Convention on the Recognition and Enforcement of Arbitral Awards of 10 June 1958 - Commentary*", C. H. Beck 2012, p. 279.

35) The New York Convention on the Recognition and Enforcement of Foreign Arbitral Awards (entry into force in 1959), available at 〈http://www.uncitral.org/pdf/english/texts/arbitration/NY-conv/New-York-Convention-E.pdf〉 (last visit September 7, 2017).

proceedings, including proper form,[36] a prerequisite for recognition and enforcement of foreign arbitral awards. The vague wording of the provision raises the question whether proper notice can adequately be given using electronic means. With regard to the New York Convention, national courts have rejected to read specific form requirements into Article V(1)(b). Rather, they consider the concept of "*proper notice*" in light of the agreements between the parties or the agreed upon arbitration rules.[37]

Similar to the New York Convention, national arbitration laws usually provide for notification of the opponent, requiring receipt of the notice, without setting strict form requirements.[38] Whether a notice received electronically is "proper" is a specific question of the governing national arbitration law. Yet, the parties will regularly be entitled to agree on preferred means of communication, including electronic means.[39]

In light of the above, giving proper notice by electronic means seems less of a legal than an evidentiary issue. The claimant initiating arbitral proceedings bears the burden of proof once the respondent challenges the receipt of the electronic notification. A party may have practical difficulties to prove that an e-mail had not only been sent, but was actually received by the addressee. In most cases, the notifying party will neither have received an electronic confirmation receipt, nor have access to the respondent's e-mail servers to prove delivery of the notice. Thus, currently the use of a courier or certified mail provides for more evidentiary certainty in the case of a dispute.

Another core procedural principle is that the parties must have an equal opportunity to present their case.[40] Issues arise when information technology utilized during

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36) See, Scherer (supra fn. 34).

37) See, Scherer (supra fn. 34), pp. 294-295.

38) See for example, Article 22 of the Arbitration Act of Korea (latest amendment in 2016), English translation available at 〈http://www.kcab.or.kr/jsp/kcab_eng/law/law_01_ex.jsp〉 (last visit September 7, 2017); Section 1044 of the German Code of Civil Procedure (latest amendment in 2013), English translation available at 〈https://www.gesetze-im-internet.de/englisch_zpo/englisch_zpo.html〉 (last visit September 7, 2017).

39) This will often be done by way of agreeing on the arbitration rules. Interestingly, the e-arbitration provider TAMARA requires that notice be given in writing, see Article 2.1 of the TAMARA Arbitration Rules. While many arbitral institutions allow for notifications via e-mail (see, e.g., Article 3(2) of the ICC Arbitration Rules; Article 4.1 LCIA of the Arbitration Rules; Article 2.1 of the SIAC Arbitration Rules), once they receive a request for arbitration they may choose to notify the respondent per courier to ensure proof of service.

40) Cachard (supra fn. 6) p. 35; Wahab (supra fn. 4), p. 414.

arbitral proceedings cannot be accessed or mastered by both parties equally.[41] Such "virtual inequality"[42] can be caused by discrepancies regarding the parties' financial means, particularly if the costs of acquiring a necessary technological infrastructure would put a party in financial distress.[43] Inequality can also result from technical limitations. Services might not be available worldwide or exceed a party's, or its counsel's, technical know-how. That being said, it needs to be borne in mind that an inequality of means is nothing new in arbitral proceedings. A party might hire the more expensive law firm, or decide to conduct an expensive internal document review at the outset of the case allowing it to be aware of potentially harmful material. In a similar manner, the use of information technology for internal purposes to prepare in the best possible way needs not be the other party's nor the tribunal's concern.[44] It is mainly when information technology is actually used to present the parties' case that equal treatment needs to be ensured. The question of equality depends on the services used in each particular case. Issues can again be avoided by finding mutual consent regarding the kind of technology to be used in the arbitral proceedings,[45] ideally in an early case management conference and if necessary once again before the evidentiary hearing. If necessary, the arbitral tribunal may need to ensure equal treatment by allowing use of technology only up to the level of the "lowest common denominator". The more technologically savvy party always has the option to raise the bar by providing the tribunal and the other party with instructions or training on how to use a more sophisticated technology.[46]

Another key procedural principle is the right to be heard in adversarial proceedings, meaning that parties must be given the opportunity to respond to submissions by their opponent and to instructions or comments by the arbitral tribunal.[47] This also entails that the arbitral tribunal is not to communicate with one party without the presence of the other. When arbitral hearings are conducted via online or video conferencing, technical failure can lead to the - potentially unnoticed - temporary exclusion of a

41) See Cachard (supra fn. 6) p. 35; Wahab (supra fn. 4), pp. 414-415.
42) Wahab (supra fn. 4), pp. 415.
43) Also on the following, Kaufmann-Kohler/Schulz (supra fn. 5), paras. 166-176.
44) ICC Commission Report 2017 (supra, fn. 9), p. 7.
45) ICC Commission Report 2017 (supra, fn. 9), p. 7; Wahab (supra fn. 4), p. 415.
46) ICC Commission Report 2017 (supra, fn. 9), p. 7.
47) Also on the following, Kaufmann-Kohler/Schulz (supra fn. 5), paras. 166-176.

party from the proceedings. To avoid such issues potentially affecting the enforceability of arbitral awards, technical safeguards need to be implemented that interrupt the arbitral proceedings as soon as one party is excluded, or at least appropriately warn the arbitral tribunal about the issue. It will then be up to the arbitral tribunal - less to the arbitral institution[48] - to take the appropriate steps and to also decide how to appropriately adjust the (limited) available hearing time.

The above shows that the principles of due process do not constitute an insurmountable obstacle to e-arbitration or electronically supported arbitration, as long as sufficient procedural and technical safeguards are implemented. Of course, these principles do not mean that the arbitral tribunal has to protect parties from their own deliberate use of insufficient technology. In a recent case, a party neither brought two of its witnesses to the hearing nor arranged for their examination via video conferencing. Instead, despite objections from the opposing side, it opted for - apparently less than successful - communication attempts with the witnesses in a different country via a chat application installed on an iPad. When the party subsequently lost the case, it applied to have the arbitral award set aside, arguing procedural unfairness as the technical difficulties in introducing its witnesses meant that it did not have the full opportunity to present its case. It probably comes as no surprise that the court rejected the setting-aside application, pointing out that the unfairness had been caused by a party's own decisions about the use of information technology.[49]

2. Can Confidentiality be ensured?

While there is divided opinion as to whether there is a general duty of confidentiality governing international arbitrations, the degree of confidentiality and

48) eJust addresses the issue through a general clause in its arbitration rules: In case of technical failure of the platform, the Secretariat is to be notified and has full discretion to ensure the proper enforcement of procedural rights through all appropriate means. See, Article 3.4-5 of the eJust Arbitration Rules, available at 〈http://www.ejust.ch/〉. The flexibility of such an approach seems to allow for a wide-ranging set of measures to address the aforementioned issues in retrospect. Whether national courts at the setting-aside or enforcement stage consider such measures as sufficient, however, will be another issue.

49) Button-Stephens (supra fn. 31).

privacy achieved in the practice of arbitral proceedings constitutes an important factor for many parties to choose arbitration over state court proceedings.[50] Confidentiality has a broad scope in arbitral proceedings, affecting the arbitrators and the arbitral institutions as well as, in many cases, the parties.[51] More often than not, the parties will have a strong interest in keeping the substance of the dispute, if not the dispute itself, undisclosed vis-à-vis third parties. This will often include the arbitration agreement, the submissions in a dispute, and the content of the final award.

The utilization of information technology at any of these procedural stages may present challenges as electronic communication is vulnerable to monitoring and interception. By way of example, cybersecurity became an issue in 2015, when the Permanent Court of Arbitration's website was hacked during (non-electronic) arbitral proceedings between the Philippines and China.[52] As the example shows, the safety of information technology must be taken seriously in any form of legal dispute resolution. However, as the number of proceedings that rely on electronic support grows, so too does the importance of the issue.

While e-mails can be encrypted relatively easily, the protection of more sophisticated services like large case-management-websites or video conferencing services require advanced technical understanding.[53] Nevertheless, the growing complexity of the applied technology may make it difficult for users to have full confidence that these services can be entrusted with potentially classified or sensitive information.[54]

The transition of arbitral proceedings to an electronic environment requires parties, arbitrators and arbitral institutions to have the appropriate technical equipment and sophistication to reduce the risk of unwanted disclosure. Confidentiality is not a new issue in arbitral proceedings, as paper-based communications or in-person meetings are also not entirely immune in this regard.[55] It constitutes a recurring topic, appearing in

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50) Queen Mary University of London, "2015 International Arbitration Survey: Improvements and Innovations in International Arbitration", p. 6, available at 〈http://www.arbitration.qmul.ac.uk/research/2015/〉 (last visit, September 7, 2017). See also, Wahab (supra fn. 4), p. 412.

51) See, Cachard (supra fn. 6), pp. 36-37.

52) The hackers were able to identify the visitors of the website, including the governments of third-states affected by the outcome of the dispute, see, Lacey Yong, "Debevoise Tackles Cybersecurity in New Protocol", Global Arbitration Review News, July 19, 2017, [on file with authors].

53) For further information on encryption technology, see, Wahab (supra fn. 4), p. 413-414.

54) See, Yong (supra fn. 52), noting that such issues might undermine the confidence in arbitral process.

an increasingly altered shape as the digitalization of arbitration grows. Law firms, trying to preserve faith in the (electronic) arbitral process, are beginning to address cybersecurity concerns, for example by advertising awareness of the issue and providing elaborate protocols.[56] However, perhaps a first step for everyone involved is to ensure that physical data storage units are properly encrypted - and best not left or forgotten on planes, in airport lounges or in hearing rooms by globetrotting arbitration practitioners.

3. How to Determine the Seat of Arbitration?

The seat or place of the arbitration is a legal concept in international arbitration, establishing a legal connection to the national arbitration law of the state where the "seat" is located.[57] The seat also leads to the courts of the state thus determined, which in certain instances assist or oversee arbitral proceedings, and which are competent to decide on applications to set aside arbitral awards.[58] The concept of the seat is also referenced in Article V.1(d) of The New York Convention ,[59] which determines when an award is "foreign" in case of an application for enforcement in a state other than the seat.

Considering that e-arbitrations may entail that the arbitration agreement, the proceedings - including the evidentiary hearings -, as well as the arbitral award are in electronic form and without a geographic center, parties may pay less attention to the benefit of "anchoring" their arbitral proceedings in a national procedural order. For followers of the minority doctrine of "delocalized arbitration",[60] e-arbitration may even

55) For examples of private detectives rummaging through an arbitrator's trash can in search for documents, or the wiretapping of opposing counsel, see, Stephan Wilske, "Arbitration Guerrillas at the Gate - Preserving the Civility of Arbitral Proceeding when the Going Gets (Extremely) Tough", Austrian Yearbook on International Arbitration 2011, 315, 318.

56) See, the Debevoise & Plimpton LLP Protocol To Promote Cybersecurity in International Arbitration, available at 〈http://www.debevoise.com/news/2017/07/debevoise-announces-protocol-to-promote〉 (last visit September 7, 2017).

57) See for example, Article 2(1) Arbitration Act of Korea (supra fn. 38); Section 1025(1) of the German Code of Civil Procedure (supra fn. 38). See also Article 1(2) UNCITRAL Model Law (latest amendment in 2006), available at 〈https://www.uncitral.org/pdf/english/texts/arbitration/ml-arb/07-86998_Ebook.pdf〉 (last visit September 7, 2017).

58) See, Cachard (supra fn. 6), pp. 48-49.

59) Supra fn. 35.

constitute a welcome confirmation of their view that proceedings should take place entirely without national court involvement, at least not until it becomes indispensable at the stage of having to enforce the arbitral award.

Nevertheless, experienced and well-advised parties can be expected to choose an arbitral seat in their arbitration agreement, being aware that the arbitral seat is less about a geographic center and more about having a national legal order as a fallback option and oversight mechanism. However, as e-arbitration currently targets rather smaller-scale disputes,[61] parties may not always be well-versed in commercial arbitral practice and not be able or inclined to involve arbitration experts when drafting their arbitration agreement. It is therefore relevant to determine the seat of an e-arbitration where consent on the arbitral seat has been achieved neither expressly nor implicitly.

Absent a choice of the parties, e-arbitration providers will usually offer a default mechanism to determine the seat, either in the discretion of the arbitral secretariat or by determining a seat by default.[62] Absent such provisions, the parties can determine the seat retroactively, but might not be able to agree on one given their pending dispute.

This may leave the arbitral tribunal with the task of determining a seat based on due consideration of all the circumstances of the case.[63] This approach is widely followed by national arbitration laws.[64] The question is which factors an arbitral tribunal should take into consideration when faced with an e-arbitration. Because parties opting for arbitration seek a neutral forum for the resolution of their dispute, the parties' residence or place of incorporation, unless it is identical, should be excluded as an option. Also, arbitrators will hardly be able to refer to the place of the evidentiary

60) For a discussion of the doctrine and further references, see, Born (supra fn. 32), pp. 1587-1589; see also, Georgios Petrochilos, *Procedural Law in International Arbitration*, Oxford University Press, 2004, pp. 35 et seq.

61) See, supra section 0.

62) eJust lets the parties "validly" chose a seat between Paris, France or Geneva, Switzerland, and in the absence of a valid choice will make the determination of the seat via its secretariat, see Article 11.2 of the eJust Arbitration Rules (supra fn. 48); TAMARA provides for a default seat in Rotterdam, the Netherlands, unless the Parties agree otherwise, see Article 1.2 TAMARA Arbitration Rules.

63) See also, Wahab (supra fn. 4), p. 423.

64) See for example, Article 20(1) UNCITRAL Model Law (supra fn. 57); Section 1043(1) German Code of Civil Procedure (supra fn. 38); Article 21(2) Arbitration Act of Korea (supra fn. 38). See also, Moses (supra fn. 33), p. 84.

hearings, assuming that in a true e-arbitration they will take place online and thus be decentralized. A relevant connection to a certain location might be established by the seat of the arbitral institution, by an e-arbitration provider (if there is one)[65] or by another link to a third state mutually shared by both parties. Such a link might exist when both parties conduct business activities in a certain state, and might be a valid connecting point if the activities in such a location formed the cause of the dispute. Arbitrators should also take into consideration choosing a seat with a legal system to which both parties have a similar level of familiarity, in order to avoid any imbalances and unfair procedural (dis)advantages. Finally, as always, regard may be had to the arbitration-friendliness of the potential seat, which in the case of e-arbitration includes its open-mindedness towards electronic forms of dispute resolution.

A question worth asking in this context concerns the ability of the seat's domestic courts to fulfill their supporting and monitoring functions in the case of e-arbitration. While arbitration might take place entirely online, the same cannot (usually) be said for domestic court proceedings.[66] Conventionally operating state courts might not be able to gain sufficient insights to assist an e-arbitration or determine the setting aside of its outcome. To ensure proper judicial assistance and oversight, parties and arbitral institutions involved in e-arbitral proceedings may want to be able to present the procedural status or outcome in a printable and easily comprehensible format.

4. Can Arbitration Agreements be Validly Concluded in Electronic Form?

Considering that e-arbitration may also encompass arbitration agreements and arbitral awards in electronic form, this invariably raises questions concerning their validity and enforceability.

The concept of e-commerce embodies the idea of entering commercial transactions in electronic form.[67] Where in a B2B context[68] e-commerce is connected with

65) As a matter of interpretation of the parties' intent, the provider's seat might also be implicitly chosen by the parties as the seat of arbitration.

66) Cf. supra fn. 3.

67) Kaufmann-Kohler/Schulz (supra fn. 5), para. 17; Cachard (supra fn. 6) p. 3.

68) While a major part of e-commerce is directed at consumers, the examination of the form

entering into an arbitration agreement,[69] an issue arises as to whether such an electronically concluded arbitration agreement fulfills the applicable statutory form requirements.

Many national arbitration laws[70] intend to protect parties from inadvertently renouncing the jurisdiction of the ordinary courts. They therefore provide written form and signature[71] requirements in order to constitute a valid arbitration agreement,[72] either as cautionary or at least as evidentiary safeguards. At first sight, neither the in-writing nor the signature requirement seems to be fulfilled in the case of a purely electronic arbitration agreement. This obstacle of form requirements is not easy to reconcile with the idea of facilitating international commerce by way of electronic means. Parties deliberately using modern information technology will not only want to regulate their substantive business relationships, but may consider that any disputes arising out of them would best be governed by binding dispute resolution mechanisms, such as (e-)arbitration. At least four aspects can be taken into consideration when looking for a legal solution to the form requirement issue:

First, complementary legal regulation of electronic communications may also address arbitral form requirements. Several countries have amended either their general contract law or their arbitration law, now specifically addressing the conclusion of contracts by electronic means.[73] Often, electronic form is equated with written form while

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requirements for the conclusion and validity of business to consumers (B2C) arbitration agreements is beyond the introductory scope of this paper.

69) See also, Cachard (supra fn. 6) pp. 15 et seq., addressing the process of the electronic formation of the arbitration agreement.

70) If the parties do not agree otherwise, the validity of arbitration agreements will normally be governed by the national law of the seat of arbitration, see, Reinmar Wolff, "E-Arbitration Agreements and E-Awards - Arbitration Agreements Concluded in an Electronic Environment and Digital Arbitral Awards", p. 2, in: Christian Aschauer/Maud Piers (eds.), *Arbitration in the Digital Age: The Brave New World of Arbitration* (Cambridge University Press forthcoming), available at 〈https://ssrn.com/abstract=2922550〉 (last visit September 7, 2017). Note that an analysis of all national arbitration laws goes beyond the scope of this paper. The analysis is thus made in the abstract with reference to specific laws only for the purpose of illustration.

71) Note that signature might be required expressly or implicitly as comprised by the in-writing requirement.

72) See, Article 7(2) UNCITRAL Model Law (supra fn. 57); Article 8(2) Arbitration Act of Korea (supra fn. 38).

73) Article 7(4) UNCITRAL Model Law (supra fn. 57); Article 8 (3)2. Arbitration Act of Korea (supra fn. 38); see also, Section 1031 German Code of Civil Procedure (supra fn. 38). See also Wahab (supra fn. 4), pp. 406-407, providing an overview over further, mostly European jurisdictions.

electronic signatures replace the parties' signatures as long as they fulfill certain identification standards. The precise requirements for the proper electronic form[74] may vary between jurisdictions due to different rationales guiding the respective form legislation.[75] Where form is prescribed solely for ensuring the existence of a legible document for reference[76] and evidence purposes, the necessary standard of proper electronic form may be lower than in jurisdictions that entrust their form requirement with further purposes. These purposes can consist of the prevention of forgery or a warning function for the contracting parties, achieved by an enhanced insistence on strict form requirements.[77] In the abstract, one can reasonably assume that a vast majority of domestic requirements as to the proper written form can be deemed fulfilled if the electronic agreement is at least sustainably recorded and reproducible, the participants to the agreement can be identified, and sufficient technical safeguards are available to ensure the integrity of the document.[78]

Second, international instruments like the - currently not widely ratified - United Nations Electronic Communications Convention of 2007 aim for the harmonization of domestic form requirements. The Convention applies to cross-border contracting via electronic communications. Overriding potentially diverging substantive provisions,[79] Article 9(2) of the Convention determines that when (national)[80] laws prescribe a

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Wahab also speaks of a "tidal wave sweeping across the world" that provides for acceptance of electronic form as an equivalent to written form. South Korea joined this trend in 2016 by amending its national arbitration law. Among numerous modernizing revisions, the in-writing requirement is now explicitly fulfilled by electronic form. For an overview over the 2016 changes to the Arbitration Act of Korea, see, Harald Sippel, "An Overview of the Revisions to the New Korean Arbitration Act: Will Korea Now Become an East Asian Arbitration Hub?", German Arb. J. [SchiedsVZ] 2017, p. 90.

74) Note that electronic form may include different ways of contract conclusion, such as an exchange of e-mails or the expression of consent via mouse-click.

75) See, Wolff (supra fn. 70), pp. 4-5.

76) See for example, Article 6(2) of the UNCITRAL Model Law on Electronic Commerce (1996), available at 〈https://www.uncitral.org/pdf/english/texts/electcom/05-89450_Ebook.pdf〉 (last visit September 7, 2017).

77) This approach, for example, guides the German form regulations.

78) See Wahab (supra fn. 4), p. 407 at fn. 28.

79) Henry D. Gabriel, "The United Nations Convention on the Use of Electronic Communications in International Contracts: An Overview and Analysis", 11 Uniform Law Review 2006, pp. 285, 287.

80) Note that the Convention is also applicable to certain international legal instruments, see, Article 20 United Nations Convention on the Use of Electronic Communications in International Contracts (Electronic Communications Convention) (2007), available at 〈http://www.uncitral.org/pdf/english/texts/electcom/06-57452_Ebook.pdf〉 (last visit September 7, 2017).

written form, electronic form is sufficient if it is accessible and usable for subsequent reference, therewith following the abovementioned "legibility approach".[81] Article 9(3) of the Convention establishes standards for electronic signatures as a substitute to signatures on paper.

Third, where legal regulation is not in sight, a progressive interpretation of existing national laws may help to overcome the form requirement obstacle for arbitration agreements. In light of the ever-growing importance of electronic communication, "written form" could be understood as comprising electronic documents and electronic signatures, as long as they fulfill evidentiary and warning purposes in a similar manner as envisaged by the form requirements in national arbitration laws. Consequently, the issue as to whether a domestic in-writing requirement can be interpreted as encompassing electronic form must be addressed in consideration of the specific legislation's rationale. Generally, electronic form can be considered to fulfill evidentiary purposes, as electronic communication can be stored, reproduced and thus accessed as easily as paper-based communication. Regarding a possible cautionary warning function, some might argue that an agreement on paper still implies a higher degree of importance, compared to an agreement that is contained in a quick exchange of e-mails or, to take it a step further, concluded by only a click of the computer mouse. While this argument should not be dismissed right away, it must not be overestimated either, as history has shown time and again that written agreements by no means provide a guarantee for prudent decision-making. Consequently, at least certain in-writing requirements may reasonably be interpreted as comprising electronic forms - as long as one remains aware that in the end the competent national courts may have the last word on this issue.

Fourth, and finally, the New York Convention requires that arbitration agreements be in writing in order to be recognized by its contracting states.[82] The in-writing requirement is satisfied if the agreement is signed by the parties or contained in an exchange of letters or telegrams.[83] Whether electronic agreements are compatible in this respect is a matter

81) This might prevent states placing stronger emphasis on form requirements from acceding to the Convention.

82) See, Article 2 New York Convention (supra fn. 35). For further information on the in-writing requirement of the New York Convention, see, Moses (supra fn. 33), pp. 23-28.

83) See, Article 2(2) New York Convention (supra fn. 35).

of the Convention's autonomous interpretation. As the Convention dates back to 1958, the drafters certainly had no imagination of today's electronic communication technology.[84] However, the inclusion of telegrams - being a state-of-the-art technology at the time - in the Convention's original wording may be considered as indicative of a general openness towards modern forms of communication.[85] The underlying rationale to create a convention that is fit to adapt to evolving business standards may justify an interpretation of the relevant provisions to include modern-day communications.[86] This is also confirmed by the United Nations Commission on International Trade Law (UNCITRAL) who issued a recommendation in 2006, encouraging state parties to the Convention to understand the respective provision broadly.[87]

5. Can Arbitral Awards be Validly Issued in Electronic Form?

As set out above, while electronic forms of arbitration agreements can be considered to become more common in the future, electronic arbitral awards may still remain science fiction for some time to come.

Arbitral awards are subject to formal requirements imposed by national arbitration laws, in most cases entailing written form and the signature by at least one arbitrator.[88] Failure to comply with these requirements may lead to an invalid, and therefore unenforceable, award or to a reason to later set aside the award.[89] As is the case concerning arbitration agreements, the question to be asked is whether such form requirements are fulfilled in electronic form.[90] Again, some jurisdictions have addressed the issue directly or indirectly through legislation.[91] Where such laws have not been enacted, the probability of a progressive interpretation of the in-writing requirement

84) See, Wolff (supra fn. 70), pp. 10-11.
85) See, Wolff (supra fn. 70), pp. 10-11; see also, Cachard (supra fn. 6) p. 21.
86) See, Wolff (supra fn. 70), pp. 10-11.
87) See, Moses (supra fn. 33), pp. 26-28.
88) See for example, Article 32(1) Arbitration Act of Korea (supra fn. 38); Article 31(1) UNCITRAL Model Law (supra fn. 57); Section 1054(1) German Code of Civil Procedure (supra fn. 38).
89) See, Moses (supra fn. 33), pp. 206-207.
90) For an extensive analysis on the issue, see, Wahab (supra fn. 4), p. 424 et seq.
91) See, Wahab (supra fn. 4), p. 425; Wolff (supra fn. 70), pp. 13-14, naming for example Section 1054 German Code of Civil Procedure (supra fn. 38) that allows electronic transmission of the award which has to be issued in writing.

being accepted by the competent courts will be much lower than for arbitration agreements. In contrast to the latter, the arbitral award is not a contract but a document that is suitable to trigger domestic legal enforcement. This would seem to preclude the application of interpretative principles taken from the law of contracts, and, even beyond that, call for a narrow interpretation of applicable form requirements.

The form of an arbitral award also becomes relevant regarding its foreign recognition and enforceability under the provisions of the New York Convention. Absent express regulations regarding the matter, formal requirements are discussed in the context of the Conventions' inherent definition of arbitral awards.[92] Considering that the Convention's openness towards technological progress is limited to arbitration agreements, this may preclude a similarly progressive interpretation when it comes to the form requirements for arbitral awards.[93]

6. Can Electronic Awards be Lawfully Delivered to the Parties?

As has been shown, parties and counsel would be well advised to thoroughly consider the legal validity of a purely electronic award. Yet, even if this hurdle is taken, the efforts of the arbitral process might still be frustrated if the electronic award is not properly delivered to the parties. While seemingly a simple question as an electronic award may just need to be e-mailed, this stage of the proceedings holds some legal and practical implications of its own.

Article 29 of the eJust Arbitration Rules[94] serves as an example on how specialized e-arbitration providers deal with the issue. It provides for the notification of the award to the parties via e-mail, containing a link to the provider's online platform ("eTribunal")[95]. Article 29 - in a somewhat declaratory fashion - states further that this approach "*serves notice of the Award, provided that the corresponding legal requirements are met.*" Thus, the rule seems to recognize that domestic law may contain (mandatory) formal requirements regarding the award's delivery and receipt.

92) For further information, see, Wolff (supra fn. 70), p. 15.
93) Of course, legal certainty could only be achieved by a clarifying amendment to the Convention, see also, Cachard (supra fn. 6), pp. 50-51.
94) Supra fn. 48.
95) See, Article 2.13 of the eJust Arbitration Rules (supra fn. 48).

Proper delivery and receipt of the award constitutes a prerequisite for the award's legal effect, marking the formal conclusion of the arbitral process[96] and triggering time limits in which actions against the award can be taken before the arbitral tribunal or national courts.[97] Apart from procedural implications, under some jurisdictions, delivery and receipt has substantive legal consequences, when statues of limitations are being suspended during proceedings but continue or recommence afterwards.[98]

Thus, the requirements of delivery and receipt for arbitral awards need to be assessed when an award is to be issued solely in electronic form. Basically, notification of some kind will be necessary under most, if not all, commercially relevant national arbitration laws. However, some jurisdictions do not impose (strict) formal requirements on the process of notification, using wide wordings that allow for various delivery methods, including by electronic means,[99] while others seem to be stricter.[100]

As a practical matter, it will generally be in the interest of both parties to an e-arbitration contemplating an electronic award to agree on a method of delivery that assures authenticity and allows tracking receipt and the time of receipt. Furthermore, the parties will need to keep in mind that enforcement of the award may not be feasible as long as courts cannot receive electronic awards in a way that ensures the electronic award's authenticity. Finally, clarity regarding the method of the award's delivery should also be sought in order to close the door to guerilla tactics[101] by a losing party intent on frustrating the legal effect of an electronically delivered award.

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96) See for example, Section 1054(4) German Code of Civil Procedure (supra fn. 38); Articles 32(4), 33(1) Arbitration Act of Korea (supra fn. 38).

97) See for example, Sections 1058(2), 1059(3), 1060(2) German Code of Civil Procedure (supra fn. 38); Articles 34(1), 36(3) Arbitration Act of Korea (supra fn. 38).

98) See, Section 204(1) No. 11, (2) German Civil Code (latest amendment in 2013), English translation available at 〈https://www.gesetze-im-internet.de/englisch_bgb/〉 (last visit September 7, 2017).

99) See for example, Section 1054(4) German Code of Civil Procedure (supra fn. 38), requiring awards to be transferred to the parties; transferring involves electronic delivery. Interestingly, a residue of legal uncertainty still remains under the German Arbitration Law as a scholarly dispute revolves around the interpretation of Section 1059(3) German Code of Civil Procedure (supra fn. 38), some arguing in favor of a legally formalized form of delivery with regards to this rule. The German Federal Court of Justice (*Bundesgerichtshof*) has left the issue undecided.

100) The Korean Arbitration Act (supra fn. 38) seems to follow a more restrictive approach: Pursuant to Article 32(4) delivery must be in accordance with Article 4(1)-(3), providing for written delivery. Unlike with the arbitration agreement, the Act is lacking a rule that equates written and electronic form regarding the delivery of the award. However, Article 4(1) allows for derogation.

101) For detailed information on guerilla tactics in arbitration, see, G. Horvath/Stephan Wilske, *Guerrilla Tactics in International Arbitration*, Wolters Kluwer Law & Business, 2013.

Ⅳ. Conclusion

Technological progress is transforming the legal landscape and the world of international arbitration forms no exception. It is therefore imperative to embrace new developments and use them to the benefit of the arbitral process. E-arbitration constitutes such new development, and can be understood as arbitration carried out electronically in its fundamental parts, particularly when it comes to evidentiary hearings. It currently seems to be mainly deployed to resolve disputes over smaller amounts of money under the auspices of specialized providers. However, as technology is improving and users strive for increased effectiveness in arbitral proceedings, this may be changing soon. The use of technology in international arbitrations of every size and complexity is increasing, gradually closing the gap to what currently is considered specialized e-arbitration. If reliable providers maintain and expand their operations, e-arbitration services might become firmly established in the landscape of international commercial arbitration in the foreseeable future. As this paper has shown, related legal issues can be overcome. However, arbitral practitioners need to be aware that the conduct of e-arbitrations entails a number of specific challenges that need to be tackled in order to preserve the legitimacy of the process and the enforceability of arbitral awards. Parties to e-arbitrations are well advised to carefully consider the relevant particularities and to exercise their arbitral party autonomy to tailor the procedure to their needs. They will be assisted by a number of reports and guidelines on the use of technology in arbitration, cybersecurity and e-arbitration which serve as useful orientation. It is the authors' hope that this analysis of pertinent issues constitutes an additional compass, guiding the readers through the digital maze.

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